WEST VALLEY WATER DISTRICT
855 W. Base Line Road, Rialto, CA 92376
PH: (909) 875-1804 FAX: (909) 875-1849

"SPECIAL" ENGINEERING, OPERATIONS AND PLANNING COMMITTEE MEETING AGENDA

TUESDAY, JUNE 15, 2021 - 6:00 PM

NOTICE IS HEREBY GIVEN that West Valley Water District has called a meeting of the Engineering, Operations and Planning Committee to meet in the District Headquarters, 855 W. Base Line Road, Rialto, CA 92376.

Teleconference Notice: In an effort to prevent the spread of COVID-19 (Coronavirus), and in accordance with the Governor's Executive Order N-29-20 and the order of the County of San Bernardino dated March 17, 2020, there will be no public location for attending this Committee Meeting in person. Members of the public may listen and provide public comment via telephone by calling the following number and access code: Dial (888)475-4499, Access Code: 840-293-7790 or you may join the meeting using Zoom by clicking this link: https://us02web.zoom.us/j/8402937790. Public comment may also be submitted via email to administration@wvwd.org. If you require additional assistance, please contact the Executive Assistant at administration@wvwd.org.

BOARD OF DIRECTORS

Director, Greg Young, Chair
Director, Kyle Crowther

1. CONVENE MEETING

2. PUBLIC PARTICIPATION

The public may address the Board on matters within its jurisdiction. Speakers are requested to keep their comments to no more than three (3) minutes. However, the Board of Directors is prohibited by State Law to take action on items not included on the printed agenda.

3. DISCUSSION ITEMS

a. Updates to Engineering, Operations and Planning Committee

b. Public Hearing - 2020 Upper Santa Ana River Watershed Integrated Regional Urban Water Management Plan and Water Shortage Contingency Plan. (Page 3)

c. Adopt Resolution 2021-9, Adopting 2020 Upper Santa Ana River Watershed Integrated Regional Urban Water Management Plan. (Page 1981)

d. Adopt Resolution 2021-8, Adopting Water Shortage Contingency Plan. (Page 1988)

4. ADJOURN

DECLARATION OF POSTING:

I declare under penalty of perjury, that I am employed by the West Valley Water District and posted the foregoing Engineering, Operations and Planning Committee Agenda at the District Offices on June 11, 2021.

Lizett Santoro, Executive Assistant

West Valley Water District

BOARD OF DIRECTORS
ENGINEERING, OPERATIONS AND PLANNING COMMITTEE
STAFF REPORT

DATE: June 15, 2021

TO: Engineering, Operations and Planning Committee

FROM: Shamindra Manbahal, Interim General Manager

SUBJECT: PUBLIC HEARING - 2020 UPPER SANTA ANA RIVER WATERSHED INTEGRATED REGIONAL URBAN WATER MANAGEMENT PLAN AND WATER SHORTAGE CONTINGENCY PLAN

BACKGROUND:

In January 2007, the San Bernardino Valley Municipal Water District (Valley District) and 15 other agencies prepared the Upper Santa Ana River Watershed Integrated Regional Water Management Plan (IRWMP). The IRWMP provides a comprehensive look at the area's water resources and includes management strategies to help meet the long-term water needs of the area. The IRWMP also created the Basin Technical Advisory Committee (BTAC) to facilitate implementation of the Plan. The IRWMP was updated and adopted by the West Valley Water District's (District) Board of Directors in 2015.

In 2010, nearly all of the retail water agencies in the Valley District's service area chose to create a regional Urban Water Management Plan, the San Bernardino Valley Regional Urban Water Management Plan (RUWMP). The RUWMP requires water agencies to prove that their water supply will be able to withstand a short-term or long-term drought and to show how they are meeting statewide water conservation requirements, among other things. The RUWMP was updated and adopted by the District's Board of Directors in 2015.

DISCUSSION:

The IRWMP is updated every 5 years so it is due for an update in 2020. The RUWMP is to be updated every five years, due in years ending in 1 or 6, so it is due for update in 2021. Rather than continue updating these overlapping documents independently, Valley District and its partners have combined them into a single new document, the 2020 Upper Santa Ana River Integrated Regional Urban Water Management Plan (IRUWMP).

The overlapping sections of the two documents has been combined to create one cohesive document that meets all of the requirements of both the Urban Water Management Planning Act and the Integrated Regional Water Management Planning Act. Like the RUWMP, the new IRWUMP includes an individual chapter for each retail agency that plans to use the document to meet their requirements under the Urban Water Management Planning Act. Twenty (20) regional agencies participated in the creation of the document, with eleven (11) utilizing it to meet their

requirements under the Urban Water Management Planning Act.

2020 IRUWMP document is organized into four parts: Part 1 – Regional Context, Part 2 – Individual Agency UWMPs, Part 3 – Regional Supporting Information and Part 4 – Individual Agency Supporting Information. As a participant in the 2020 IRUWMP, the District has prepared those portions of the IRUWMP applicable to the District to meet the requirements of the IRWM Act, the UWMP Act and other applicable laws and regulations including Part 1, Part 2 Chapter 10: West Valley Water District UWMP, Part 3, and Part 4 Appendix J: West Valley Water District Supporting Information of the 2020 IRUWMP.

In accordance with applicable legal requirements, the District has undertaken certain coordination, notice, public involvement and public comment. Local cities and counties have been notified that the District and the other participating agencies are updating the plan. The draft 2020 IRUWMP (Exhibit A) and draft Water Shortage Contingency Plan (Exhibit B) have been made available for public inspection on the District's web site prior to the public hearing.

FISCAL IMPACT:

No fiscal impact.

STAFF RECOMMENDATION:

Receive and file.

Respectfully Submitted,

Shamindra Manbahal

Shamindra Manbahal, Interim General Manager

LJ:ls

ATTACHMENT(S):

1. Exhibit A – Exec Summary, Part 1, Part 2 Chapter 10, Part 3, and Part 4 Appx J of the 2020 IRUWMP
2. Exhibit B - Part 4 Appendix J-9 Water Shortage Contingency Plan

MEETING HISTORY:

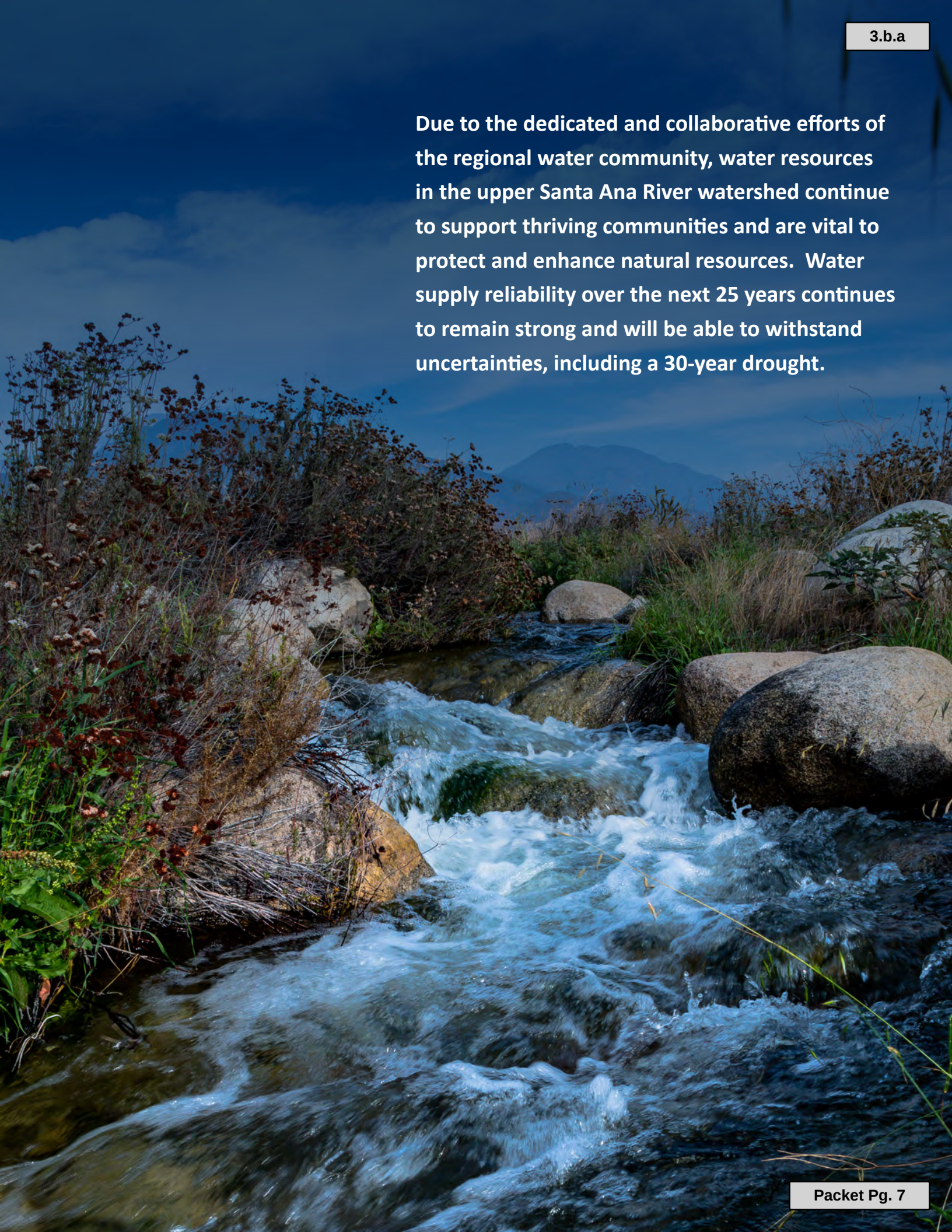
06/09/21 Engineering, Operations and Planning Committee TABLED Next: 06/15/21

EXHIBIT A

SAN BERNARDINO Valley MUNICIPAL WATER DISTRICT

2020 EXECUTIVE SUMMARY

UPPER SANTA ANA RIVER WATERSHED
INTEGRATED REGIONAL URBAN WATER MANAGEMENT PLAN



Due to the dedicated and collaborative efforts of the regional water community, water resources in the upper Santa Ana River watershed continue to support thriving communities and are vital to protect and enhance natural resources. Water supply reliability over the next 25 years continues to remain strong and will be able to withstand uncertainties, including a 30-year drought.

Leading the Way in Integrated Regional Water Management

The 2020 Integrated Regional Urban Water Management Plan for the Upper Santa Ana River Watershed Region sets a new standard for integrated water resources planning in California

The water management agencies within the Upper Santa Ana River (SAR) Watershed Region (Region) have a long history of collaboration to deliver regional water resource solutions. They collaborate to collect and manage water resource data and prepare multiple planning documents to meet regulatory requirements while guiding effective regional and local decision-making. Two of the Region's foundational documents are the Upper Santa Ana River Watershed Integrated Regional Water Management Plan (IRWMP) and the San Bernardino Valley Regional Urban Water Management Plan (RUWMP). Since both documents were due to be updated for the 2020 planning cycle and considering the overlap and interdependence of these two documents, Valley District and its regional partners envisioned a consolidated document that combines these two plans, merges the common elements, and creates a cohesive water resources planning framework for the future.

This document is called the Integrated Regional Urban Water Management Plan (IRUWMP or Plan) and is the first of its kind, setting a new standard for integrated water resources planning and reporting in California.

Regional Context

Part 1 contains the information needed to meet the requirements of the IRWM Planning Act for the Region and a portion of the UWMP Act requirements for the local agencies who are using this Plan to meet their 2020 UWMP Requirements

CONTENTS

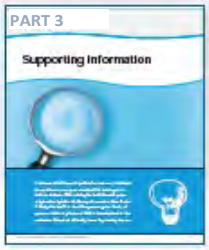
1. Introduction
2. Region Description
3. Regional Water Sources and Management
4. Regional Water Use
5. Comparison of Regional Supplies and Demands
6. Water Management Goals, Objectives, and Strategies
7. Projects
8. Implementation, Performance and Adaptive Management

Local Agency Information

Part 2 provides supplemental information for the eleven retail agencies who are using this Plan to meet their 2020 UWMP requirements.

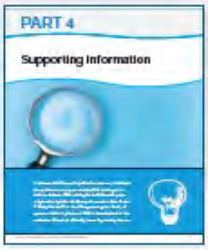
CONTENTS

1. San Bernardino Valley Municipal Water District
2. City of Colton
3. City of Loma Linda
4. City of Redlands
5. City of Rialto
6. East Valley Water District
7. Riverside Highland Water Company
8. San Bernardino Municipal Water Department
9. South Mesa Water Company
10. West Valley Water District
11. Yucaipa Valley Water District



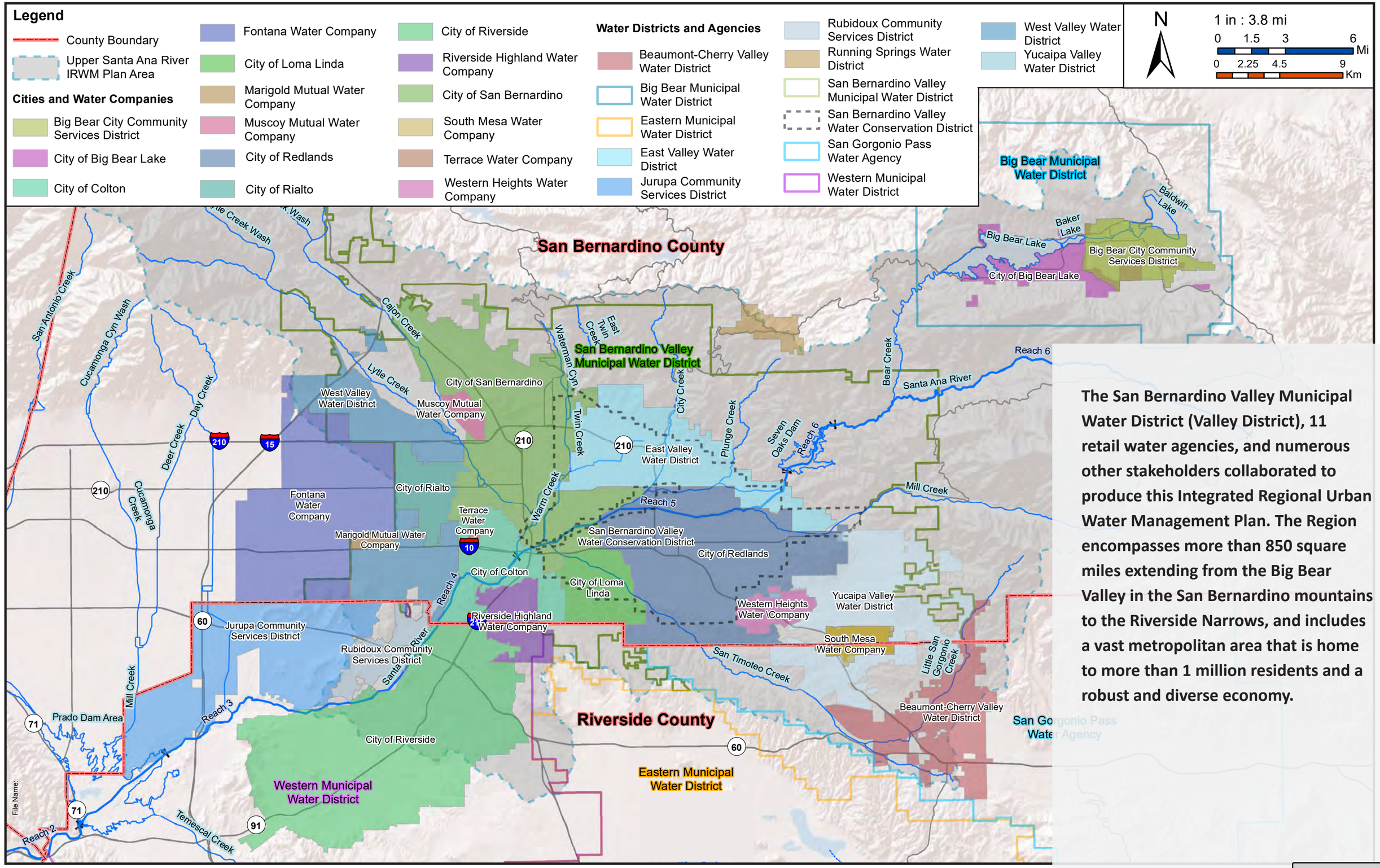
Regional Supporting Information

Part 3 includes all of the supporting documentation referenced in Part 1 that is applicable to the region as well as the regulatory compliance guide that DWR will use to verify that Part 1 meets the IRWM requirements.



UWMP Agency Suporting Information

Part 4 includes a set of supporting documentation for each UWMP Agency corresponding to their respective chapters in Part 2. Documents will include the regulatory compliance guide that DWR will use to verify the agency has met the UWMP Act requirements, the agency's Water Shortage Contingency Plan and other documents specific to each agency



The San Bernardino Valley Municipal Water District (Valley District), 11 retail water agencies, and numerous other stakeholders collaborated to produce this Integrated Regional Urban Water Management Plan. The Region encompasses more than 850 square miles extending from the Big Bear Valley in the San Bernardino mountains to the Riverside Narrows, and includes a vast metropolitan area that is home to more than 1 million residents and a robust and diverse economy.

The 2020 IRUWMP is a Foundational Part of Water Planning in the Region

The Plan integrates with many other regional and local planning efforts for planning consistency

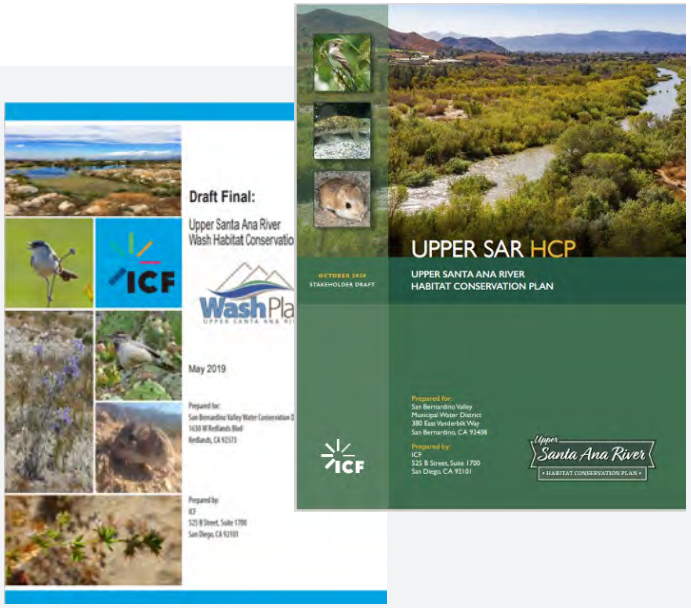
The agencies within the Region regularly coordinate with neighboring and overlapping entities at the local, regional, and state level.

The Santa Ana Watershed Project Authority (SAWPA), a JPA comprised of San Bernardino Valley Municipal Water District, Western Municipal Water District, Inland Empire Utilities Agency, Eastern Municipal Water District and Orange County Water District, has developed an IRWM Plan for the entire SAR watershed titled the One Water One Watershed (OWOW) Plan. The OWOW Plan is a "macro-level" broad planning document that is the framework for overall water management in the watershed. This 2020 IRUWMP for the Upper SAR Region is a complementary planning process that informs the SAWPA OWOW Plan. The purpose of the Upper SAR planning process is to focus on local issues specific to the upper watershed and to assess water management opportunities in greater detail.

Two neighboring regions also prepare integrated regional water management plans. The Mojave IRWM Region encompasses the entire Mojave River watershed in the California High Desert area of San Bernardino County. The San Gorgonio IRWM Region is located in the San Gorgonio Pass area between the Upper Santa Ana River Watershed and the Coachella Valley IRWM Region.

Within the Region, local planning is conducted by counties, cities, local agencies, and special districts. San Bernardino County, cities, and water agencies within the Region also inform the Water Element of the the San Bernardino Countywide Vision Process. Part of this process involves collaboration between water resource managers and land use planners on the water element to create mutually beneficial opportunities that ensure adequate water supplies and quality to support future population and economic growth within the County.

The Upper Santa Ana River Wash Habitat Conservation Plan (Wash Plan HCP), which was approved in 2020, and the Upper Santa Ana River Habitat Conservation Plan (River HCP), which is nearing completion, are separate coordinated regional conservation and compliance efforts that will help balance the protection of local natural resources with critical water supply management activities. The plans specify how species and their habitats will be protected, enhanced, restored and managed in the future and enable the incidental take permits needed by the water resource agencies under the federal and State endangered species acts to maintain, operate, and improve their water resource infrastructure.



Connecting with Stakeholders and the Public

The Region's water agencies are committed to informing and engaging stakeholders and the general public

The Basin Technical Advisory Committee (BTAC) is the regional water management group responsible for developing and implementing the Plan. The BTAC is open to any agency in the Region that chooses to participate and is a forum for discussion and early resolution of water issues in the Region. The BTAC members provide recommendations to their respective governing bodies who then make decisions regarding water resources planning and projects in the Region.

Stakeholder participation and public engagement are critical to the success of the Plan. The agencies in the Region and the larger SAR watershed have a long history of working together to solve water resources related issues. These agencies recognize planning efforts such as IRWM and urban water management planning as additional opportunities to work together to manage water resources on a regional level.

In general, the stakeholders for this planning process include: (1) members of the BTAC as listed to the right, (2) other regional stakeholders and water agencies located in the Upper SAR watershed region, (3) watershed-based stakeholders located in the SAR watershed that are part of the larger integrated planning for the region discussed in the SAWPA Plan, and (4) federal and State of California agencies that were encouraged to participate throughout development of the Plan. The BTAC has encouraged local agencies to be active in the development of the Plan and to participate in the planning process.

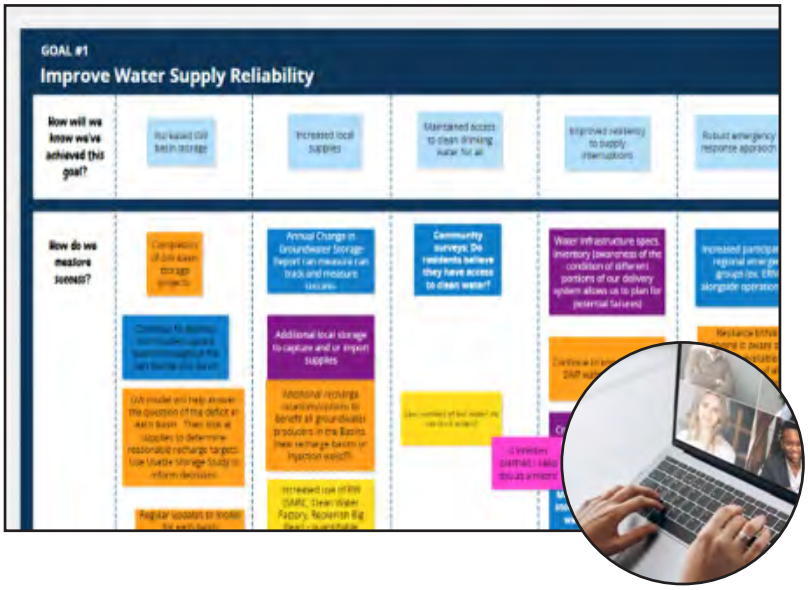
The IRUWMP process continued to include efforts to coordinate with disadvantaged communities (DACs) and Tribes to identify potential water resource needs. Since DAC areas are encompassed within water agencies' service areas, they are represented by the agencies participating in the Plan. In addition to inviting stakeholders from DACs and Tribes to Plan workshops, a larger watershed wide outreach effort was recently conducted by SAWPA

Agencies that participate in the Basin Technical Advisory Committee (BTAC) at the time of this plan include:

- Bear Valley Mutual Water Company
- City of Colton
- East Valley Water District
- Elsinore Valley Municipal Water District
- City of Loma Linda
- City of Redlands Municipal Utilities and Engineering Department
- City of Rialto
- City of Riverside Public Utilities Department (Riverside Public Utilities)
- Fontana Water Company
- San Bernardino County Flood Control District
- San Bernardino Municipal Water Department
- San Bernardino Valley Municipal Water District
- San Bernardino Valley Water Conservation District
- West Valley Water District
- Western Municipal Water District
- Yucaipa Valley Water District

Santa Ana Watershed-based Stakeholders

- SAWPA and its member agencies (Eastern Municipal Water District, Inland Empire Utilities Agency, Orange County Water District, Western Municipal Water District)



Due to the COVID-19 pandemic, stakeholder collaboration for plan development was conducted remotely. Stakeholders participated in a series of interactive virtual workshops where they broke into small groups to provide input on needs, goals and objectives using a virtual whiteboard and sticky notes.

to evaluate the strengths and needs of disadvantaged, economically distressed or underrepresented communities in the SAR Watershed. This effort, funded through DWR's Disadvantaged Communities Involvement Program, was completed in 2019 and included listening sessions with local communities, Tribal communities, elected officials, water agencies, and mutual water companies. The findings of this effort are recorded in the Community Water Ethnography of the Santa Ana Watershed, and needs relevant to the Upper SAR Watershed are incorporated into this Plan.

The BTAC solicited public involvement in the planning process by presenting updates at regularly scheduled BTAC meetings, regularly scheduled Board and Council meetings of some BTAC agencies, at the Valley District Advisory Commission on Water Policy and by soliciting public comments on the draft IRUWMP via email announcements and website postings. In addition, several stakeholder workshops were conducted to develop additional information needed for the IRUWMP to meet the IRWM Plan requirements in the 2016 Integrated Regional Water Management Grant Program Guidelines and UWMP requirements as described in the 2020 Urban Water Management Plan Guidebook. The BTAC encouraged public participation in preparation of this Plan to ensure the public's comments were considered in decisions about water management in the Region.

Other Regional Water Agencies and Stakeholders

- San Bernardino County Board of Supervisors
- Riverside County Board of Supervisors
- Beaumont-Cherry Valley Water District
- Bear Valley Mutual Water Company
- Big Bear City Community Services District
- Big Bear Lake Department of Water and Power
- Big Bear Municipal Water District
- City of Beaumont
- City of Calimesa
- City of Fontana
- Marygold Mutual Water Company
- Muscoy Mutual Water Company
- Regents of the University of California
- Riverside County Flood Control and Water Conservation District
- Southern California Edison
- Orange County Flood Control District
- Terrace Water Company
- Western Heights Mutual Water Company
- San Manuel Band of Mission Indians

State and Federal Stakeholders

- California Department of Fish and Game
- California Department of Public Health
- California Department of Toxic Substances Control
- California Department of Water Resources
- Santa Ana Regional Water Quality Control Board
- State Water Resources Control Board
- U.S. Army Corps of Engineers
- U.S. Forest Service

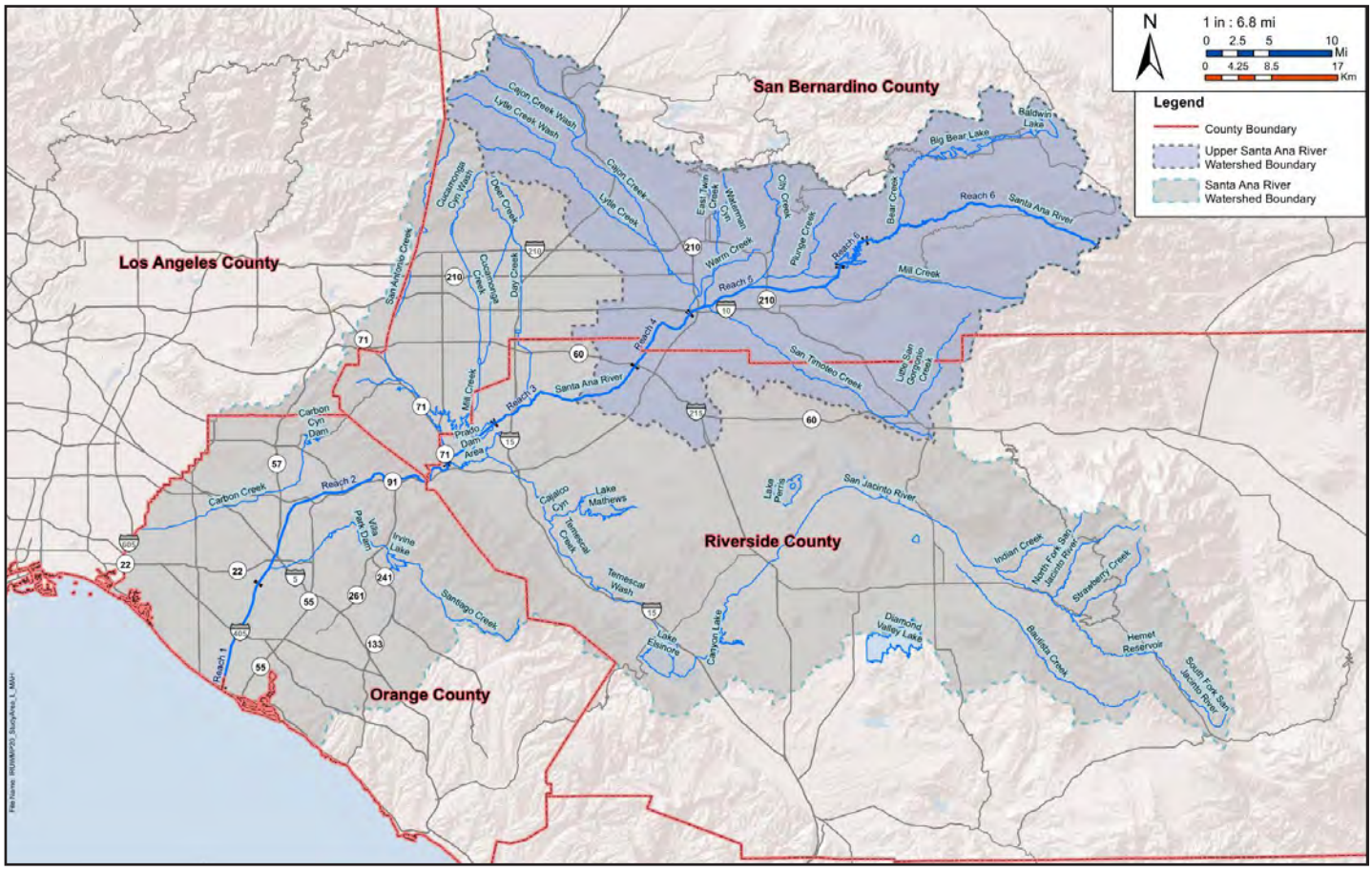
Description of the Upper Santa Ana River Watershed Region

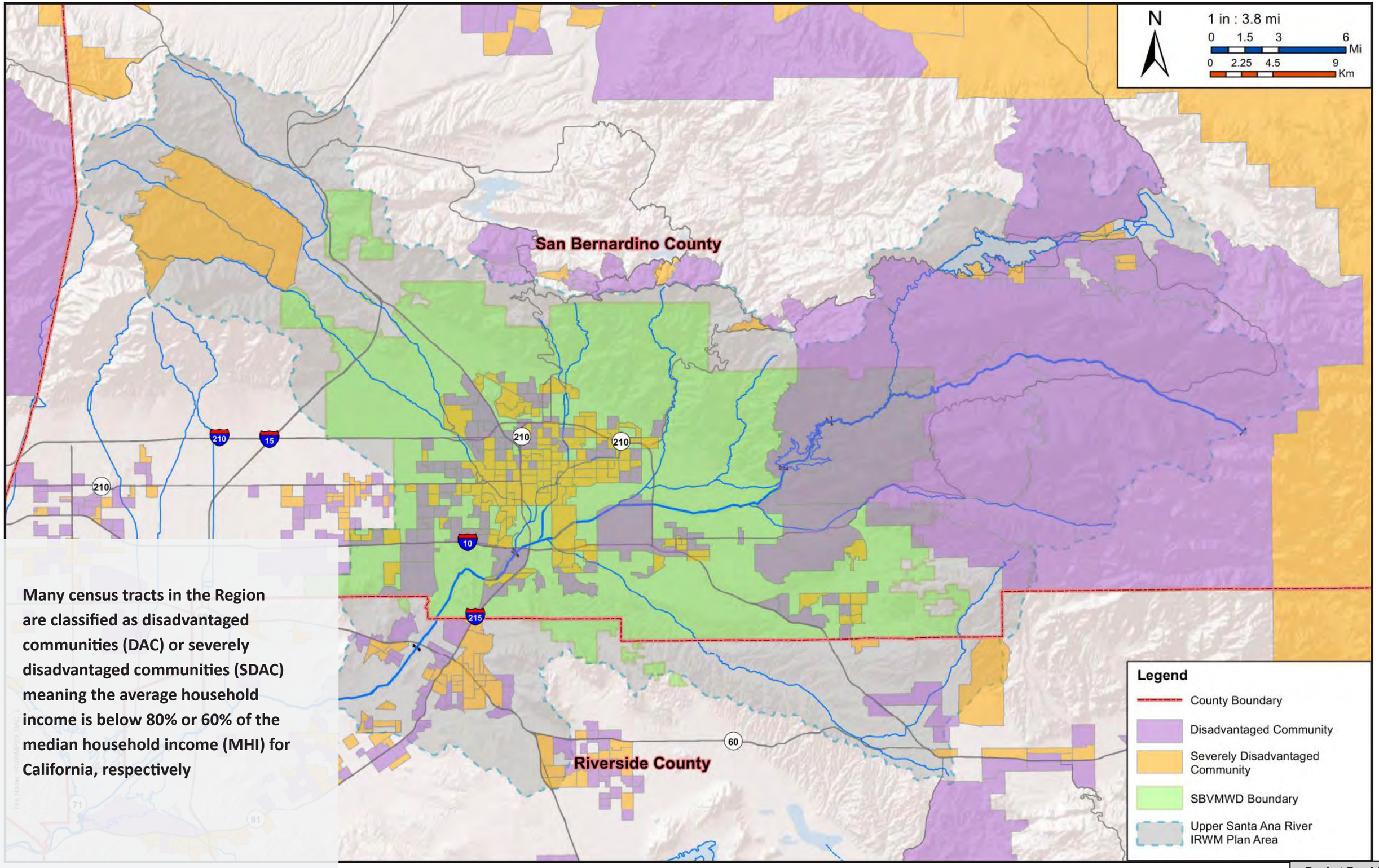
The Regions Supports a diverse population, economy and environment.

The SAR watershed is the largest stream system in Southern California and nearly all of the surface flow generated in the headwaters of the San Bernardino Mountains flows through the IRUWMP region before being discharged to the Pacific Ocean approximately 100 miles to the southwest between Newport Beach and Huntington Beach. The SAR watershed covers over 2,650 square miles of widely varying forested, rural, and urban terrain and covers the more populated urban areas of San Bernardino, Riverside, and Orange Counties, as well as a lesser portion of Los Angeles County.

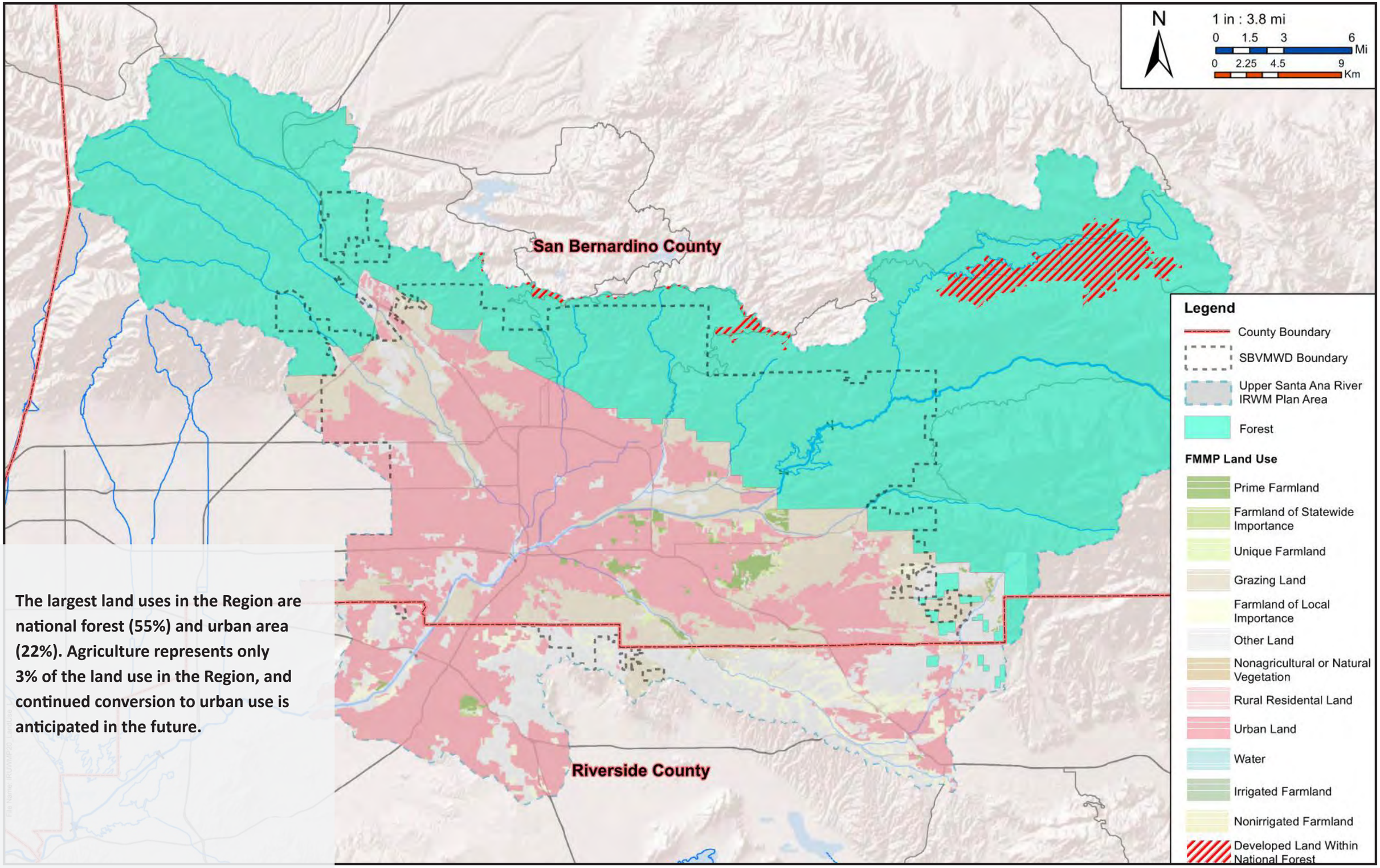
The Upper SAR watershed covers 852 square miles, approximately 32% of the total SAR watershed, and is primarily located in San Bernardino and Riverside Counties. The Region includes the Big Bear Valley as well as the cities and communities of San Bernardino, Yucaipa, Redlands, Highland, Rialto, Mentone, Colton, Grand Terrace, Loma Linda, Beaumont, and Riverside. Total population in the Region is estimated at just over 1 million people in 2020 and is projected to grow to over 1.25 million people by 2045.

The Upper SAR watershed covers 852 square miles, approximately 32% of the total SAR watershed, and is primarily located in San Bernardino and Riverside Counties.





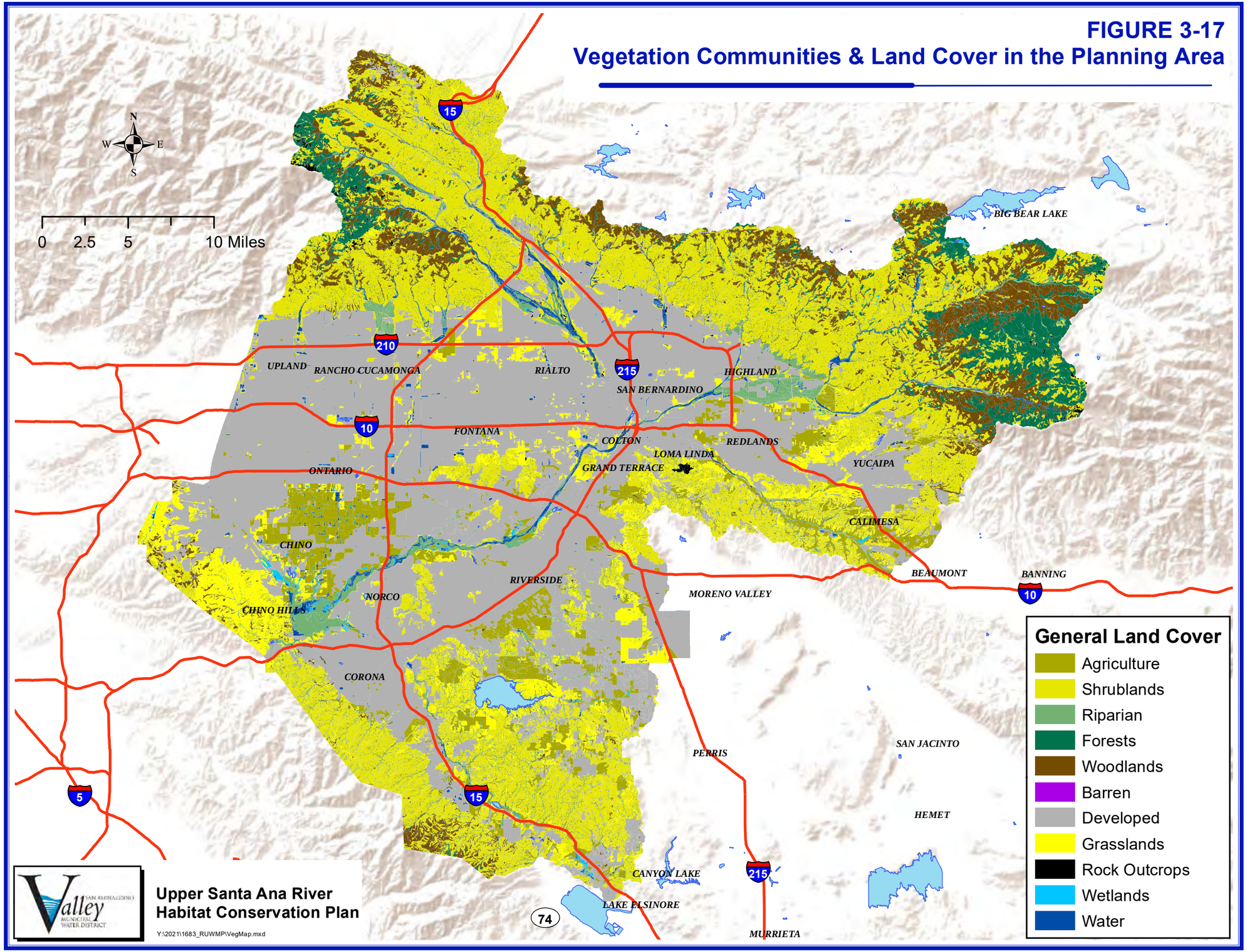
Many census tracts in the Region are classified as disadvantaged communities (DAC) or severely disadvantaged communities (SDAC) meaning the average household income is below 80% or 60% of the median household income (MHI) for California, respectively



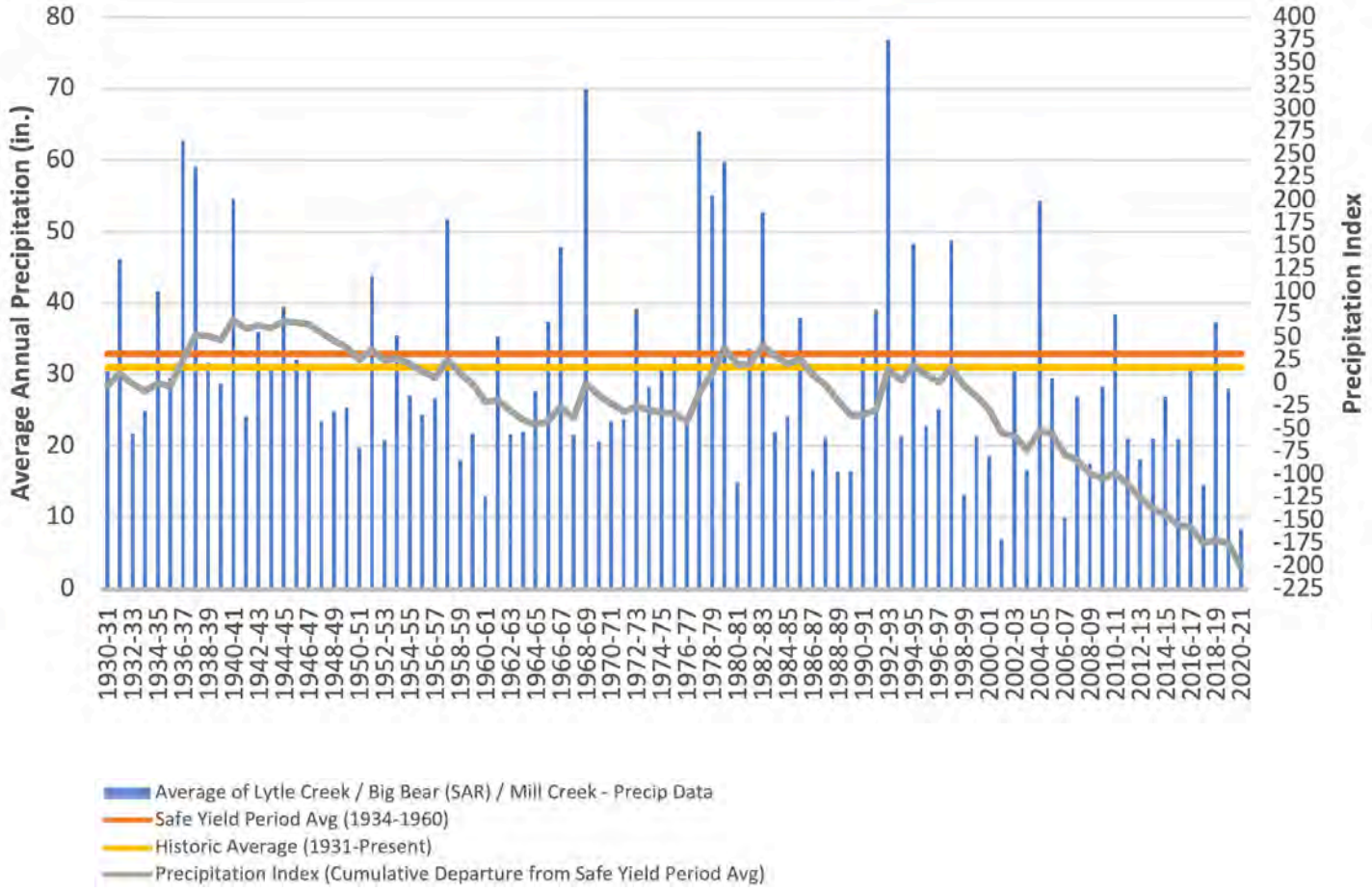
The largest land uses in the Region are national forest (55%) and urban area (22%). Agriculture represents only 3% of the land use in the Region, and continued conversion to urban use is anticipated in the future.

The Region contains unique and valuable ecological and environmental resources including riparian habitats along the SAR, forests, shrublands and grasslands. Many of these resources are managed through a variety of local, state and federal plans and jurisdictions, such as the Wash Plan HCP and the River HCP.

FIGURE 3-17
Vegetation Communities & Land Cover in the Planning Area



Climate in the Region is characterized by relatively hot, dry summers and cool winters with intermittent precipitation. The historical record indicates that periods of above or below-average precipitation can last more than 30 years, such as the recent dry period that extended from 1947 to 1977, and the ongoing dry period that began around 1998.

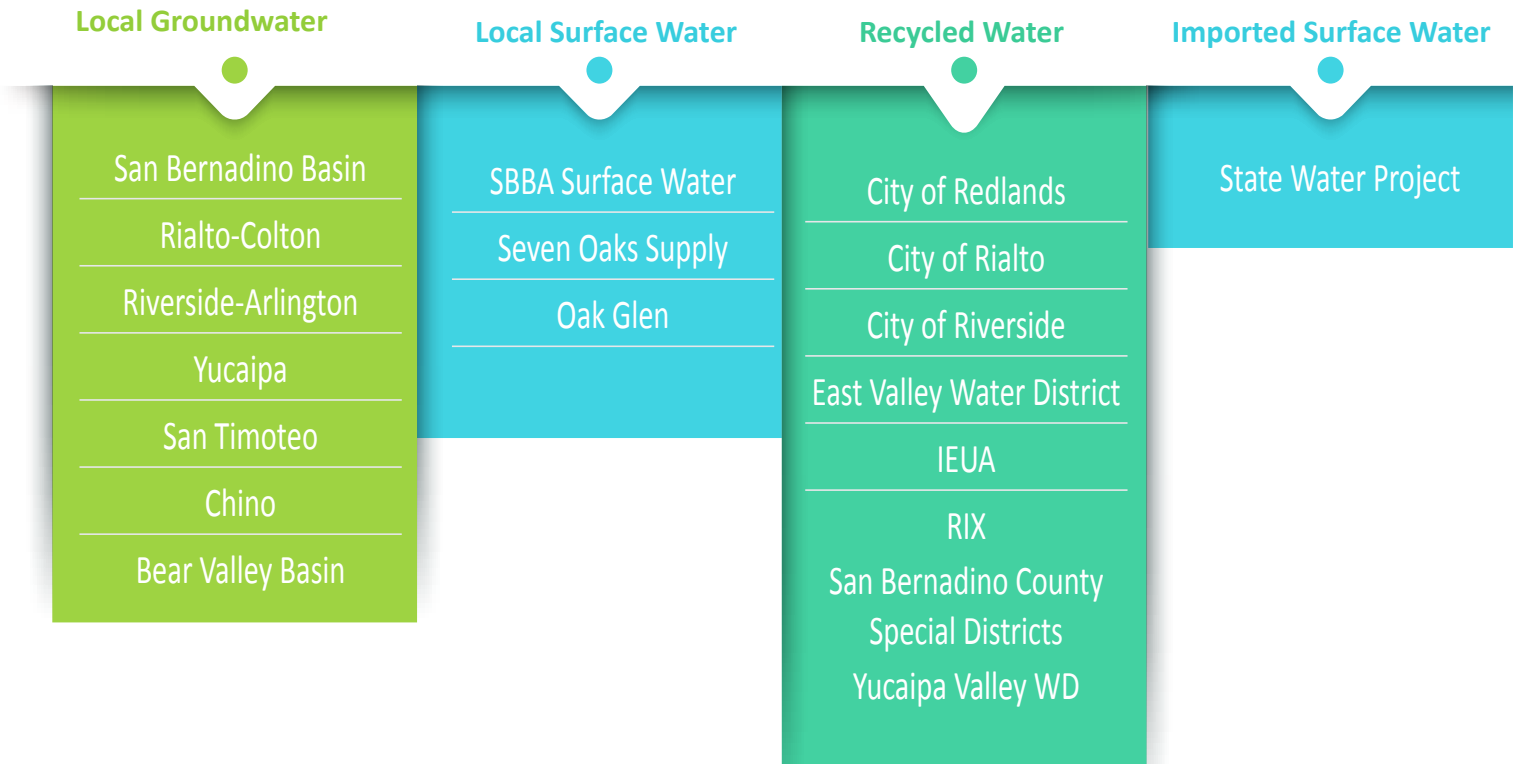


Water Sources and Uses in the Region

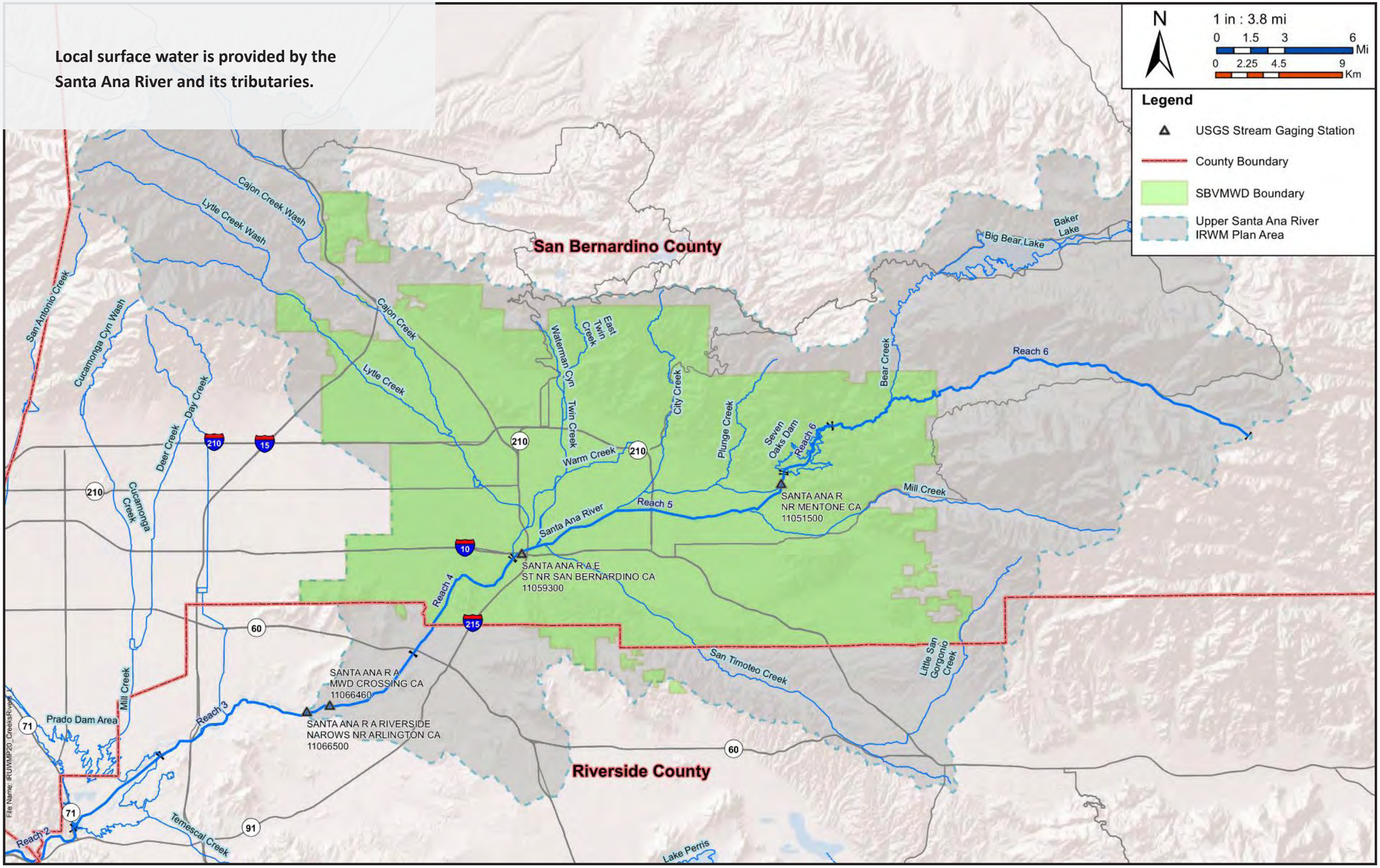
The Region's diverse and plentiful water supplies support the regional economy, environment and quality of life.

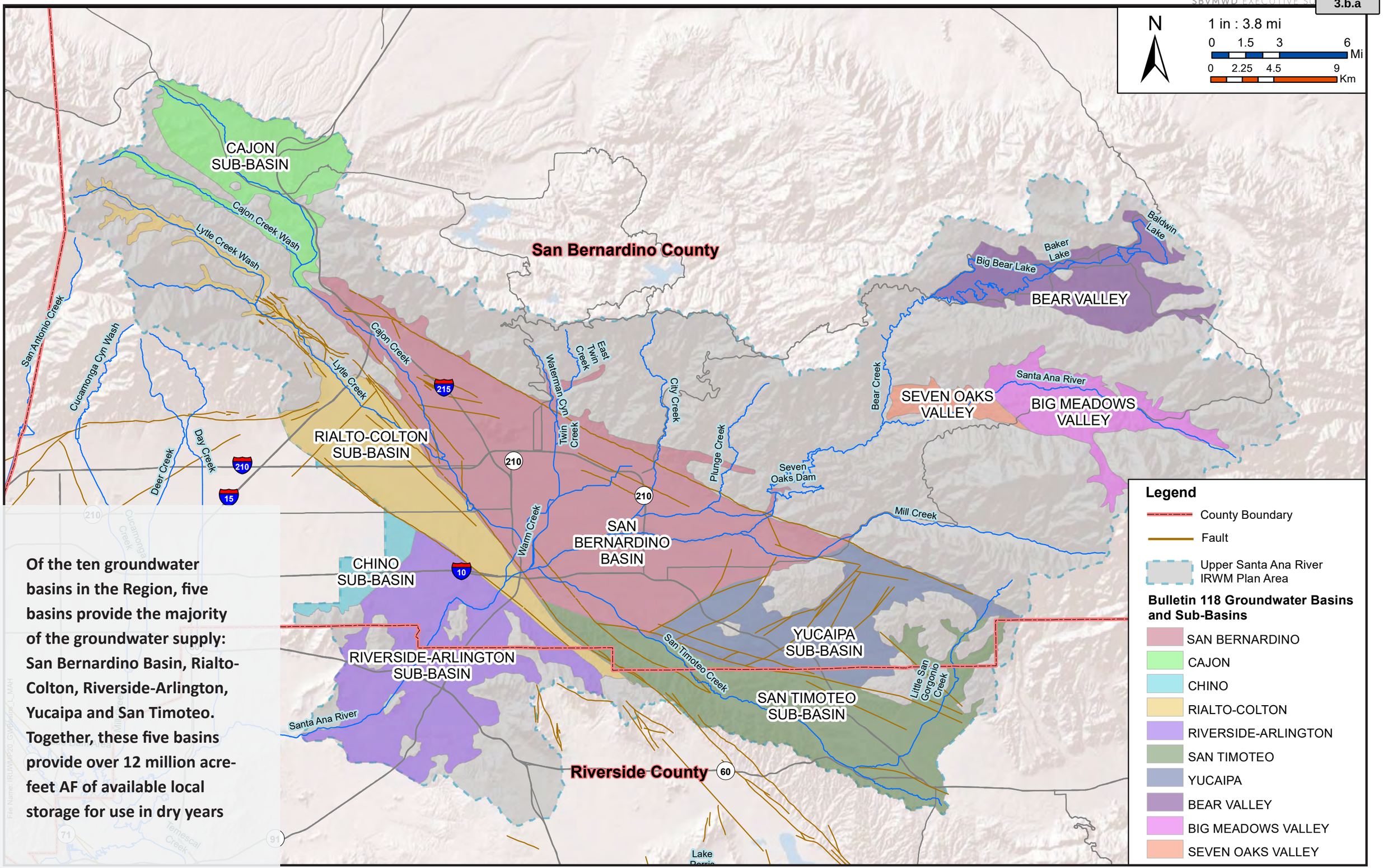
The region's water supplies include both local and imported sources. The local surface water is derived from the Santa Ana River and its tributaries and developed local supplies are either treated for domestic use or delivered for irrigation or groundwater recharge. Nearly all of the Region's groundwater is produced from seven distinct groundwater basins. Five basins provide the majority of the groundwater supply to the region: San Bernardino Basin (SBB), Rialto-Colton, Riverside-Arlington, Yucaipa and San Timoteo. Together, these five basins provide over 12 million acre-feet (AF) of available local storage for use in dry years. Recycled water is produced at several water resource recovery facilities in the region for irrigation, industrial use and groundwater recharge. A portion of the recycled water produced in the Region is discharged to the SAR and its tributaries to support habitat and meet downstream flow obligations. Imported water for most of the Region is provided by Valley District, who is a State Water Project (SWP) contractor. San Gorgonio Pass Water Agency, also a SWP contractor, and Western Municipal Water District, a member agency of Metropolitan Water District of Southern California, provide supplemental imported water to the portions of the Region within Riverside County.

The Region's water sources include local groundwater, local surface water, imported surface water and recycled water.

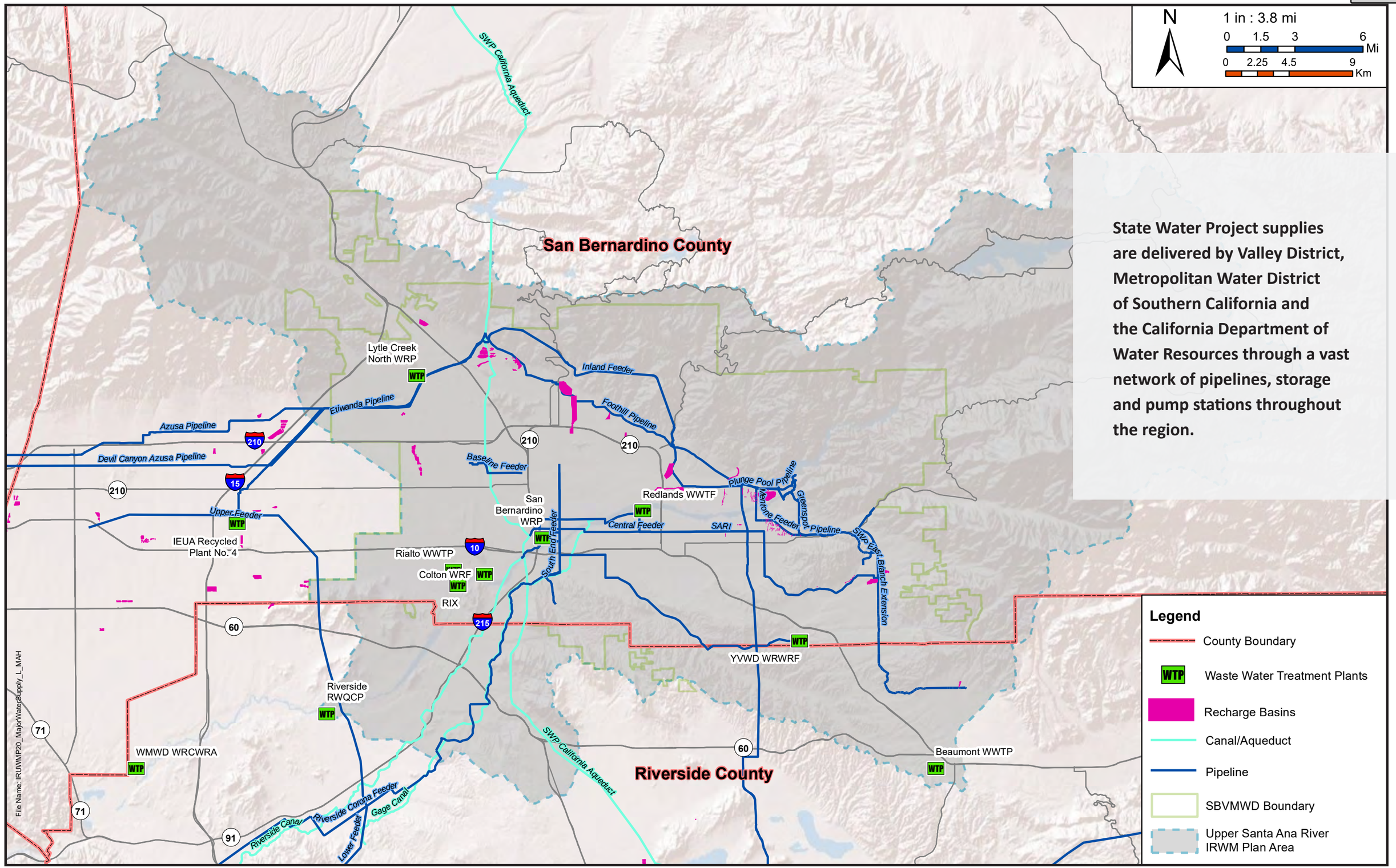


Local surface water is provided by the Santa Ana River and its tributaries.



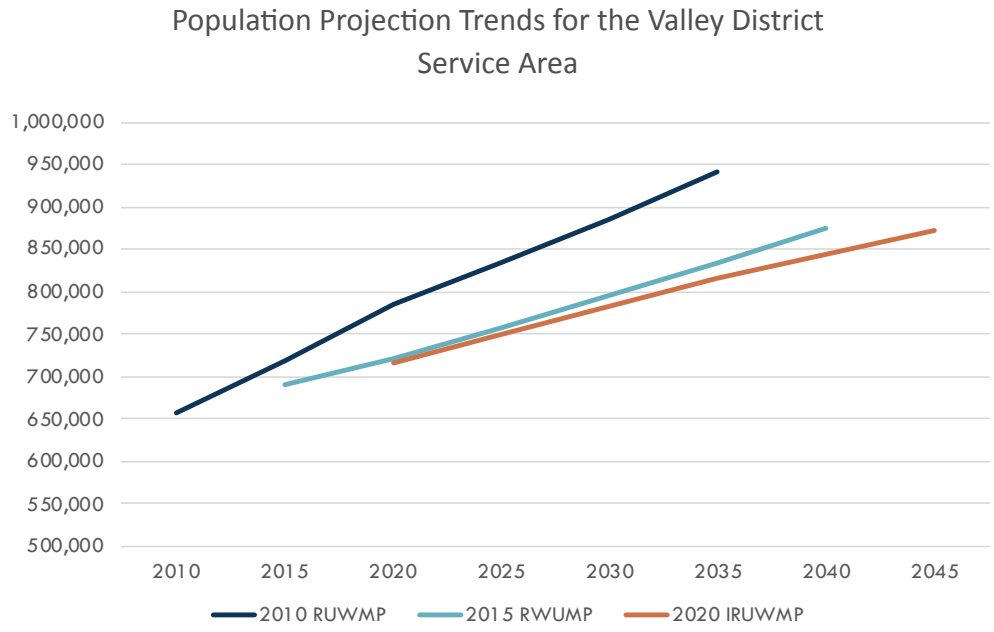


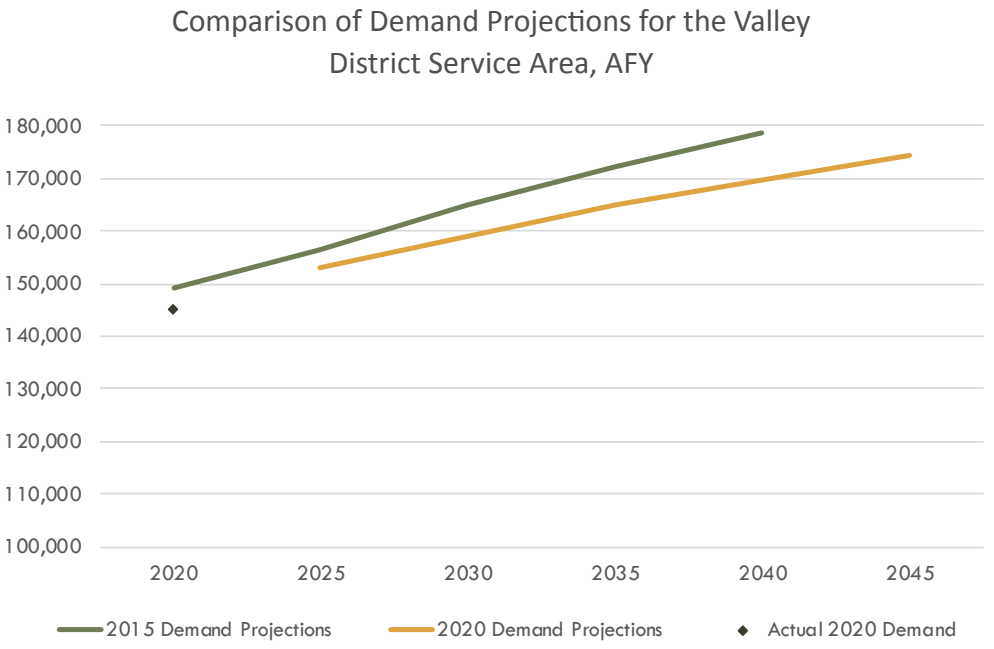
Of the ten groundwater basins in the Region, five basins provide the majority of the groundwater supply: San Bernardino Basin, Rialto-Colton, Riverside-Arlington, Yucaipa and San Timoteo. Together, these five basins provide over 12 million acre-feet AF of available local storage for use in dry years



State Water Project supplies are delivered by Valley District, Metropolitan Water District of Southern California and the California Department of Water Resources through a vast network of pipelines, storage and pump stations throughout the region.

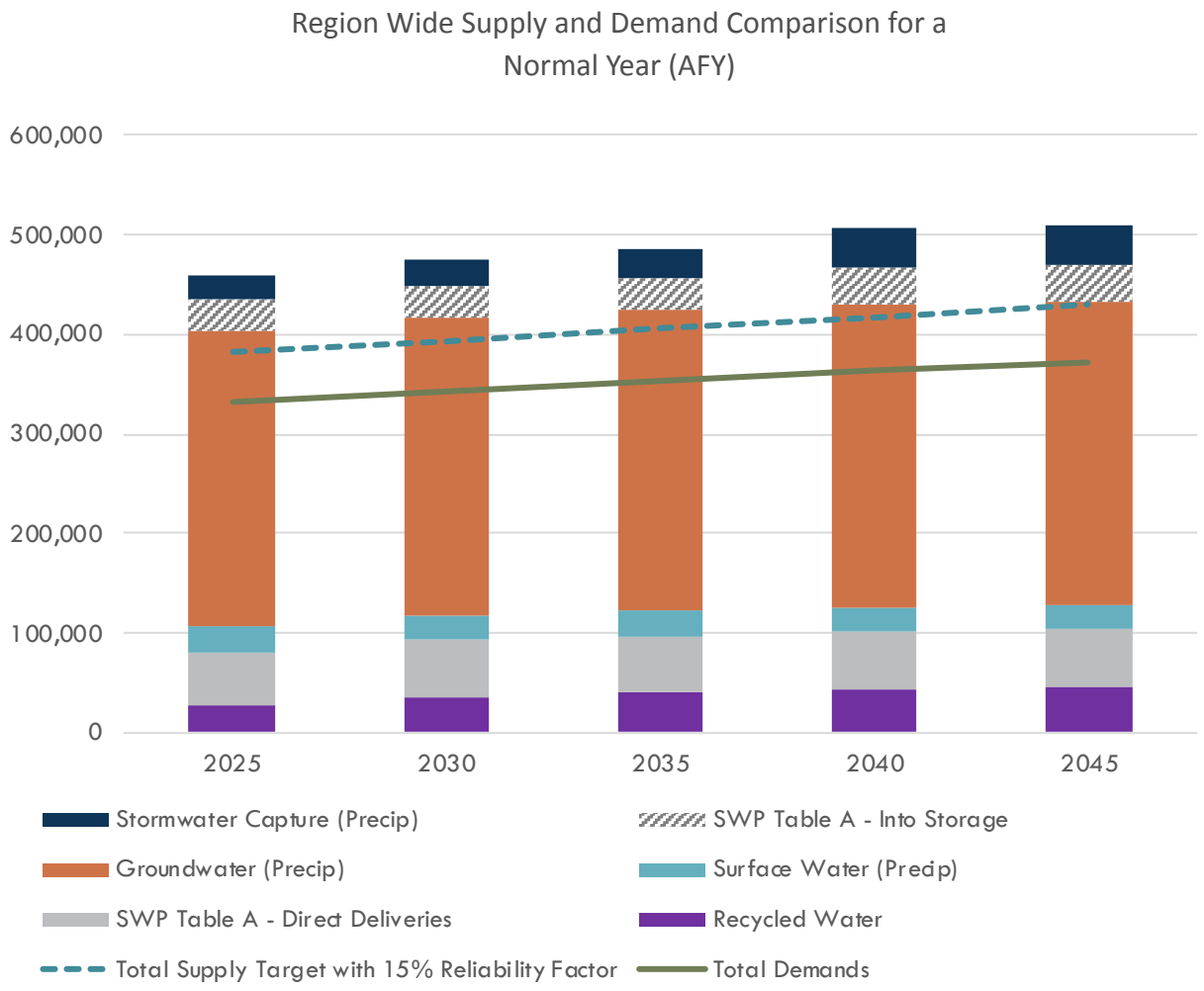
Population growth projections developed by the Southern California Association of Governments (SCAG) have declined significantly in the last 10 years. While SCAG's latest 2020 Demographics and Growth Forecast projects slower growth than previous plans, the result is still a substantial increase in population within the Valley District service area and the Region. The population within the Valley District service area is projected to reach 870,000 by 2045 and the population of the Region as a whole is projected to reach over 1.25 million people.





Since the last planning cycle in 2015, total demand projections for the 9 agencies who participated in the 2015 RUWMP have dropped slightly due to slower population growth projections and increased water use efficiency.

Total projected water demands for all of the retail water agencies within the Region are expected to reach nearly 400,000 AFY by 2045. Normal year supplies meet or exceed regional demands including a 15% reliability factor that accounts for uncertainty factors in the projections, including population growth, per capita water use, climate change impacts, SWP project hyrdology and local surface water hyrdology.



Using Water Wisely

The Region's water suppliers prioritize conservation and efficient use of water.

The Region has been successful at improving water use efficiency and every retail water agency in the Region has reduced demand. For the nine (9) participating agencies in the 2015 RUWMP, their collective 2020 actual demand was almost 40,000 acre-feet lower than projected and 15% lower than 2009 actual demand, despite a 7% increase in population.

Currently, every retail agency develops and implements its own water conservation plan and programs. Now with California state law "Making Water Conservation a Way of Life" (SB 606 and AB 1668), increasingly stringent indoor and outdoor water use standards are expected. Therefore, Valley District and its retail agency partners are considering a coordinated regional and local water conservation program.

Retail Agency Administered Program

local programs administered by water retailers

Regional Conservation Program

administered by Valley District

Regional Community Engagement Program

conservation-related efforts provided by non-retail agency partners

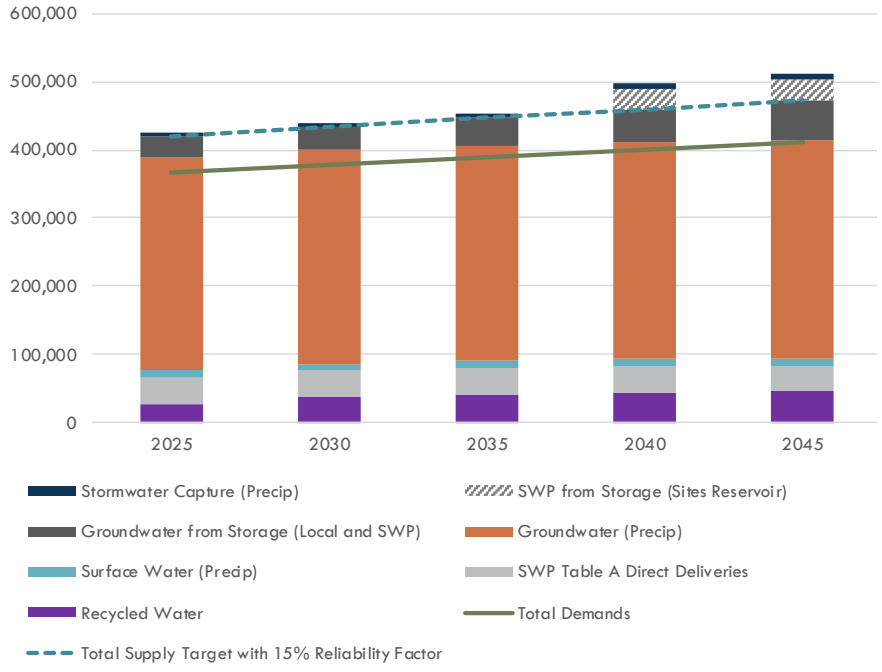
Investing in our retail partners, end-users/taxpayers, and other partners to increase the efficiency of water consumption and ensure regional water reliability.

The Region's Supplies Continue to be Reliable, Even in a 30-year Drought

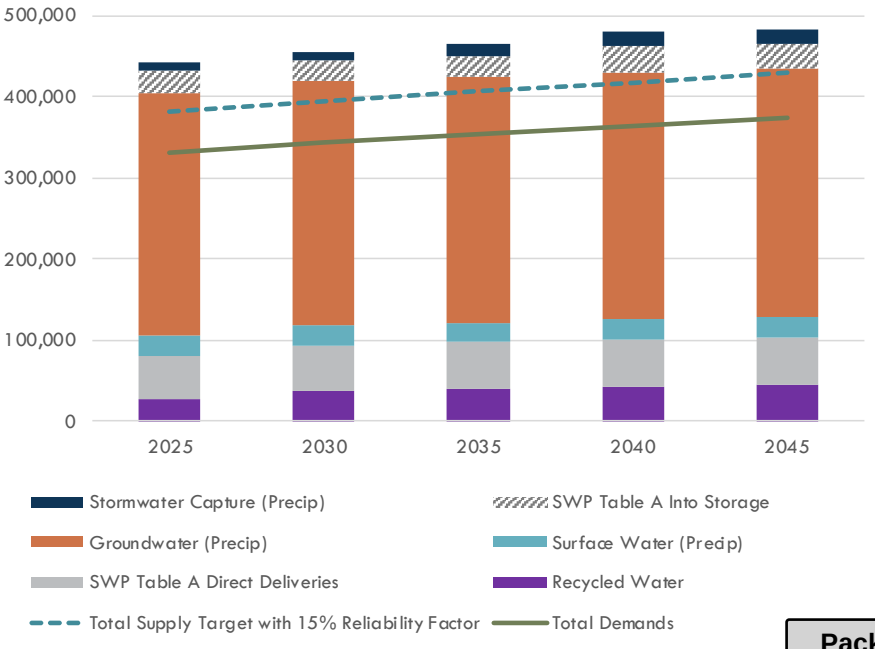
Diverse supplies and continued investments provide reliable water for the Region's future.

Although local and imported surface water supplies are highly dependent on local and statewide hydrology, the Region benefits from more than 12 million acre-feet of groundwater storage that can be used to store water when supplies are plentiful and then be pumped during extended droughts. By maximizing deliveries of State Water Project water in wet years when those supplies are available, and supplementing that with other local supplies like stormwater capture and recycled water, the Region can accrue sufficient storage to enable a high level of water supply reliability, even during an 30-year drought. Although the UWMP Guidebook does not require agencies to demonstrate the ability to withstand a 30-year drought, the Region decided, on its own, to evaluate a 30-year drought because it has experienced a drought of this length in the past and is currently in the midst of a drought that has lasted longer than 20 years and is still continuing.

Region Wide Supply and Demand Comparison for a Single Dry Year (AFY)



Region Wide Supply and Demand Comparison for a 30-Year Drought (AFY)



Planning for Short-Term Water Shortages – A Regional and Local Approach

Water Shortage Contingency Plans (WSCPs) describe how the Region's water agencies are preparing for and may respond to potential water shortage.

A water shortage occurs when water supply available is insufficient to meet the normally expected customer water use at a given point in time. A shortage may occur due to several reasons, such as water supply quality changes, climate change, drought, regional power outage, and catastrophic events (e.g., earthquake). Additionally, the State may declare a statewide drought emergency and mandate that water suppliers reduce demands, as occurred in 2014. The WSCPs serve as the operating manuals that Valley District and the retail water agencies will use to prevent catastrophic service disruptions through proactive, rather than reactive, mitigation of water shortages. Each WSCP provides a process for an annual water supply and demand assessment and structured steps designed to respond to actual conditions. Although the water agencies in the Region do not foresee implementing water shortage levels under normal conditions, this level of detailed planning and preparation provide accountability and predictability and help the Region's water agencies maintain reliable supplies and reduce the impacts of any supply shortages and/or interruptions.

Defining Goals and Objectives for Integrated Water Resources Management

The Region's water resources management goals reflect a balanced view social, environmental and economic values.

The BTAC identified several water resources-related needs and issues for the Region, including:

- Increased diversification of water supplies
- Improved groundwater management
- Protection of water quality
- Flood management with recharge benefits
- Habitat and open space preservation
- Disaster prevention
- Sustainability
- Climate change resilience

Based on these needs and issues, progress since the 2015 IRWM Plan, and input from the public and stakeholders, the BTAC updated goals and objectives for the Region through a series of collaborative stakeholder workshops. As a result of stakeholder discussions, a new Goal #5 was added – Address Climate Change Through Adaptation and Mitigation.

IRWM Region Goals and Objectives for the Next 5 Years

GOAL #1
IMPROVE WATER SUPPLY RELIABILITY

1a: Comply with conservation legislation requirements (AB1668 and SB606)

1b: Increase utilization of local supplies by 20,000 AFY

1c: Implement the Santa Ana River Conservation and Conjunctive Use Program (SARCCUP) to increase storage in the SBB by 64,000 AF

1d: Improve system resiliency and the ability to respond to emergency supply interruptions by increasing back-up facilities, increasing interties, adding redundant power sources and treatment facilities

1e: Continue to ensure equitable access to clean drinking water for all communities

1f: Complete groundwater management plans for the San Bernardino, Rialto-Colton and Yucaipa Basins

GOAL #2
BALANCE FLOOD MANAGEMENT AND INCREASE STORMWATER RECHARGE

2a: Complete necessary agreements to use flood control retention/detention basins for recharge in the San Bernardino, Rialto-Colton and Yucaipa Basins when not needed for flood control

2b: Implement 20 acres of integrated flood projects that also provide multiple benefits, where possible

2c: Continue to ensure equivalent implementation of flood projects in DAC areas and implement at least 1 flood control project in a DAC area

2d: Identify 4 urban stormwater capture projects to increase recharge and improve surface water quality

GOAL #3
IMPROVE WATER QUALITY

3a: Ensure no violations of drinking water quality standards

3b: Proactively address new constituents of concern as MCLs are developed

3c: Manage total dissolved solids and nitrogen in groundwater

GOAL #4
IMPROVE HABITAT AND OPEN SPACE

4a: Preserve or improve habitat by conserving or restoring 150 acres of riparian, wetland and permanent water areas by implementing projects in the Wash HCP and River HCP.

4b: Identify “multi-use” opportunities to increase recreation and public access and identify 4 multi-use projects

GOAL #5
ADDRESS CLIMATE CHANGE THROUGH ADAPTATION AND MITIGATION

5a: Implement local supply and flood control projects to help offset the impacts of climate change

5b: Implement 4 projects to reduce or offset energy consumption or reduce GHG emissions associated with water and wastewater systems

5c: Complete the SBVMWD Climate Adaptation and Resilience Plan (CARP)

Strategies, Projects and Plan Implementation – Delivering Long-term Water Security

The regional water agencies have identified an ambitious portfolio of projects to provide multiple regional benefits.

Keeping the Region's unique issues and challenges in mind, the BTAC compiled a listing water management strategies and water resources-related projects to help them reach their goals and objectives. The strategies, listed below, intentionally align with the resource management strategies (RMS) listed in the California Water Plan and reflect the unique aspects of the Region's water resources.

Strategies:

1. Continue Basin Management in Local Groundwater Basins
2. Incorporate cultural intelligence into water supply and demand management
3. Continue Headwaters Forest Management and Hazardous Fuels Reduction
4. Coordinate Land Use Planning and Management with Water Resources Management
5. Develop Desalination if needed
6. Develop Watershed Management Projects and Programs
7. Improve Drinking Water Treatment and Distribution
8. Identify Corridors for Species
9. Identify and Implement Projects that Increase Recharge
10. Identify and Implement Projects that Increase Surface Water and Groundwater Storage Inside and Outside the Region
11. Identify and Implement Water Transfer Opportunities where necessary
12. Implement Agricultural Lands Stewardship
13. Implement Agricultural Water Use Efficiency
14. Implement Pollution Prevention Measures
15. Implement System Reoperation
16. Implement Urban Water Use Efficiency
17. Improve Imported Water Supply Conveyance – Delta
18. Improve Supply Conveyance – Across the Regional/ Local
19. Incorporate Environmental Opportunities and Constraints into the Design Process for Facilities
20. Incorporate Opportunities to Improve Habitat and Increase Recreation and Public Access During the Facilities Design Process
21. Increase Outreach and Engagement
22. Increase Recycled Water Use
23. Increase Stormwater Capture
24. Maintain and Improve Water-Dependent Recreation
25. Manage High Groundwater and Liquefaction Potential in the SBB
26. Manage Flood Risk
27. Manage Salt and Salinity
28. Manage Sediment
29. Manage Urban Runoff
30. Match Water Quality to Use
31. Monitor Consumer Confidence Reports
32. Operate Existing Facilities to Increase Recharge
33. Optimize Wet Year Storage and Dry Year Pumping (Conjunctive Management & Groundwater)
34. Participate in the SAWPA Basin Management Task Force
35. Protect Recharge Areas
36. Provide Economic Incentives
37. Remediate Groundwater Contamination Plumes
38. Restore Ecosystems
39. Support the Bay-Delta Conservation Plan /Delta Conveyance Project

The Region has a history of working together to support the development and implementation of projects, and has continuously worked to develop regional, integrated projects. The Plan includes a listing of over 120 projects submitted by agencies throughout the Region that will help achieve the goals and objectives of this plan. The Project list is a living document, and projects can be submitted to the BTAC for review, ranking and prioritization, per the approved criteria, at any time.

The BTAC will be the primary entity responsible for implementation of the IRUWMP, and project sponsors will be responsible for implementation of projects and tracking of project benefits. Continued regional coordination and outreach to stakeholders will be key to implementing the Plan. The BTAC will continue to look for opportunities to coordinate with land use planning efforts and incorporate land use planning issues and strategies into water management decisions.

The IRUWMP represents the current state of water resources planning in the Region and continues to recognize that water management needs, issues and strategies will continue to evolve in response to changing conditions. A continued adaptive management approach will allow the IRUWMP to stay current considering changing conditions and will rely on regular plan and project performance monitoring and review.

Looking to the Future - Data Management, Plan Performance and Adaptive Management

The BTAC has already made significant progress implementing the Plan.

The BTAC has already made significant progress implementing the various management strategies and accompanying projects and continue to monitor progress toward their goals and objectives. The Region plans to continue within its current governance structure and, wherever possible, improve by enhancing coordination, governance, outreach, funding and financing.

The IRUWMP represents the current state of water resources planning in the Region, based upon the latest available information, and recognizes that water management strategies will continue to evolve in response to changing conditions. In recognition of the fluid nature of water management in the Region, the IRUWMP continues to incorporate an adaptive management approach that allows the Plan to stay current in light of changing conditions, such as local and regional water needs and changing regulatory requirements.

The adaptive management framework is based on an iterative process of:

- Collecting information and data regarding the conditions within the Region
- Evaluating the new data to determine plan/project performance
- Formulating a plan in response to these changing conditions

This process will allow the Region to proactively manage its available resources, including making investments in the planning and implementation of new projects and programs. This includes preparation of periodic updates of the IRUWMP to respond to changing conditions (including climate change and the re-evaluation of any impacts and benefits) through a continued working relationship with the BTAC, and to inform project participants and stakeholders about changes to the IRUWMP.

With full implementation of the Plan, the Region can expect to realize significant benefits, including:

- Continued water supply reliability during drought periods through a diverse water supply portfolio consisting of both local and imported supplies.
- Continued management of the Region's surface water and groundwater resources, including new opportunities for conjunctive management of groundwater and surface water resources and recharge of groundwater basins.
- Continued emphasis on water quality through effective management of groundwater resources, expediting cleanup process of contaminant plumes in the Region, and improving stormwater management.
- Continued emphasis on improved flood protection.
- Plan to address climate change vulnerabilities including reduced GHG emissions and energy usage.
- Continued distribution and water quality to disadvantaged communities.
- Continued environmental stewardship.
- Enhancement of water-dependent environmental assets.
- Continued water-related education, recreation, and public access opportunities in the Region.
- Continued understanding of the Region's water resources, including focused regional monitoring to ensure groundwater is used in a sustainable manner.
- Continued coordination of water management activities of the Region through sharing of ideas and mutually beneficial management of project opportunities.
- Continued coordinated development of water management strategies and associated projects.
- Continued emphasis on improved preparation for a disaster.

2020 PART 1: REGIONAL CONTEXT

UPPER SANTA ANA RIVER WATERSHED
INTEGRATED REGIONAL URBAN WATER MANAGEMENT PLAN

UPPER SANTA ANA RIVER WATERSHED

2020 IRUWMP – Public Review Draft

Regional Context

JUNE 2021

Prepared by Water Systems Consulting, Inc.
and Woodard & Curran

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ACRONYMS & ABBREVIATIONS

°C	Degrees Celsius
°F	Degrees Fahrenheit
AB	Assembly Bill
AF	Acre Foot
AFY	Acre Feet per Year
AHHG	Area of Historic High Groundwater
AMR	Automatic Meter Reader
APA	Administrative Procedures Act
AWWA	American Water Works Association
BMP	Best Management Practice
CALWARN	California Water/Wastewater Agency Response Network
CAT	Climate Action Team
CCF	Hundred Cubic Feet
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFS	Cubic Feet per Second
CII	Commercial, Industrial, and Institutional
CIMIS	California Irrigation Management Irrigation System
CUWCC	California Urban Water Conservation Council
DCR	DWR SWP Delivery Capacity Report
DDW	SWRCB Division of Drinking Water
DFW	California Department of Fish and Wildlife
DIP	Ductile Iron Pipe
DMM	Demand Management Measure
DWR	California Department of Water Resources
EIR	Environmental Impact Report
EPA	United States Environmental Protection Agency
ERNIE	Emergency Response Network of the Inland Empire
ESA	Endangered Species Act
ET	Evapotranspiration
ETo	Reference Evapotranspiration

GAC	Granulated Activated Carbon
GIS	Geographic Information System
GPCD	Gallons per Capita per Day
GPM	Gallons per Minute
HECW	High Efficiency Clothes Washer
HET	High Efficiency Toilet
IX	Ion Exchange
KAF	Thousand Acre Feet
KAFY	Thousand Acre Feet per Year
LAFCO	Local Agency Formation Commission
MAF	Million Acre-Feet
MCL	Maximum Contaminant Level
MF	Multi-family
MG	Million Gallons
MGD	Million Gallons per Day
MOU	Memorandum of Understanding
MSL	Mean Sea Level
MTBE	Methyl Tertiary Butyl Ether
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
PCE	Perchloroethylene
PVC	Polyvinyl Chloride
QWEZ	Qualified Water Efficient Landscaper
RIX	Rapid Infiltration and Extraction
RPA	Reasonable and Prudent Alternative
RUWMP	Regional Urban Water Management Plan
RWQCB	Regional Water Quality Control Board
SBX7-7	Senate Bill 7 of Special Extended Session 7
SF	Single Family
SOC	Synthetic Organic Chemicals
SOI	Sphere of Influence
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
TCE	Trichloroethylene
ULFT	Ultra-Low Flush Toilet

UV	Ultraviolet
UWMP	Urban Water Management Plan
UWMP Act	Urban Water Management Planning Act
VOC	Volatile Organic Compound
WBIC	Weather Based Irrigation Controller
WSCP	Water Shortage Contingency Plan
WFF	Water Filtration Facility
WSS	Water Sense Specification
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

PART 1: REGIONAL CONTEXT

1 Introduction

The 2020 Upper Santa Ana River Watershed Integrated Regional Urban Water Management Plan will serve as a roadmap for regional water resource planning for the next 5 years. The first of its kind in California, it combines the common elements of an Integrated Regional Water Management Plan and a Regional Urban Water Management Plan into a single cohesive planning framework for the future. This chapter describes the purpose and organization of the plan, the stakeholders, and the collaborative process to develop the plan.

This document presents the 2020 Upper Santa Ana River Watershed Integrated Regional Urban Water Management Plan (Plan or IRUWMP). This Plan combines two of the region's foundational documents, the Upper Santa Ana River Watershed Integrated Regional Water Management Plan (IRWM Plan) and the San Bernardino Valley Regional Urban Water Management Plan (Regional UWMP).

Valuable synergies are realized by combining these two documents into one, including a single integrated dataset, a consolidated reference document, enhanced collaboration, and truly integrated planning and decision-making.

IN THIS SECTION

- Background and purpose
- Plan organization
- Stakeholder Participation
- Plan adoption
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Through careful and thoughtful integrated regional planning, the participation of water managers and stakeholders, and the development of robust water management strategies and implementation tools, the water agencies of the Upper Santa Ana River Watershed (Region) continue to improve their water supply reliability, resilience to drought and climate change and regional self-reliance for future water supplies.

Ongoing implementation and adaptation of this Plan will help the Region continue to increase self-reliance, while providing reliable, high quality water to support economic growth and thriving local communities. The Plan also reflects the Region's dedication to protecting its groundwater basins from water quality degradation and threat of liquefaction, as well as maintaining the Region's valuable natural and recreational water resources, as well as open space and habitat.

1.1 Background and Purpose

1.1.1 IRWM Plan

State lawmakers created the IRWM Planning Act in 2002 to encourage local entities to improve water quality and water supply reliability to meet the state's overall agricultural, domestic, industrial, and environmental water needs. IRWM is an efficient model for inclusive and equitable water management planning and delivers higher value for investments by utilizing early and collaborative stakeholder processes to develop multi-benefit projects that help diversify a region's water management portfolio to achieve multiple social, economic, and environmental benefits and to prioritize funding that may become available from the State.

In 2005, the San Bernardino Valley Municipal Water District (Valley District) and 15 other agencies in the Upper Santa Ana River (SAR) watershed (Region or Upper SAR Region) decided to develop the Region's first IRWM Plan to collaboratively develop water management strategies for the communities of the Upper SAR watershed; the plan was completed in 2007. The agencies that developed the 2007 IRWM Plan formed a Technical Advisory Group (TAG) to implement the plan, which became the Basin Technical Advisory Committee (BTAC) described in the IRWM Plan.

The Region has a history of innovation and has made continuous enhancements to the regional planning process with each cycle, including:

- The unique document structure of each RUWMP and this Plan preserves each agency's ability to independently convey unique water management considerations for their service area while leveraging the regional information and activities that are applicable to all.
- Inclusion of specific, measurable IRWM objectives beginning with the 2015 IRWMP.
- Inclusion of a wet year water budget beginning with the 2015 RUWMP to communicate the importance of utilizing and storing surface water supplies during wet years for later use during dry years.
- Inclusion of a 30-year drought scenario beginning in the 2020 IRUWMP since the region has gone through a 30-year drought in the past and is currently in a drought that has lasted 22 years so far.

The primary purpose of the IRWM Plan is to encourage integrated planning among the agencies in the Region. The IRWM Plan provides a comprehensive look at the area's water resources and includes management strategies to help meet the long-term water needs of the area. The IRWM Plan is a critical document for prioritizing regional investments in water management and facilitating the use of state and federal grant funds for those projects. The IRWM Plan was last updated in January of 2015 and is scheduled to be updated every five years. Each update provides an opportunity to review the objectives and targets laid out in the previous IRWM Plan and determine if they should be revised to reflect the current water resources management setting. This includes the opportunities to add new projects, determine how implemented projects provide benefits to the region, and to develop new, regional projects. These components require significant input from and collaboration among participating agencies.

1.1.2 Regional UWMP

The California Water Code requires urban water suppliers within the state to prepare and adopt Urban Water Management Plans (UWMPs) for submission to the California Department of Water Resources (DWR). The UWMPs, which are required to be filed every five years, must satisfy the requirements of the Urban Water Management Planning Act (UWMP Act) of 1983, including amendments that have been made to the UWMP Act and other applicable regulations. The UWMP Act requires urban water suppliers servicing 3,000 or more connections or supplying more than 3,000 acre-feet (AF) of water annually, to prepare an UWMP. For wholesale water agencies without retail connections, the requirement is triggered by the annual delivery of 3,000 AF or more. Since the original UWMP Act was passed, it has undergone significant expansion in response to droughts, groundwater overdraft, regulatory revisions, and changing climatic conditions that affect the reliability of each water supplier. Implementation of the UWMP Act is overseen by the California Department of Water Resources (DWR).

An UWMP is intended to function as a planning tool to guide broad-perspective decision making by the management of water suppliers. A UWMP is a long-term, general planning document, rather than an exact blueprint for supply and demand management. Water management in California is not a matter of certainty, and planning projections may change in response to a number of factors. From this perspective, it is appropriate to look at a UWMP as a general planning framework, not a specific action plan.

It is an effort to generally answer a series of planning questions including:

1. **What are the potential sources of supply and what is the reasonable probable yield from them?**
2. **What is the probable demand, given a reasonable set of assumptions about growth and implementation of good water management practices?**
3. **How well do supply and demand figures match up, assuming that the various probable supplies will be pursued by the implementing agency?**

Using these “framework” questions and resulting answers, the implementing agency may pursue a range of feasible and cost-effective options and opportunities to meet demands.

Water purveyors are permitted by DWR to work together to develop a cooperative regional UWMP. In 2010 and again in 2015, a regional approach was adopted by the San Bernardino Valley Municipal Water District (Valley District), a wholesale water supplier, and nine retail water agencies who coordinated to prepare the San Bernardino Valley Regional UWMP. The purpose of jointly preparing the Regional UWMP was to facilitate a consistent evaluation of water sources common to the various agencies, to take advantage of group knowledge and experience, and to reduce preparation costs. The Regional UWMP is focused on meeting reporting requirements established by DWR to implement the California Water Code. The

Regional UWMP references and duplicates much of the information about regional supplies and water use that was included in the IRWM Plan and is prepared by many of the same agencies.

The Regional UWMP was last updated in June of 2016 and was subsequently amended with minor revisions in 2017. The next update of the Regional UWMP is due to be submitted to DWR by July 1, 2021.

1.1.3 2020 Integrated Regional Urban Water Management Plan

Both the IRWM Plan and the Regional UWMP are due to be updated. Rather than continue updating these overlapping documents independently, Valley District and its partners decided to combine them into a single new, single cohesive document. This combined document is the first of its kind in California. It meets all of the requirements of both the UWMP Act and the IRWM Planning Act and serves as a roadmap for water resource planning within the Region for the next 5 years.

Some of the stakeholders participating in this Plan are not urban water suppliers so the UWMP Act does not apply, while others who are urban water suppliers are preparing separate 2020 UWMPs that are not directly included in this Plan. For those with separate 2020 UWMPs, data from those plans was provided for use in this Plan to maintain alignment with other planning documents and to provide a comprehensive summary of water resources, supplies and demands for the Region.

Table 1-1 provides a summary of previous plan participation for each agency and whether this Plan serves as a particular agency's 2020 UWMP (UWMP Agencies).

Table 1-1. Stakeholder Participation by Plan Development

	PREVIOUS REGIONAL PLANS				2020 IRUWMP	
PARTICIPATING AGENCY	2007 IRWM PLAN	2015 IRWM PLAN	2010 REGIONAL UWMP	2015 REGIONAL UWMP	PLAN PARTICIPANT	SERVES AS 2020 UWMP
Big Bear City Community Services District		✓			✓	No
City of Big Bear Lake Department of Water		✓			✓	No
City of Colton	✓		✓	✓	✓	Yes
City of Loma Linda	✓	✓	✓	✓	✓	Yes
City of Redlands	✓	✓	✓	✓	✓	Yes
City of Rialto	✓	✓		✓	✓	Yes
City of Yucaipa		✓				
City of San Bernardino Municipal Water Department	✓	✓	✓	✓	✓	Yes
East Valley Water District	✓	✓	✓	✓	✓	Yes
Elsinore Valley Municipal Water District					✓	No
Fontana Water Company	✓	✓			✓	No
Riverside Highland Water Company				✓	✓	Yes
City of Riverside Public Utilities Department	✓	✓			✓	No
San Bernardino County Flood Control District	✓	✓			✓	N/A
San Bernardino Valley Municipal Water District	✓	✓	✓	✓	✓	Yes
San Bernardino Valley Water Conservation District	✓	✓			✓	N/A
San Gorgonio Pass Water Agency	✓	✓			✓	No
South Mesa Water Company[1]					✓	Yes
West Valley Water District	✓	✓	✓	✓	✓	Yes
Western Municipal Water District					✓	No
Yucaipa Valley Water District	✓	✓	✓	✓	✓	Yes

1. South Mesa Water Company was below the urban water supplier threshold as of 2020 but has elected to prepare a 2020 UWMP.

1.2 Plan Organization

This Plan is organized to meet the requirements of the IRWM Planning Act for the Region and the requirements of the UWMP Act for the eleven agencies identified in Table 1-1. Each participating agency has reviewed, adopted, and will implement the portions of this Plan relevant to their agency.

This Plan is organized into four parts:

Part 1: Regional Context

Part 1 contains the information needed to meet the requirements of the IRWM Planning Act for the Region and a portion of the UWMP Act requirements for the UWMP Agencies. Part 1 is organized into the following chapters:

Chapter 1 Introduction
Chapter 2 Region Description
Chapter 3 Regional Water Sources and Management
Chapter 4 Regional Water Use
Chapter 5 Comparison of Regional Supplies and Demands
Chapter 6 Water Management Goals, Objectives, and Strategies
Chapter 7 Projects
Chapter 8 Implementation, Performance and Adaptive Management

Part 2: Individual Agency UWMPs

Part 2 includes a chapter for each of the eleven UWMP Agencies. Each chapter is supplemental to the regional information presented in Part 1 and contains the additional information and analysis for each agency needed to meet the UWMP Act requirements. Each agency chapter provides service area information, past water use, projections of population, demand, and supply for a 25-year planning period, an evaluation of water supply reliability and drought risk assessment, a description of demand management measures and a summary of the agencies' Water Shortage Contingency Plan. Part 2 is organized into the following chapters:

Chapter 1 San Bernardino Valley Municipal Water District
Chapter 2 City of Colton
Chapter 3 City of Loma Linda
Chapter 4 City of Redlands
Chapter 5 City of Rialto
Chapter 6 East Valley Water District
Chapter 7 Riverside Highland Water Company
Chapter 8 San Bernardino Municipal Water Department
Chapter 9 South Mesa Water Company
Chapter 10 West Valley Water District
Chapter 11 Yucaipa Valley Water District

Part 3: Regional Supporting Information

Part 3 includes all of the supporting documentation referenced in Part 1 that is applicable to the region as well as the regulatory compliance guide that DWR will use to verify that Part 1 meets the IRWM requirements.

Part 4: Local Agency Supporting Information

Part 4 includes a set of supporting documentation for each UWMP Agency corresponding to their respective chapters in Part 2. Documents for each agency will include the regulatory compliance guide that DWR will use to verify the agency has met the UWMP Act requirements, proof of public hearing notices, water supply agreements specific to that agency, the Water Shortage Contingency Plan and the completed tables that are required to be submitted to DWR.

1.3 Regional Governance and Stakeholder Involvement

Stakeholder participation is critical to the success of the Plan. The agencies in the Region and the larger SAR watershed have a long history of working together to solve water resources related issues. These agencies recognize planning efforts such as IRWM and urban water management planning as additional opportunities to work collaboratively to manage water resources on a regional level. The organizational structure of the Region's governance reflects this long history of openly working together. The open nature of the Region's governance structure allows for effective inter- and intra-regional collaboration, and a range of stakeholders that help to provide a balance in interest groups.

1.3.1 Regional Water Management Group

One requirement of the IRWM Program is formation of a Regional Water Management Group (RWMG). Under the IRWM Program, RWMGs are responsible for developing and implementing IRWM Plans, and therefore must have statutory authority over water supply or water management.

Agencies in the Region have a long history of working together to coordinate management of the Region's water resources, evidence of which can be seen in the various legal agreements provided in Chapter 3 related to surface water diversions, groundwater supply, water quality, and habitat preservation. The 2007 IRWM Plan was developed by several agencies that formed the TAG. The TAG later became the BTAC, which was formed through the IRWM planning process to facilitate updates and implementation of the IRWM Plan and serves as the Region's RWMG.

Agencies that participate in the BTAC at the time of this Plan include:

- Bear Valley Mutual Water Company
- City of Colton
- City of Loma Linda
- City of Redlands Municipal Utilities and Engineering Department
- City of Rialto
- City of Riverside Public Utilities Department (Riverside Public Utilities)
- East Valley Water District
- Elsinore Valley Municipal Water District
- Fontana Water Company
- San Bernardino County Flood Control District
- San Bernardino Municipal Water Department
- San Bernardino Valley Municipal Water District (Valley District)
- San Bernardino Valley Water Conservation District
- West Valley Water District
- Western Municipal Water District
- Yucaipa Valley Water District

Since adoption of the original IRWM plan in 2007 and update of the IRWM plan in 2015, the BTAC has been implementing the strategies in the IRWM Plan. Dialogue and cooperation have improved between agencies, improving regional planning. Participation in the BTAC is open to any agency that chooses to participate.

1.3.2 Governance Structure

The Region has a distributed governance structure consisting of the BTAC, whose members provide recommendations to their respective governing bodies who then make decisions regarding water resources planning and projects in the Region, and stakeholders who are encouraged to take part in IRUWMP development and implementation. The IRUWMP document serves as an MOU for those agencies who adopt the Plan, as by adopting they have agreed to implement and use the Plan as a governing document.

The BTAC strives for consensus when making decisions, and in those cases where consensus cannot be reached, has provided a forum for discussion and early resolution of water issues in the region. If disputes cannot be resolved at this level, they are elevated to the policy level (governing bodies). The policy level is continuously informed by BTAC agencies' staff.

1.3.3 Stakeholder Identification and Involvement

In the initial stages of the planning process for the first IRWM Plan completed in 2007, the Region identified a list of stakeholders. In general, the stakeholders for this planning process are described by four categories: (1) members of the BTAC as listed above, (2) other regional stakeholders and water agencies located in the Upper SAR watershed region, (3) watershed-based stakeholders located in the SAR watershed that are part of the larger integrated planning for the region discussed in the SAWPA Plan, and (4) federal and State of California

Other Regional Water Agencies and Stakeholders

- Beaumont-Cherry Valley Water District
- Big Bear Area Regional Wastewater Agency
- Big Bear City Community Services District*
- Big Bear Lake Department of Water and Power*
- Big Bear Municipal Water District
- City of Beaumont
- City of Calimesa
- City of Fontana
- City of Grand Terrace
- City of Highland
- City of Jurupa Valley
- City of Yucaipa*
- County of Riverside
- County of San Bernardino
- Inland Empire Resources Conservation District
- Jurupa Community Services District
- Metropolitan Water District of Southern California
- Marygold Mutual Water Company
- Muscoy Mutual Water Company
- Orange County Flood Control District
- Regents of the University of California
- Riverside County Board of Supervisors
- Riverside County Flood Control and Water Conservation District
- Riverside Highland Water Company*
- Rubidoux Community Services District
- San Bernardino County Flood Control District
- San Bernardino County Board of Supervisors
- San Gorgonio Pass Water Agency*
- Terrace Water Company
- Western Heights Mutual Water Company
- San Manuel Band of Mission Indians

Santa Ana Watershed-based Stakeholders

- SAWPA and its other member agencies (Eastern Municipal Water District, Inland Empire Utilities Agency, Orange County Water District

State and Federal Stakeholders

- California Department of Fish and Game
- California Department of Public Health
- California Department of Toxic Substances Control
- California Department of Water Resources
- California State University San Bernardino/Water Resources Institute
- Santa Ana Regional Water Quality Control Board
- State Water Resources Control Board (SWRCB)
- U.S. Army Corps of Engineers (USACE)
- U.S. Forest Service

**Participated in the development of this Plan*

agencies that were encouraged to participate throughout development of the Plan. The BTAC has encouraged local agencies to be active in the development of the Plan and to participate in the planning process. Specific steps taken by the BTAC to inform and encourage stakeholders' participation are discussed below.

The BTAC assembled a list of stakeholders in the Region and sent a letter to each stakeholder on behalf of all of the Plan participants, informing them of the planning process and encouraging them to participate. This outreach also served as the 60-day notice to cities and counties in the Plan as required by the UWMP Act.

BTAC meetings continue to be open to stakeholders to attend and contribute to the regional planning process. Meeting announcements and agendas are emailed out to a comprehensive mailing list that includes both BTAC members and stakeholders. Agendas are also posted on Valley District's website in advance so all agencies, other stakeholders, and interested parties can participate throughout the planning process in discussion of the issues in which they were interested. The Region recognizes that stakeholders are necessary for the successful implementation of the Plan, particularly the implementation of projects that will help the Region to meet the objectives and strategies discussed in in later chapters of this Plan.

To obtain additional information on the Region's water supply and water resources planning and management efforts, stakeholders are invited to contact any member of the BTAC to find out more information and get added to the email list.

1.3.4 Disadvantaged Community and Tribal Outreach

In addition to the general stakeholder outreach discussed above, the IRUWMP process included efforts to coordinate with disadvantaged communities (DACs) and Tribes to identify potential water resource needs. Since DAC areas are contiguous portions of each of the water agencies' service areas, they receive equal services to non-DAC areas and are represented by the agencies participating in the Plan. However, these agencies have also noted that DAC issues will be included as an element of future planning efforts. In addition, Tribal representatives of the San Manuel Band of Mission Indians were invited to Plan development workshops that identified the needs and defined objectives for the Plan.

In addition to inviting stakeholders from DACs and Tribes to Plan workshops, a larger watershed wide outreach effort was recently conducted by the Santa Ana Watershed Project Authority to determine the strengths and needs of disadvantaged, economically distressed or underrepresented communities in the Santa Ana River Watershed. This effort, funded through DWR's Disadvantaged Communities Involvement Program, was completed in 2019 and conducted listening sessions with local communities, elected officials, water agencies, and mutual water companies. The findings of this effort are recorded in the Community Water Ethnography of the Santa Ana Watershed (**available on the SAWPA website at this link**), and needs relevant to the Upper Santa Ana River Watershed are incorporated into this Plan.

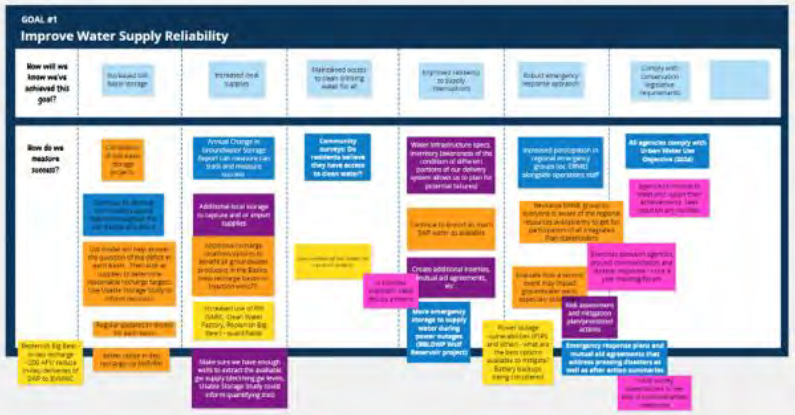
1.4 Plan Preparation Process

1.4.1 Public Participation

Management of water resources in the Region takes place within a complex legal and institutional framework. Development of this IRUWMP, a comprehensive and coordinated regional water management plan, involved the cooperation of many parties interested in water management. The BTAC solicited public involvement in the planning process by presenting updates at regularly scheduled BTAC meetings and at regularly scheduled Board and Council meetings of some BTAC agencies, as well as soliciting public comments on the draft IRUWMP via email announcements and website postings. In addition, workshops were conducted to develop additional information needed for the IRUWMP to meet the requirements of IRWM Plans as described in the 2016 Integrated Regional Water Management Grant Program Guidelines and UWMPs as described in the 2020 Urban Water Management Plan Guidebook. The BTAC encouraged public participation in preparation of this Plan to ensure the public's comments were considered in decisions about water management in the Region.

1.4.2 Stakeholder Workshops

Participating agencies collaborated in the development of the Plan through a series of individual meetings and regional workshops to update elements of the plan and review and provide feedback on preliminary results. A summary of the meetings and workshops that were used to collaborate on development of the Plan are summarized in **Table 1-2**. Meeting presentations and materials for the regional workshops are included in **Part 3**.



Due to the COVID-19 pandemic, stakeholder collaboration for plan development was conducted remotely. Stakeholders participated in a series of interactive virtual workshops where they broke into small groups to provide input on needs, goals and objectives using a virtual whiteboard and sticky notes.

Table 1-2. Plan Development Meetings and Regional Workshops

MEETING OR WORKSHOP	PURPOSE	DATE
Regional Workshop #1	Kickoff Plan and engage stakeholders Define expectations Review plan development process Highlight critical path workplan	October 5, 2020
UWMP Agency Individual Kickoff Meetings	Provide Plan development process overview Review what has changed since 2015 for that may impact the agency's UWMP Review key new requirements for 2020 UWMPs Identify data and coordination needs to address these changes and update the analysis	October – November 2020
Regional Workshop #2	Provide update on workplan and progress Measure Progress Toward 2015 IRWM Plan Goals & Objectives Start discussion to inform updated Goals & Objectives for the 2020 Plan	November 16, 2020
Regional Workshop #3	Update on the results of a reliability study prepared by RAND and how it can support the Plan Discuss Population and Demand Projection Approach for agency UWMP Chapters	January 11, 2021
UWMP Agency Individual Working Sessions	Review outstanding data needs Review preliminary population and demand projections Discuss supply assumptions Discuss Water Shortage Contingency Plan development	February – March 2021
Regional Workshop #4	Gather feedback on draft 2020 Goals and Objectives Discuss the project scoring process and potential updates Initiate a call for projects to be listed in the Integrated Urban Plan Discuss elements of the plan implementation	February 22, 2021
Regional Workshop #5	Review population and Demand Projection Trends Discuss Water Use Efficiency Assumptions Review Key Supply Assumptions Discuss Application of a Reliability Factor Discuss Preliminary Regional Water Budget	March 15, 2021
Regional Workshop #6	Provide an overview of the structure and contents of the Draft Plan Highlight key changes and additions since the last plan and specific areas to focus reviews Discuss the adoption process and schedule for completion of the final Plan	April 12, 2021
UWMP Agency Individual Working Sessions	Discuss comments and refinements needed to draft agency chapters	February – March 2021

1.4.3 Planning, Reports and Technical Analyses

A considerable amount of available information was used to develop this IRUWMP. Table 1-3 shows the data or study used, how the data were analyzed, the results and information derived from the data or study, and how the information was used in the Plan.

Table 1-3: Planning, Reports and Technical Analyses Used in the IRUWMP

DATA OR STUDY	ANALYSIS METHOD	RESULTS/DERIVED INFORMATION	USE IN IRUWMP
Water agency billing and production records	Review of current drinking water supplies and demands, and facilities	Current supplies and demands, quality concerns and facility descriptions	Used to update the water budget, and describe current water supplies and demands, as well as describe current facilities and drinking water quality concerns
Court Judgments and Agreements	Review of current groundwater and surface water management activities	Current groundwater and surface water supply management activities	Used to describe groundwater and surface water management activities and develop strategies
Santa Ana River Watermaster Reports	Review of past and current Santa Ana River flows	Past and current Santa Ana River flows	Used to describe flows in the Santa Ana River, and demands on flows
Groundwater level data	Review of past and current groundwater levels	Groundwater level trends	Used to describe history of groundwater levels and develop strategies
U.S. Geological Survey (USGS) models and reports	Review of models and reports focused on groundwater basins	Descriptions of groundwater basins and groundwater supply	Used to describe groundwater basin areas and groundwater supply; Models used to test management strategies
Contaminant plume(s) data	Review of contaminant plumes in groundwater basins	Current quality impaired groundwater basins and specific areas of concern	Used to describe quality of groundwater basins and develop strategies for management
San Bernardino Valley Water Conservation District Engineering Investigations	Review of groundwater production and storage in Bunker Hill Basin	Current groundwater production and storage	Used to describe groundwater production and storage in Bunker Hill Basin
DWR Population Tool	GIS analysis using census data, agency service area boundary and number of customer connections	Estimated service area population for the year 2020 for UWMP Agencies	Used to verify compliance with 2020 per capita water use targets
Southern California Association of Governments (SCAG) 2020 Connect SoCal Regional Transportation Plan	GIS analysis to intersect Region and UWMP Agency Boundaries with SCAG traffic analysis zones that cover the SCAG region	Population, housing, and employment projections within the service area for years 2020, 2035, and 2045	Used to estimate 2020 population for the region and project future population for the Region and individual UWMP Agencies
Integrated Report and 303(d) List (SWRCB)	Review of 303(d) listed water bodies	Listing of quality impaired waters throughout the State	Used to describe current water quality impairments

DATA OR STUDY	ANALYSIS METHOD	RESULTS/DERIVED INFORMATION	USE IN IRUWMP
2011 Climate Change Handbook for Regional Planning	Review of climate change studies	Summary of climate change impacts, methods for assessing climate change in individual areas	Used to describe the threats to local and regional water resources from climate change in the Region; Methodologies used to assess climate change vulnerabilities in the Region
Valley District's Change in Groundwater Storage Report for the San Bernardino Basin Area, Rialto-Colton, and Yucaipa Basins Area Report	Review storage levels in the SBB (Bunker Hill and Lytle combined), Rialto-Colton, and Yucaipa Basins	Groundwater storage levels	Used to assess storage levels in the SBB, Rialto-Colton, and Yucaipa Basins Area
San Bernardino County Upper Santa Ana River Watershed Stormwater Resource Plan	Review needs, objectives, strategies, and projects	Objectives, strategies, and projects for improving stormwater management	Used to revise needs, objectives, and strategies; Included as an appendix
RAND Analysis (to be published Summer 2021)	Review of analysis and recommendations	Reliability Factor that accounts for uncertainty and variability in future supply and demand projections	Applied to regional demand estimates to incorporate a reliability factor in supply and demand comparisons

1.5 Plan Adoption

Each participating agency has reviewed, adopted, and will implement the portions of this Plan relevant to their agency. Not all parts of the plan are applicable to every participating agency and any subsequent changes made to individual agency UWMP Chapters, if any, should not affect the other agencies who participated in Plan preparation. In recognition of this, the Plan was organized so that agencies could adopt only the parts of the plan that are applicable.

All participating agencies adopted **Part 1** and **Part 3**, which comprise the information needed to meet the requirements of the IRWM Act for every Plan participant and the Region.

In addition to **Part 1** and **Part 3**, UWMP Agencies adopted their respective chapters of **Part 2** and their respective Appendices in **Part 4**. Additional information on each UWMP Agency's adoption process in accordance with the UWMP Act is provided in each agency chapter in **Part 2**.

The Plan participants adopted the relevant parts of the Plan beginning in June 2021. Following adoption, the Plan was submitted to DWR, the California State Library, and a copy was provided to all stakeholders identified in **Section 1.3.3**. Resolutions adopting the IRUWMP are provided in **Part 3**.

1.6 Relation to Other Efforts

The IRWM Region regularly coordinates with neighboring and overlapping entities at the local, regional, and state level. The following is a discussion of how the Region has coordinated with neighboring IRWM regions, water resources planning, and land use planning in the development and on-going implementation of its Plan.

1.6.1 Coordination with Neighboring IRWM Regions and IRWM Planning

1.6.1.1 Santa Ana Watershed Project Authority and One Water One Watershed Plan

SAWPA is a regional agency that has a major role in water resources planning in the SAR watershed. SAWPA was formed in 1968 as a planning agency and was transformed in 1972 through a change in its mission to plan and build facilities that would protect the water quality of the SAR watershed. SAWPA is a Joint Powers Authority, classified as a Special District (government agency) in which it carries out functions useful to its member agencies: Inland Empire Utilities Agency, Eastern Municipal Water District, Orange County Water District, Valley District, and Western. Two of SAWPA's member agencies, Western and Valley District, are part of this IRWM Plan. SAWPA's vision is to have a sustainable SAR watershed that supports economic and environmental vitality as well as an enhanced quality of life. SAWPA's regional leadership is a model of collaboration and cooperation utilizing integrated solutions. To that extent, SAWPA has developed an IRWM Plan for the entire SAR watershed titled the One Water One Watershed (OWOW) Plan.

Water users in the SAR watershed have worked together for decades to develop an integrated regional approach to water management for the entire watershed. In 2002, SAWPA developed a phased planning process called the Santa Ana Integrated Watershed Plan (IWP). In 2005, the IWP was updated as an IRWM Plan to cover the entire SAR watershed. In April 2007, SAWPA launched the OWOW Plan for the Watershed. This broad planning document is the framework for overall water management in the watershed and is largely based upon the planning efforts of its member agencies. The OWOW Plan is a "macro-level" plan that is consistent with DWR's California Water Plan (Bulletin 160) and State Water Resources Control Board's (SWRCB) Strategic Plan, Watershed Management Initiative, and the basin planning process.

This 2020 IRUWMP for the Upper SAR Region is a complementary planning process to the SAWPA process and will be incorporated into the next OWOW Plan update. By focusing on a finer scale, the Upper SAR IRWM Plan reveals that the Upper SAR watershed has several unique water management challenges and issues. The purpose of the Upper SAR planning process is to focus on local issues specific to the upper watershed and to assess water management opportunities in greater detail. This collaborative process addresses some of the long-term water management strategies of the Upper SAR watershed and will greatly contribute to protecting and enhancing reasonable and beneficial uses of the watershed's water resources. This planning process is a part of the overall SAR water management planning process and is in agreement with past and current SAWPA regional planning initiatives. In addition, several agencies in the IRWM Region also take part in SAWPA planning efforts.

1.6.1.2 San Gorgonio IRWM Region and IRWM Plan

The San Gorgonio IRWM Region, formed in 2016, is located in the San Gorgonio Pass area between the Upper Santa Ana River Watershed and the Coachella Valley IRWM Region. The San Gorgonio Pass area is the mountain pass between the San Bernardino Mountains to the north and San Jacinto Mountains to the south. Water management within the San Gorgonio Region has historically been conducted by individual water resource agencies or together as part of specific groups to address specific needs. The San Gorgonio IRWM Region is a rural area that encompasses several small water districts and municipalities. Stakeholders include local and countywide agencies, tribal nations, commercial, and community and industry groups involved in water resource management. Agencies whose service areas may overlap both Regions serve to coordinate projects that may provide interregional benefits.

1.6.1.3 Mojave IRWM Region and IRWM Plan

The Mojave IRWM Region encompasses the entire Mojave River watershed in the California High Desert area of San Bernardino County. A majority of the Mojave IRWM Region is overlapped by the Mojave Water Agency service area, which was originally established in 1959 for the purpose of improved management of declining groundwater levels in the area. Numerous groups participate in IRWM Plan development and ongoing implementation activities within the

Mojave IRWM Region. The Mojave IRWM Region encompasses 58 municipal water purveyors with authority over water supply and management, and which share a common interest in enhancing water resource management to improve the reliability and sustainability of available resources. These water purveyors, along with other numerous public agencies and community groups, are part of the collaborative Mojave IRWM Planning process.

1.6.2 IRUWMP Relation to Local Water Planning and Land Use Planning

The Region's open governance structure allows for ongoing interaction between local planning efforts (both water and land use) and regional water management planning. Within the Region, local planning is conducted by counties, cities, local agencies, and special districts. San Bernardino County, cities, and water agencies within the Region coordinate as part of the San Bernardino Countywide Vision Process. Part of this process involves collaboration between water resource managers and land use planners on the water element to create mutually beneficial opportunities that ensure adequate water supplies and quality to support future population and economic growth within the County.

In addition, existing local, regional, and statewide plans were reviewed for relevant information to include as a part of the Plan update. The relevant plans, listed in Table 1-3, were used to further refine the Region's description, goals, and objectives. Table 1-3 lists each plan and how its information was used in the IRUWMP Plan.

The Region recognizes the importance of collaboration between land use planning and water resources management. The processes in place for updating the Region description, objectives, strategies, and projects incorporates input from land use planners that are a part of the stakeholder group, and those who take part in BTAC meetings. It will be necessary to continue coordination with these land use planners to ensure that the Plan is appropriately implemented.

PART 1: REGIONAL CONTEXT

2 Region Description

The Upper Santa Ana River Watershed originates in the San Bernardino Mountains and covers an area of widely varying forested, rural, and urban terrain in San Bernardino and Riverside Counties.

This chapter describes the region characteristics, including population, land use, and climate. This chapter also describes the many local agencies and water companies that have a role in managing water resources within the Region. Water resources withing the Region are described in **Chapter 3**.

IN THIS SECTION

- Water management agencies
- Population and demographics
- Ecological and Environmental Resources
- Regional climate

2.1 Location

The SAR watershed is the largest stream system in Southern California. The headwaters originate in the San Bernardino Mountains and are discharged to the Pacific Ocean approximately 100 miles to the southwest between Newport Beach and Huntington Beach. The SAR watershed covers over 2,650 square miles of widely varying forested, rural, and urban terrain and covers the more populated urban areas of San Bernardino, Riverside, and Orange Counties, as well as a lesser portion of Los Angeles County. Disputes over the use of water in the SAR led to the subdivision of the watershed into the Upper SAR watershed and Lower SAR watershed just upstream of Prado Dam.

> The Upper SAR watershed covers 852 square miles, approximately 32% of the total SAR watershed, and is primarily located in San Bernardino and Riverside Counties. The Region includes the Big Bear Valley as well as the cities and communities of San Bernardino, Yucaipa, Redlands, Highland, Rialto, Mentone, Colton, Grand Terrace, Loma Linda, Beaumont, and Riverside.

The Region is defined by the area that contributes surface runoff to the Riverside Narrows at U.S. Geological Survey (USGS) Gage 11066460 (**Figure 2-1**). The USGS has operated this site as a continuous record gaging station since March 1970. There are numerous tributaries that contribute flow to the main stem of the SAR in the Region, including Mill Creek, City Creek, Plunge Creek (a tributary of City Creek), Mission Zanja Creek (located just upstream of the San Timoteo Creek), San Timoteo Creek, East Twin Creek, Warm Creek, and Lytle Creek. The Upper SAR watershed boundary is shown in Figure 2-1.

2.2 Water Agencies in the Region

The Upper SAR watershed is home to dozens of water districts, mutual water companies, flood control districts, and other local water management agencies (collectively and generally referred to as water agencies in this Plan) with an interest in the responsible management of water supply resources (e.g., storage, conveyance, treatment, flood protection, and recreation) and sustainable stewardship (e.g., water quality and biological resource protection) of the watershed. The challenges facing water agencies in the Upper SAR include the effects of population growth that increase water demand and decrease natural hydrological processes and groundwater recharge, the reduction of imported water availability, and the effects of climate change.

Water agencies in the Region are described in this section and are shown in **Figure 2-2**.

Figure 2-1. Upper Santa Ana River Watershed Boundary

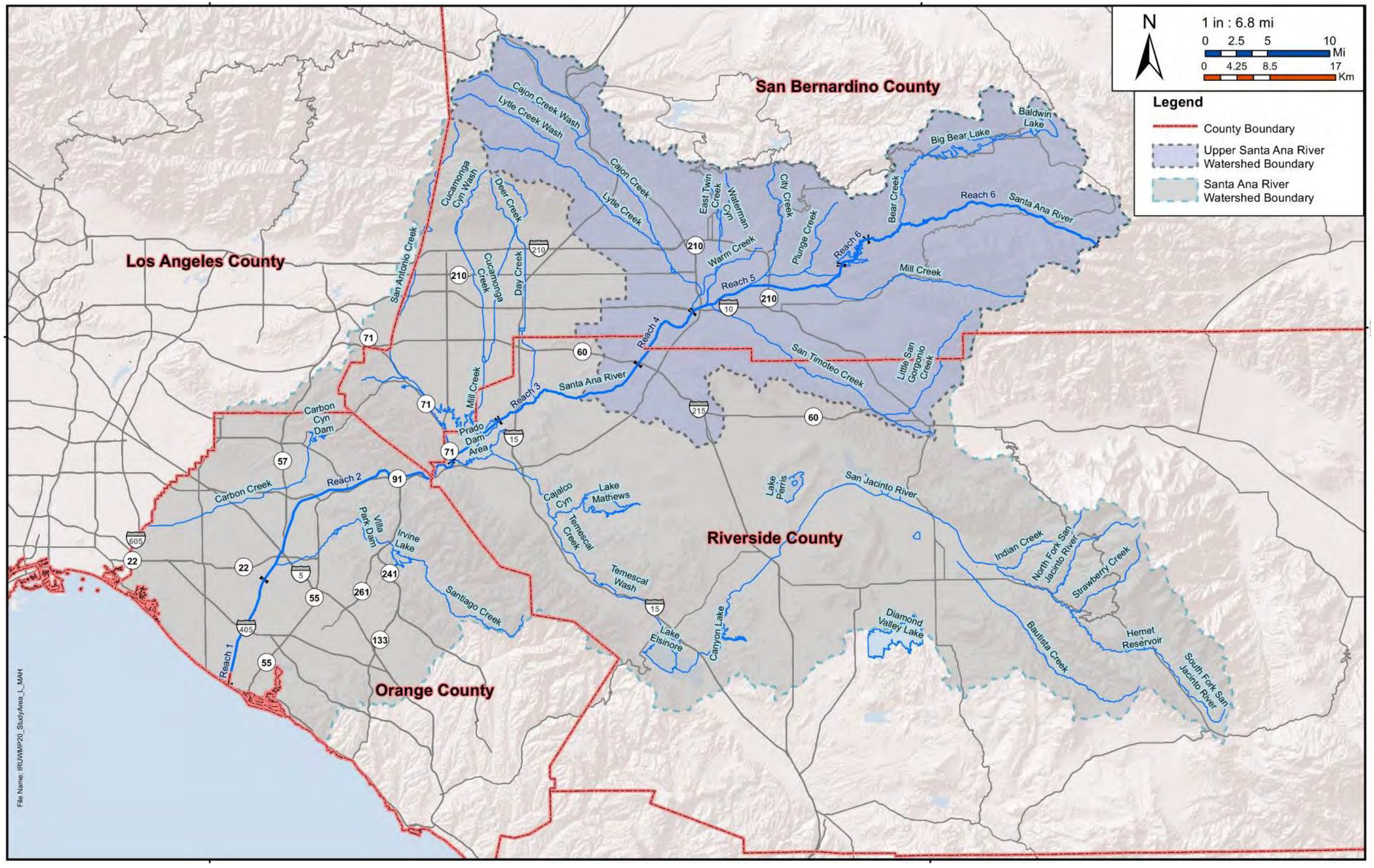
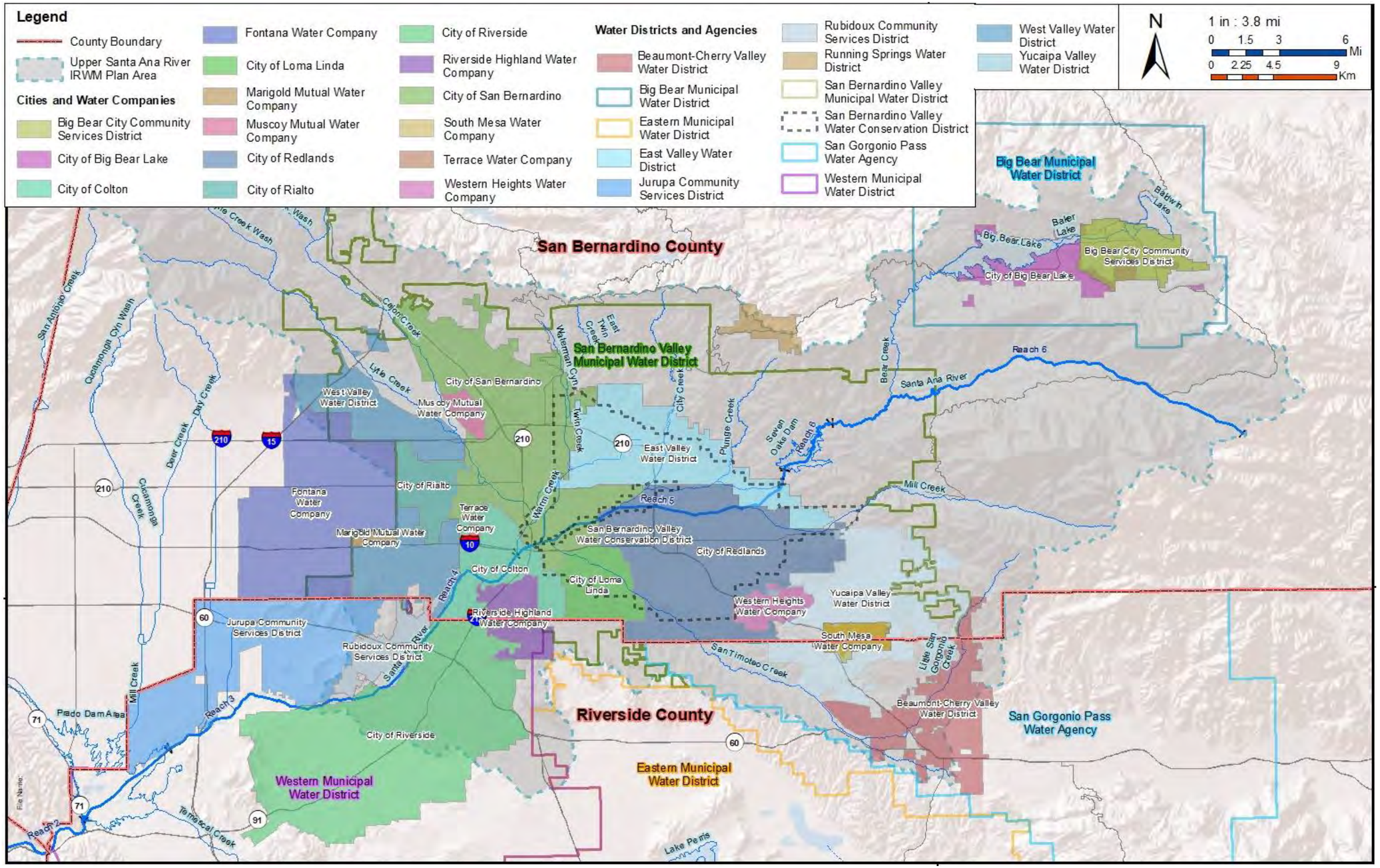


Figure 2-2. Water Management Agencies in the Upper SAR Watershed



2.2.1 Water Supply Managers, Wholesalers and Retailers

2.2.1.1 San Bernardino Valley Municipal Water District (Valley District)

Valley District was formed in 1954, under the Municipal Water District Act of 1911 (California Water Code Section 71000 et seq.) as a regional agency to plan a long-range water supply for the San Bernardino Valley. Valley District imports water into its service area through participation in the State Water Project (SWP) and manages groundwater storage within its boundaries, its enabling act includes a broad range of powers to provide water, wastewater and stormwater disposal, recreation, and fire protection services. Valley District does not deliver water directly to retail water customers.

Valley District covers about 353 square miles mainly in southwestern San Bernardino County, about 60 miles east of Los Angeles. It spans the eastern two-thirds of the San Bernardino Valley, the Crafton Hills, and a portion of the Yucaipa Valley and includes the cities and communities of San Bernardino, Colton, Loma Linda, Redlands, Rialto, Fontana, Bloomington, Highland, East Highland, Grand Terrace, Mentone, and Yucaipa.

Valley District is responsible for long-range water supply management, including importing supplemental SWP water, and is responsible for storage management of most of the groundwater basins within its boundaries and for groundwater extraction over the amount specified in the Orange County and Western Judgments explained below. Valley District has specific responsibilities for monitoring groundwater supplies in the SBB and Rialto-Colton Subbasin, and for a portion of the minimum SAR flow required at the Riverside Narrows.

Valley District has developed a “cooperative recharge program” that is being successfully implemented to help replenish groundwater, using both SWP water and local runoff. Valley District takes delivery of SWP water at the Devil Canyon Power Plant Afterbay, which is located just within its northern boundary. The SWP water is conveyed 17 miles eastward to various spreading grounds and agricultural and wholesale domestic delivery points. Water is also conveyed westward for direct delivery in the Rialto-Colton Subbasin.

In the 1960s, dry conditions resulted in the over-commitment of water resources in the SAR watershed which led to lawsuits between water users in the upper and lower watersheds regarding both surface flows and groundwater. The lawsuits culminated in 1969 in the Orange County and Western Judgments. Under the terms of the judgments, Valley District became responsible for providing a portion of the specified SAR base flow to Orange County and for replenishing the SBB under certain conditions. If the conditions of either judgment are not met by the natural water supply, including new conservation, Valley District is required to deliver supplemental water to offset the deficiency. The judgments resolved the major water rights issues that had prevented the development

of long-term, region-wide water supply plans and established specific objectives for the management of the groundwater basins.

Court-appointed Watermaster committees administer both Judgments; as a member of the Watermaster committees, Valley District is directly responsible for ensuring that groundwater and surface water resources are effectively managed for the benefit of the region.

This Plan includes the Valley District UWMP; see Part 2, Chapter 1 for more information.

2.2.1.2 San Bernardino Valley Water Conservation District

The San Bernardino Valley Water Conservation District (SBVWCD) was created to recharge the Bunker Hill Subbasin in an environmentally and economically responsible way using local native surface water to the maximum extent practicable.

The SBVWCD and its predecessors have conducted water conservation (groundwater recharge) activities for more than 100 years. SBVWCD operates two areas that overlie the Bunker Hill Subbasin in the San Bernardino Valley. These areas are at the upper end of the SAR wash area below Seven Oaks Dam and adjacent to Mill Creek just upstream of the confluence with the SAR. The SBVWCD diverts surface water flows during both storm and normal runoff from the SAR and Mill Creek and channels the flows into two separate systems of recharge basins where it is percolated into the groundwater basin for later pumping and use by local entities and private producers. SBVWCD also recharges SWP water in both its facilities on behalf of the Groundwater Council.

The SBVWCD's boundaries encompass more than 78 square miles and include portions of the communities of San Bernardino, Loma Linda, Redlands, Highland and Colton, as well as the unincorporated county area of Mentone and other unincorporated county "islands" within the incorporated cities.

2.2.1.3 San Gorgonio Pass Water Agency

San Gorgonio Pass Water Agency (SGPWA) was established in 1961 by the California State Legislature. The service area includes the incorporated cities of Calimesa, Beaumont, and Banning, and the communities of Cherry Valley, Cabazon, Poppet Flat, San Timoteo Canyon, Live Oak Canyon, and the Banning Bench.

San Gorgonio Pass Water Agency, a State Water Contractor, purchases water from the State of California and sells it to local retail water agencies in their service area in Riverside County, which use the water either for direct deliveries or for groundwater recharge. Water is imported into the service area by the East Branch of the California Aqueduct.

2.2.1.4 Western Municipal Water District

Western Municipal Water District (Western) is a public agency headquartered in Riverside, California. Western was formed

in 1954 to bring supplemental water to the growing western Riverside County. Today, Western provides water wholesale and retail supply, wastewater treatment and disposal, and water resource management to nearly one million people in a service area covering roughly 527-square miles. Western is one of the five member agencies of SAWPA.

As a member agency of the Metropolitan Water District of Southern California (Metropolitan), Western provides wholesale water to the region within their service area, which includes the cities of Corona, Norco and Riverside and the water agencies serving Box Springs, Eagle Valley, Elsinore Valley, Temescal Valley, and Temecula.

Under the terms of the Orange County and Western Judgments, Western represents the Riverside Entities and became responsible for providing a portion of the specified SAR base flow to Orange County and for replenishing the portion of the Riverside Basin Area in Riverside County under certain conditions. If the conditions of either judgment are not met by the natural water supply, including new conservation, Western is required to deliver supplemental water to offset the deficiency.

Court-appointed Watermaster committees administer both Judgments; as a member of the Watermaster committees, Western is directly responsible for ensuring that groundwater and surface water resources are effectively managed for the benefit of the region.

2.2.1.5 Big Bear City Community Services District

The Big Bear City Community Services District (BBCCSD) consists of overlapping Fire, Water, Sewer, Solid Waste (trash collection), and Street Lighting service areas and encompasses a total of 21.1 square miles. One or more services are provided to approximately 16,400 customers.

The water services are run by the Water Department. Major facilities of the Water Department include 82 miles of pipeline ranging from 1.5 to 20 inches in diameter, 11 vertical wells, 2 slant wells, 2 springs, 4 tank reservoirs with a total of 6.25 million gallons of water storage capacity, and 6 water booster stations. This infrastructure provides water to more than 6,140 customers as of 2020.

The sewer services are run by the Sewer Department, which maintains a system consisting of approximately 115 lineal miles of sewer pipeline, 2,842 manholes, and 7 sewer lift stations. The Sewer Department now services almost 12,000 homes and businesses. Sewage treatment and treated wastewater effluent export is handled by the Big Bear Area Regional Wastewater Agency (BBARWA), which is separate from, but partially funded by the Big Bear City Community Services District through fees.

2.2.1.6 City of Big Bear Lake Department of Water and Power

The City of Big Bear Lake Department of Water and Power (BBLDWP) is located in the San Bernardino Mountains at approximately 6,750 feet above sea level. The agency is dedicated to providing the City of Big Bear Lake, Moonridge, Fawnskin, Sugarloaf, Lake William, and portions of Erwin Lake and Rimforest with a safe, reliable source of water for public health and safety.

BBLDWP's water supplies come from snow and rain that percolates into the groundwater basin. BBLDWP does not use lake water for public health and safety and no additional water is imported into the Big Bear Valley.

BBLDWP has an aggressive water conservation program that has significantly reduced summertime consumption. Community outreach programs keep customers informed on current water conditions, and the agency's Technical Review Team monitors, evaluates, and analyzes well and water consumption data on a continual basis. The agency's five-member Board of Commissioners is appointed by the City of Big Bear Lake's City Council and is made up of policy makers committed to safeguarding its water resources.

2.2.1.7 City of Colton

The City of Colton (Colton) is a community founded in 1875 and incorporated in 1887. Colton, through the Water and Wastewater Division of its Public Utilities Department, provides water service to a majority of the residents and businesses located within Colton's corporate boundary, as well as to those in certain adjacent unincorporated areas of San Bernardino County. All of Colton's water supply is local groundwater pumped from the SBB, the Rialto-Colton subbasin, and the Riverside North subbasin.

This Plan includes the Colton UWMP; see Part 2, Chapter 2 for more information.

2.2.1.8 City of Loma Linda

The City of Loma Linda (hereafter Loma Linda) was incorporated in 1970. The Public Works Department provides potable water service to an area of approximately 7.8 square miles that includes the Veterans Administration Hospital and the Loma Linda Community Hospital. Loma Linda does not provide water service to the Loma Linda University Campus or Medical Center facilities, which operate on a separate self-contained system. Loma Linda's primary water supply is groundwater from the SBB. Loma Linda also has two emergency connections to the City of San Bernardino and one to the City of Redlands to meet its supplemental needs. Loma Linda also provides wastewater collection service.

This Plan includes the Loma Linda UWMP; see Part 2, Chapter 3 for more information.

2.2.1.9 City of Redlands

For more than 90 years, the City of Redlands (hereafter Redlands) has been providing high-quality drinking water to the Redlands, Mentone area, Crafton Hills College, and a portion of unincorporated San Bernardino County known as the donut hole. The water utility service area generally coincides with the area designated by the Local Area Formation Commission (LAFCO) as the City and its sphere of influence. The service area encompasses 36 square miles inside the Redlands city boundaries and a relatively small area outside the city boundaries, but within the sphere of influence. Redlands supplies a blend of local groundwater, local surface water, and imported water purchased from Valley District. Redlands also owns and operates a sewer collection system and the Redlands Wastewater Treatment Facility, which produces recycled water for industrial and irrigation purposes, including supplying water to the Southern California Edison Mountainview Power Plant.

This Plan includes the Redlands UWMP; see Part 2, Chapter 4 for more information.

2.2.1.10 City of Rialto

The City of Rialto (hereafter Rialto) is provided water service by three different water agencies: The City of Rialto municipal water system through its water system operator (Veolia, through Rialto Water Services), the West Valley Water District (WVWD), and the Fontana Union Water Company (FUWC). Each agency has its own water supply and resources and must meet its demands through those resources. The City of Rialto municipal water system provides potable, non-potable, and recycled water at retail to customers primarily within the City of Rialto and serves approximately one-half of the population of the City. The service area is essentially the incorporated area of the City of Rialto located between Interstate 10 and State Route 210.

Rialto's water supply sources include local surface water from Lytle Creek, groundwater from four local groundwater basins, and water purchased from Valley District and delivered through the Baseline Feeder. Surface water treatment of Lytle Creek water is provided by the Oliver P. Roemer Water Filtration Facility owned and operated by WVWD. Rialto owns a portion of the capacity of that plant. Rialto also has an agreement to purchase excess SBB water from SBMWD, when available. Rialto provides wastewater collection and treatment services for its residents and some residents of the City of Fontana through an Extra-Territorial Agreement. Rialto currently provides recycled water service to the California Department of Transportation for landscape irrigation.

This Plan includes the Rialto UWMP; see Part 2, Chapter 5 for more information.

2.2.1.11 City of Riverside

The City of Riverside Public Utilities Department (Riverside Public Utilities or RPU) provides potable water, non-potable water, recycled water, and electricity to the City of Riverside, and was established in 1895 (electricity) and 1913 (water). RPU currently serves water to a population of 310,000 people through about 66,000 service connections within an area of approximately 75 square miles within the City of Riverside and unincorporated Riverside County. RPU is committed to providing the highest quality water and electric services at the lowest possible rates to benefit the community. RPU actively participates in regional planning efforts with neighboring agencies to assess regional supplies and demands and develop new sources of supply as needed.

2.2.1.12 East Valley Water District

East Valley Water District (EVWD) is a California Special District, established in 1954, that provides water and wastewater services. EVWD encompasses 30.1 square miles along the foothills of the San Bernardino Mountains within the cities of San Bernardino and Highland, and the county of San Bernardino. As an agency tasked with managing a critical resource, EVWD is committed to innovative leadership and world class public service.

This Plan includes the EVWD UWMP; see Part 2, Chapter 6 for more information.

2.2.1.13 Elsinore Valley Municipal Water District

Elsinore Valley Municipal Water District (EVMWD) is a public non-profit agency created on December 23, 1950 under the Municipal Water District Act of 1911. As a special district, EVMWD's powers include provision of public water service, water supply development and planning, wastewater treatment and disposal, and recycling. Currently, the EVMWD has over 45,000 water, wastewater, and agricultural service connections. EVMWD provides water services to its Elsinore and Temescal Divisions, which comprises the cities of Lake Elsinore and Canyon Lake, and portions of Wildomar Murrieta, Menifee, and unincorporated Riverside County and Orange County land.

Through ownership of shares in the Meeks and Daley Water Company, EVMWD has water rights in the SBB, totaling 4,680 acre-feet per year. In 2020, EVMWD and Western entered a 20-year agreement allowing Western to lease EVMWD's water rights in the SBB.

2.2.1.14 Fontana Water Company

Fontana Water Company, a division of San Gabriel Valley Water Company, is a public utility regulated by the California Public Utilities Commission. Fontana Water Company's service area covers approximately 52 square miles with boundaries including the San Gabriel Mountains to the north and the Riverside County Line to the south. Fontana Water

Company serves most of the City of Fontana, portions of the Cities of Rialto and Rancho Cucamonga, and unincorporated areas of San Bernardino County. Fontana Water Company serves a population of approximately 237,000 people with over 48,200 active service connections. Each year Fontana Water Company produces between 33,000 – 50,000 AF of water from water supply sources that include surface water from Lytle Creek and SWP water, which is treated at Fontana Water Company's Sandhill Water Treatment Plant, groundwater from the Lytle, Rialto, No-Man's Land (managed through the Rialto Basin), and Chino Basins, and recycled water from Inland Empire Utility Agency. Fontana Water Company diverts and receives Lytle Creek surface water and produces groundwater in the Lytle, Rialto, and No-Man's Land Basins as an agent for Fontana Union, which asserts extensive water rights to these sources of supply pursuant to longstanding court judgments.

2.2.1.15 Riverside Highland Water Company

The Riverside Highland Water Company (RHWC) provides domestic and irrigation water services to the City of Grand Terrace, portions of the City of Colton, and portions of the unincorporated areas of the Counties of San Bernardino and Riverside. RHWC's service area lies partially within the Valley District service area and partially within the service area of Western Municipal Water District (Western). RHWC obtains water from the Lytle Creek Subbasin, the SBB, the Rialto-Colton Subbasin, Riverside North, and Riverside South Basins.

This Plan includes the RHWC UWMP; see Part 2, Chapter 7 for more information.

2.2.1.16 City of San Bernardino

The City of San Bernardino is served by a municipal utility, the San Bernardino Municipal Water Department (SBMWD). SBMWD was created as a municipal utility by Article 9 of the City of San Bernardino Charter. The SBMWD water service area is approximately 45 square miles, providing water to approximately 210,000 persons in the City of San Bernardino and unincorporated areas of San Bernardino County. SBMWD produces all of its water supply from wells in the SBB. In addition to potable water, SBMWD provides wastewater collection and treatment services and is developing a recycled water system for groundwater recharge and non-potable reuse.

This Plan includes the SBMWD UWMP; see Part 2, Chapter 8 for more information.

2.2.1.17 South Mesa Water Company

South Mesa Water Company (SMWC) is a mutual water company, which was established in 1912 as a successor to the earliest land and water companies in the area dating back to 19th Century. SMWC provides domestic and irrigation water service to its shareholders within its service territory, which comprises a portion of the City of Yucaipa in San Bernardino County

and a portion of the City of Calimesa in Riverside County. SMWC currently supplies water to just under 3,000 water service connections but anticipates exceeding that level in the very near future. SMWC's water supply includes locally produced groundwater from the Yucaipa Sub-basin (DWR 8-02.07), and also groundwater produced from the adjacent adjudicated Beaumont Basin in accordance with SMWC's adjudicated water rights.

This Plan includes the SMWC UWMP; see Part 2, Chapter 9 for more information.

2.2.1.18 West Valley Water District

West Valley Water District (WVWD) is a County Water District, a public agency of the State of California, organized and existing under the County Water District Law (Division 12, Section 30,000 of the Water Code) of the State of California. WVWD provides domestic water service to customers throughout southwestern San Bernardino County and a small portion within northern Riverside County. The majority of WVWD's service area lies within Valley District's boundaries. WVWD's service area is approximately 31 square miles, serving portions of the Cities of Rialto, Fontana, Colton, and Jurupa Valley, and unincorporated areas of San Bernardino County. WVWD utilizes water from five groundwater basins and treats surface water from Lytle Creek and SWP water at its 14.4-mgd Oliver P. Roemer Water Filtration Facility to serve over 23,000 water service connections.

This Plan includes the WVWD UWMP; see Part 2, Chapter 10 for more information.

2.2.1.19 Yucaipa Valley Water District

Yucaipa Valley Water District (YVWD) is a special district that provides water supply, treatment, and distribution, recycled water supply and distribution services, and wastewater collection and treatment. Formed in 1971, YVWD acquired many of the private water companies serving the Yucaipa Valley. YVWD serves customers in the Cities of Calimesa and Yucaipa, and portions of Riverside and San Bernardino Counties.

This Plan includes the YVWD UWMP; see Part 2, Chapter 11 for more information.

2.2.1.20 Bear Valley Mutual Water Company

Bear Valley Mutual Water Company (Bear Valley Mutual) was formed in 1903 by the citrus growers of the Redlands/Highland area to ensure a dependable water supply under their control. Bear Valley Mutual has pre-1914 water rights to the first 88 cubic feet per second (cfs) of surface flow of the SAR. Bear Valley Mutual has appropriative rights on Bear Creek and a storage right in Big Bear Lake, as well as ownership of all the water inflow to the lake.

2.2.1.21 Beaumont-Cherry Valley Water District

Beaumont-Cherry Valley Water District was formed in 1919 under the Wright Act of 1897 (Water Code Section 20000, et seq.),

and serves approximately eight square miles located in Riverside and San Bernardino Counties. Beaumont-Cherry Valley Water District currently serves approximately 35,000 people in the City of Beaumont and the community of Cherry Valley.

2.2.1.22 Big Bear Municipal Water District

Big Bear Municipal Water District (Big Bear Municipal) was formed in 1964 by the people of Big Bear Valley with the express purpose of stabilizing the level of Big Bear Lake. In January 1977, as a result of a stipulated judgment, Big Bear Municipal purchased title to the dam, reservoir lands lying beneath the lake, and the surface recreation rights to Big Bear Lake. As discussed above, Bear Valley Mutual has ownership rights to all water entering Big Bear Lake.

Big Bear Municipal is responsible for the following:

- Stabilization of the level of Big Bear Lake by managing the amount of water released to Bear Valley Mutual
- Watershed/water quality management
- Recreation management
- Wildlife habitat preservation and enhancement
- Bear Valley Dam and Reservoir maintenance

The stipulated judgment allows Big Bear Municipal to maintain a higher water level in the lake by delivering water to Bear Valley Mutual from an alternate source of water instead of from the lake. This alternate source of water is sometimes referred to as in-lieu water and mainly comes from the SWP through Valley District. If Big Bear Municipal does not wish to purchase in-lieu water, it must deliver water from the lake to satisfy Bear Valley Mutual' s demands.

2.2.1.23 Fontana Union Water Company

Fontana Union Water Company (Fontana Union) is a mutual water company and does not directly deliver water to domestic customers. Fontana Union asserts long-standing adjudicated, vested rights to Lytle Creek surface and subsurface flows and Lytle Creek Subbasin groundwater, as well as groundwater rights in Rialto-Colton Basin inclusive of "No Man's Land."

Fontana Union delivers its available water to its shareholders in accordance with its Articles of Incorporation, Bylaws, and mutual water company law. Fontana Union is 98% owned by Cucamonga Valley Water District and San Gabriel Valley Water Company. Fontana Water Company, a division of San Gabriel Valley Water Company, diverts and produces water pursuant to its rights as Fontana Union's agent in accordance with a court-approved agreement. Under court-approved agreements, Fontana Union allocates its Chino Basin pumping rights to Cucamonga Valley Water District, and Cucamonga also retains the option of taking delivery of its share of Fontana Union's other water sources.

2.2.1.24 Marygold Mutual Water Company

Marygold Mutual Water Company (Marygold) serves customers generally located in the unincorporated community of Bloomington. Marygold obtains water from the Chino Basin through rights to the appropriative pool of Chino Basin, from the SBB and from treated imported water purchased from WVWD.

2.2.1.25 Muscoy Mutual Water Company

Muscoy Mutual Water Company (Muscoy) serves the majority of the unincorporated community of Muscoy. SBMWD serves the remainder of the Muscoy community. The community is located between the cities of San Bernardino and Rialto. All water produced by Muscoy is from the SBB.

2.2.1.26 Meeks & Daley Water Company

Meeks & Daley Water Company was incorporated on September 1, 1885 and is the successor company to three Mutual Water Companies - Meeks & Daley Water Company, Agua Mansa Water Company, and the Alta Mesa Water Company. Meeks & Daley Water Company provides water to its stockholders for agricultural purposes. To fund operating expenses, the company assesses all shareholders twice per year based on the number of shares owed on the date of the assessment.

The company owns water rights in the Bunker Hill Subbasin and pumps water from a series of wells located within the basin, transporting this water through the Riverside and Gage Canals. At the end of the canal systems, Meeks & Daley Water Company operates a pipeline and pump station to deliver irrigation water to users in the southern portion of the City of Corona.

EVMWD, the City of Riverside and Western own stock in the Meeks & Daley Water Company, entitling them to export rights of about 4,860 AF, 3,008 AF and 226 AF respectively from the Bunker Hill Subbasin, as of December 2020. In 2020, EVMWD entered into a long-term agreement to lease its rights to Western.

2.2.1.27 Regents of the University of California

The Regents have rights to water from the SBB, which is used by the University of California Riverside (UCR). The water is delivered to UCR by the RPU.

2.2.1.28 Other Water Providers

Other water purveyors in the Region include:

- **Terrace Water Company Services**, which is an area located between the service areas of Colton Public Utilities and West Valley Water District.
- **Western Heights Mutual Water Company**, which serves the southeast portion of the City of Redlands and a portion of the City of Yucaipa
- **Eastwood Farms Community Water Users Association**, which provides water to a small portion of the City of Highland

- **Arroyo Verde Mutual Water District**, which provides water to a small portion of the City of Highland
- **Victoria Farms Mutual Water Company**, which serves a population of approximately 1,000
- **Inland Valley Development Agency**, a joint powers authority comprised of San Bernardino County and the Cities of San Bernardino, Colton, and Loma Linda
- **Devore Mutual Water Company**, which serves an area near the intersection of Interstate 15 and Interstate 215
- **Running Springs Water District**, which serves the community of Running Springs
- **Arrowhead Park County Water District**, which serves an area adjacent to the Running Springs Water District

2.2.2 Flood Control Agencies

2.2.2.1 San Bernardino County Flood Control District

SBCFCD was formed as a special district in April 1939 after the 1938 floods in the County of San Bernardino. SBCFCD's functions include flood protection from major streams, flood control planning, storm drain management, debris removal programs, right-of-way acquisition, flood hazard investigations, and flood operations. SBCFCD has numerous Master Plans of Drainage for various areas within the county. A Master Plan of Drainage is a coordinated plan of flood control improvements for an area based on its future planned development that identifies existing flood control facilities that are inadequate to convey the 100-year peak storm flows, including needed improvements to existing facilities and new facilities that need to be constructed to provide an adequate level of flood protection. Since its inception, SBCFCD has worked with United States Army Corps of Engineers (USACE) to develop federally funded major flood control facilities in the county. SBCFCD manages its activities through six physical flood control zones. The budget projections are also determined for each zone through an annual budget study with most of the zones also having a 10-year plan. SBCFCD is also participating with Inland Empire Utilities Agency and Chino Basin Water Conservation District on the Chino Basin Recharge Improvement Project.

2.2.3 Other Water Related Entities

2.2.3.1 Water Resources Institute/California State University, San Bernardino

The Water Resources Institute/California State University San Bernardino (WRI-CSUSB) was established by the faculty senate in 1999. The senate and the university administration recognized that water is one of the most precious resources in its service area (San Bernardino and Riverside Counties) and set out to make water an area of distinction at this campus.

The WRI-CSUSB operates an extensive water resource archive that includes maps; aerial photographs; newspaper articles; water and environmental reference books; and federal, State, and local government documents, studies, and reports. This archive is gradually being digitized to make it more accessible to users. It also includes water and environmental data and metadata, thus expanding the concept of an archive beyond the original concept of hard copies of old documents.

The WRI-CSUSB is an interdisciplinary center for research, policy analysis, and education. The full-time staff is engaged in a variety of partnerships providing technical assistance to public and private water stakeholders. The WRI-CSUSB specializes in integrated watershed projects promoting land use practices that minimize the impact of development on watershed functions. The WRI-CSUSB assists the Local Government Commission with presenting the Ahwahnee Water Principles for Resource Efficient Land Use[1] to elected officials and developers on the connection between land use and water. The WRI-CSUSB partners with California Resources Connection, Inc. on the Inland Empire Sustainable Watershed Program developing Green Building Practices and Model Ordinances to overcome obstacles in resource-efficient land use.

[1] The Ahwahnee Water Principles for Resource-Efficiency Land Use are a set of stewardship actions that cities and counties can take that reduce costs and improve the reliability and quality of water resources.

2.3 Population and Demographics

2.3.1 Historic Population and Housing Growth in the Plan Area

The Region covers part of the two-county area of San Bernardino and Riverside, which have both experienced rapid growth. Census population figures for 2000 and 2010 for Riverside and San Bernardino Counties are presented in **Table 2-1**. The 2020 Census data was not available as of the writing of this Plan so California Department of Finance population estimates were used for 2020. Over the decade of the 2000s, both counties experienced substantial increases in population – 41.9% for Riverside County (with an average rate of 4.2% annually) and over 18.8% for San Bernardino County (1.9% annually). Between 2010 and 2020, population growth in both counties slowed to an average annual increase of 1.1% and 0.5%, respectively.

Table 2-1: Riverside and San Bernardino County Population, 2000 to 2020

	POPULATION		
AREA	2000[1]	2010[1]	2020[2]
Riverside County	1,551,943	2,202,361	2,442,304
AVERAGE ANNUAL PERCENT INCREASE		**4.2%**	**1.1%**
San Bernardino County	1,718,312	2,041,626	2,180,537
AVERAGE ANNUAL PERCENT INCREASE		**2.7%**	**0.5%**

The number of housing units contained in the two counties grew from about 1,186,000 in 2000 to 1,509,205 in 2010. This increase of 27.3% took place at an average annual rate of 2.7%. California Department of Finance E-5 Housing Estimates for 2020 estimate total housing units in the two counties to be approximately 1,583,000, indicating lower average annual rate of increase of 0.5%.

The population of the Valley District service area, which covers a majority of the Region, grew by approximately 60,000 between 2010 and 2020, which is about a 0.9% growth annually.

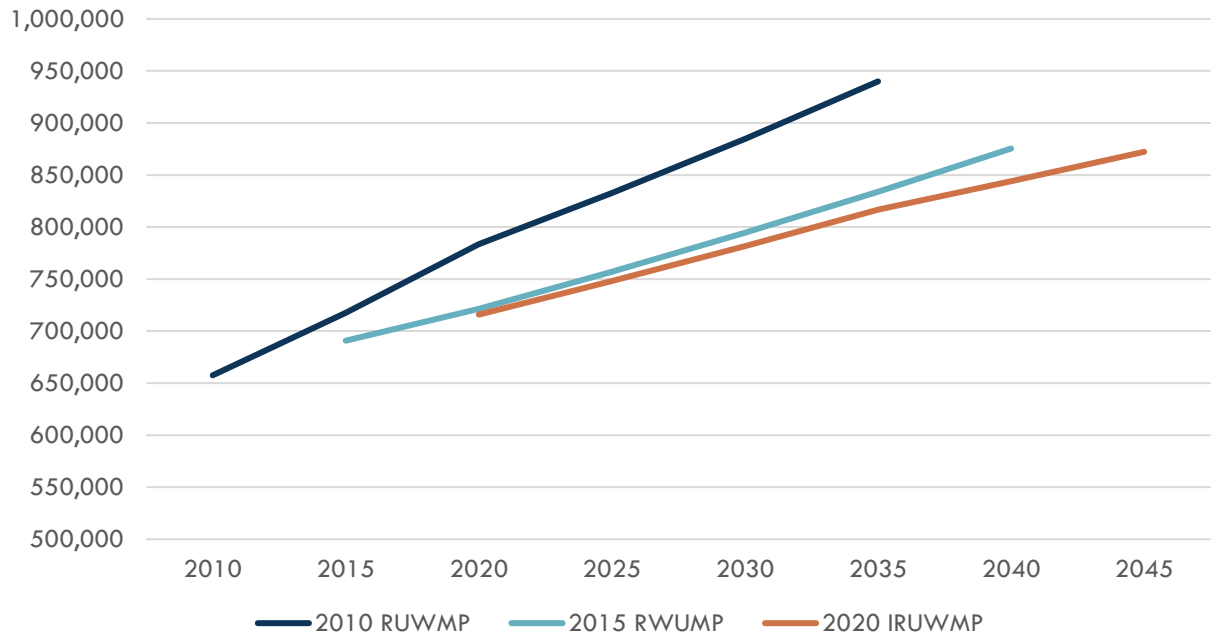
2.3.2 Future Population Projections in the Plan Area

The Southern California Associate of Governments has (SCAG) has developed a demographics and growth forecast for the 2020 Connect SoCal Regional Transportation Plan which includes estimated population, households, and employment in 2020, 2035, and 2045 inside each of the approximately 11,300 traffic analysis zones (TAZs) that cover the SCAG region. The Region boundary (shown in **Figure 2-2** as the Upper Santa Ana Watershed IRWM Plan Area) was intersected with a GIS shapefile of the SCAG TAZs to provide an estimate of population within the service area for years 2020, 2035, and 2045.

SCAG prepares demographic forecasts based on land use data for their region through extensive processes that emphasizes input from local planners and is done in coordination with local or regional land use authorities, incorporating essential information to reflect anticipated future populations and land uses. SCAG's projections undergo extensive local review, incorporate zoning information from city and county general plans, and are supported by Environmental Impact Reports.

SCAG population growth projections have declined significantly in the last 10 years due to a variety of demographic factors described in SCAG's latest 2020 Demographics and Growth Forecast. This trend for the population of the Valley District service area is shown in **Figure 2-3** and is representative of the trend in the Region as a whole.

Figure 2-3. Population Projection Trends for the Valley District Service Area



While SCAG projects slower growth than previous plans, the result is still a substantial increase in population within the Region, which is estimated to reach over 1.25 million by 2045, as shown in **Table 2-2**.

Table 2-2. Projected Population for the Region (2025 to 2045)

PROJECTED POPULATION	2020	2025	2030	2035	2040	2045
Total	1,007,793	1,057,644	1,109,960	1,164,865	1,207,584	1,251,870
% Growth Rate		0.97%	0.97%	0.97%	0.72%	0.72%

2.3.3 Economic Condition and Social and Cultural Composition of the Region

Like most communities in Southern California, the Region has seen a continued increase in population and change in the economic base as agricultural and vacant land is replaced with residential housing, leading to urban and service sector jobs.

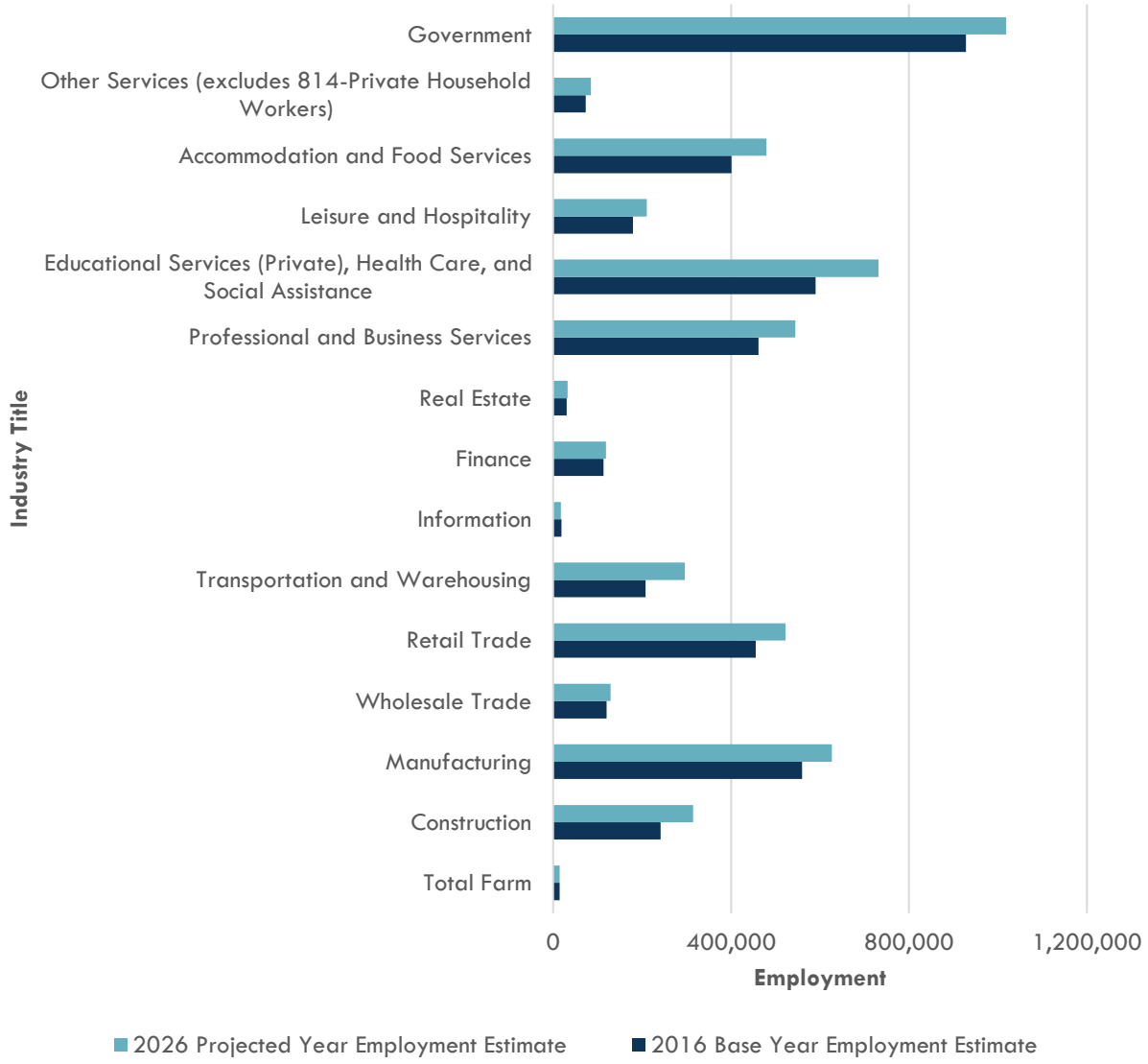
Much of the population growth of the Region since the 1970s is linked with the economies of Los Angeles and Orange Counties because they are within commuter range, and the housing prices in the Region are more affordable. Also, population growth over the past three decades is attributed to a marked increase in immigration from Mexico, Latin America, and the Pacific Rim.

Before the COVID-19 pandemic, employment in the Inland Empire was increasing at a steady pace, according to California's Employment Development Department and U.C. Riverside School of Business Center for Economic Forecasting. The region's nonfarm employment grew 2% adding approximately 31,000 nonfarm jobs from October 2018 to October 2019. This surpassed the 1.8% growth in the state and the 1.4% growth in the nation. Although pre-pandemic the Inland Empire's employment growth remained steady, growth has slowed compared with recent years. From October 2017 to October 2018 total nonfarm employment increased 3.0% and from October 2016 to October 2017 employment grew 3.8%. Figure 2-4 depicts the projected long-term industry employment growth for the Inland Empire by sector from 2016 to 2026.

According to the U.C. Riverside School of Business Center for Economic Forecasting and Development's Inland Empire Regional Intelligence Report Winter 2020/2021: "The Inland Empire's labor market has continued to steadily recover from the COVID-19 pandemic, adding 93,100 jobs since lows in April 2020. Despite the ongoing labor market recovery, year-over-year employment fell 7.1% (-110,600 jobs), one of the largest annual declines on record. Even so, employment growth in the Inland Empire is outpacing that of the state (-7.8%) but has trailed the nation (-6.1%) over the last year."

While unemployment rates remain heightened, 28,300 workers entered the Inland Empire labor force, a 1.4% increase, from October 2019 to October 2020. Over the same period, the state experienced a (-1.1%) decline and the nation experienced a (-2.1%) decline. The largest job losses occurred in the Leisure and Hospitality sector with a 27.6% decline in jobs. Other industries with job losses have occurred in Government, Manufacturing, Retail Trade, and Administrative Support. These sectors were most impacted by government mandates and stay-at-home orders due to the COVID-19 pandemic. However, sectors involving e-commerce such as Transportation and Warehousing as well as Management have grown due to a surge in online shopping in response to stay-at-home orders from the State Government.

Figure 2-4: Long-Term Industry Employment Projections for Riverside and San Bernardino Counties



2.3.3.1 Disadvantaged Communities

In accordance with DWR guidance, the 2016 IRWM Guidelines state that if household income was below 80 percent of the Median Household Income (MHI) for California, the community is considered a DAC. In addition, those areas with an annual MHI that is less than 60 percent of the Statewide annual MHI are considered Severely Disadvantaged Communities (SDAC). The current dataset used by DWR to is the US Census American Community Survey (ACS) 5-Year Data for the period of 2012 to 2016. The statewide MHI for the current dataset is $63,783; therefore, the calculated DAC and SDAC thresholds are $51,026 and $38,270, respectively.

Figure 2-5 shows the DACs and SDACs in the Region. A large number of census tracts in the Region are classified as DAC or SDAC. A central area for DACs and SDACs occurs between the east side of the City of San Bernardino and west side of the City of Highland, a portion of the City of Riverside, as well as the entire Big Bear Valley, and in the South Mesa Water Company service area which serves portions of the Cities of Yucaipa and Calimesa.

The vast majority of DACs and SDACs are connected to public water systems and receive water supplies that meet all state and federal standards for water quality from the water agency which serves the area they live in. In these areas, affordability can be a challenge. Areas with the largest concentrations of DAC and SDAC residents have developed programs to assist the DAC members in paying their water related bills while still ensuring their water and wastewater service are meeting all applicable state and federal regulations.

2.3.3.2 Native American Tribes

Various tribes of Native Americans inhabited the Region in the past. Today, the San Manuel Band of Mission Indians and Morongo Band of Mission Indians are present in the region.

2.4 Land Uses

Figure 2-6 presents the land use within the Region. The total area of the Region is 552,785 acres, of which 303,790 acres, or about 55%, are covered by the national forest located in the easterly and northerly areas of the Region. The large areas of agricultural land use are south of the SAR. Currently, agriculture only represents a little over 3% of the land use of the Region and continues conversion to urban use is anticipated. Urban areas are about 22% of the Region.

A number of local land use agencies have approved general plans and specific plans in the Region. These local land use planning agencies play a major role in zoning and land use decisions in the Region. The California Government Code contains statutes addressing the subject of the applicability of local land use controls on planning and construction of public water facilities. However, it is generally the practice of the water agencies to voluntarily comply with the standards specified in applicable local land use and building code regulations.

Figure 2-5. Disadvantaged and Severely Disadvantaged Communities in the Region

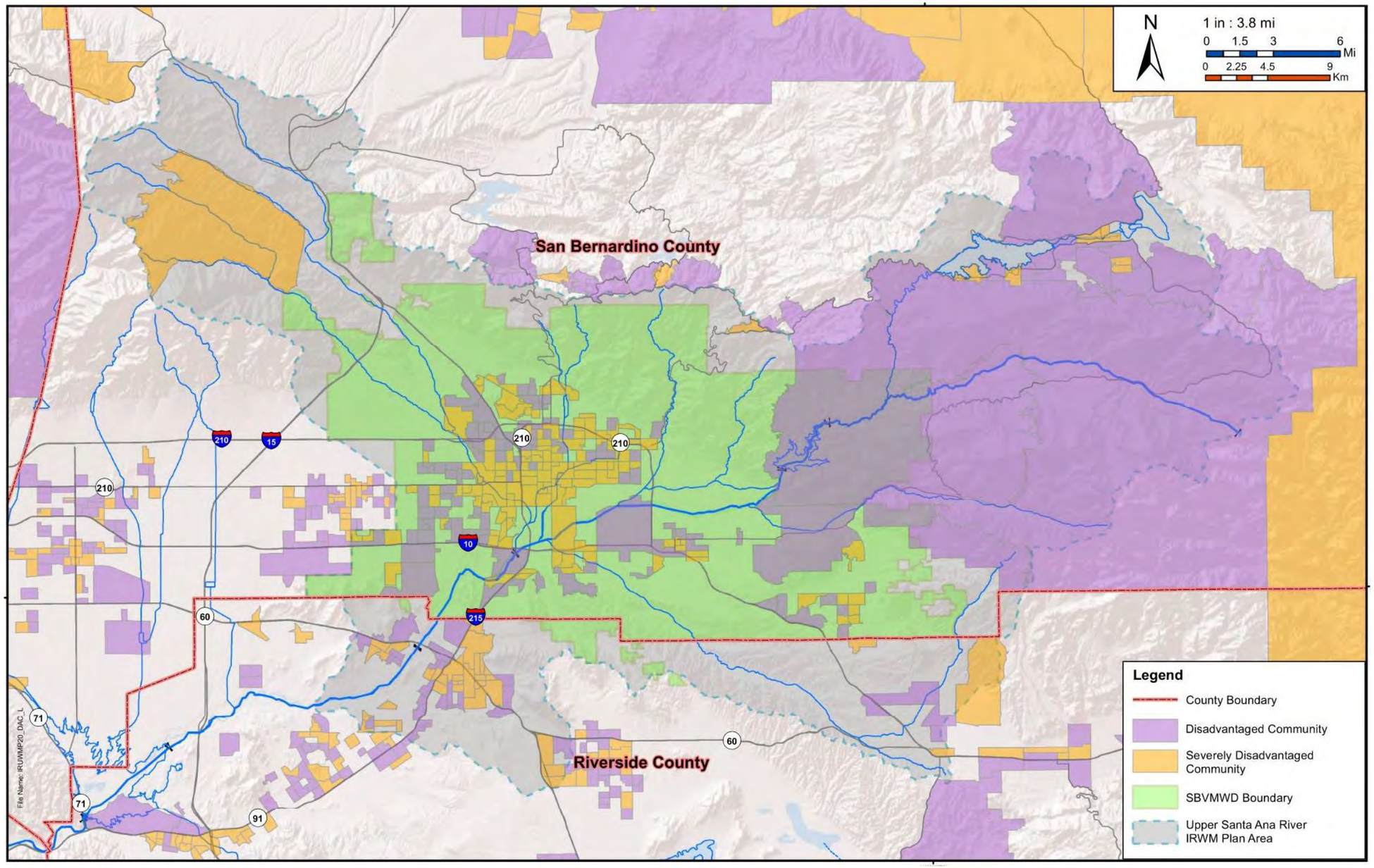
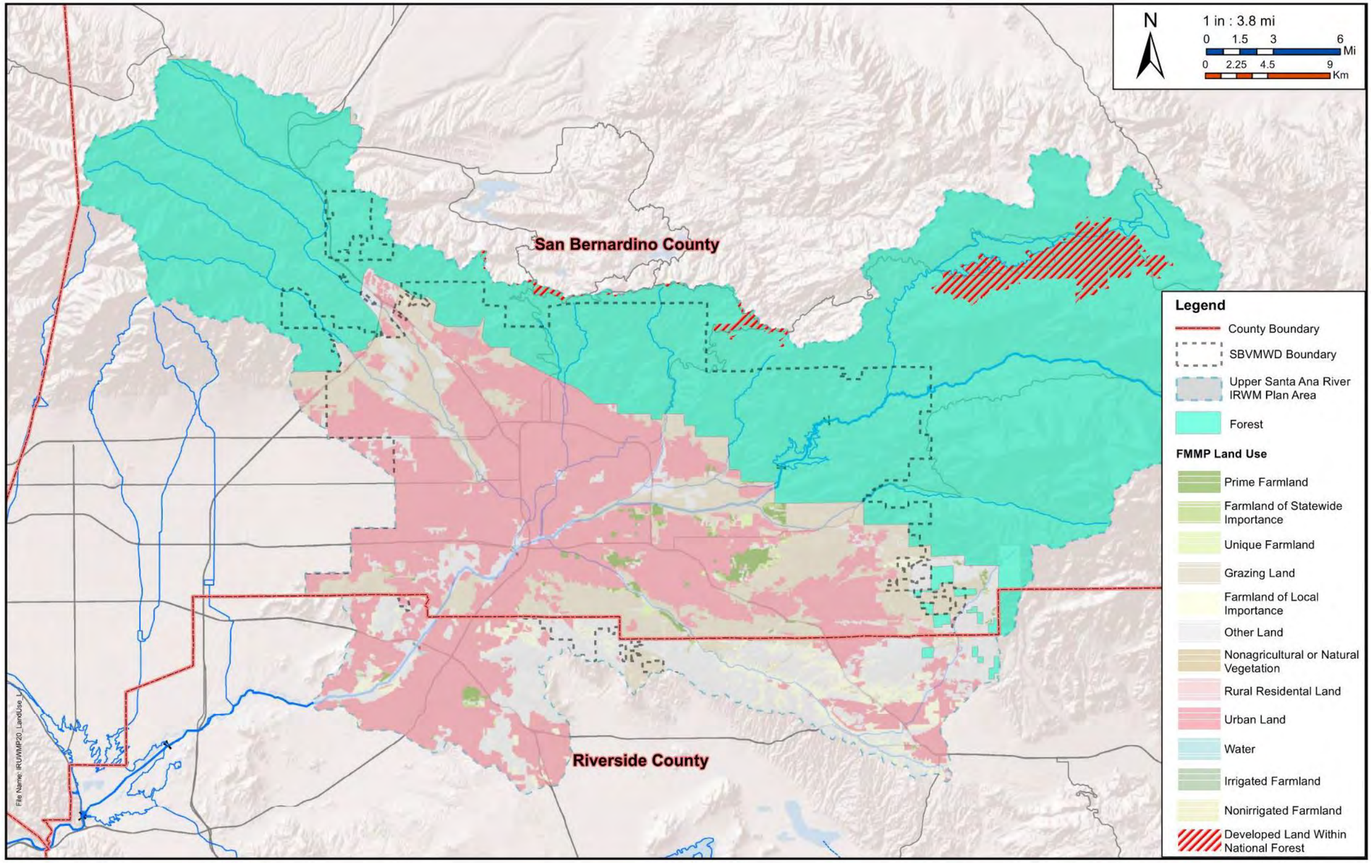
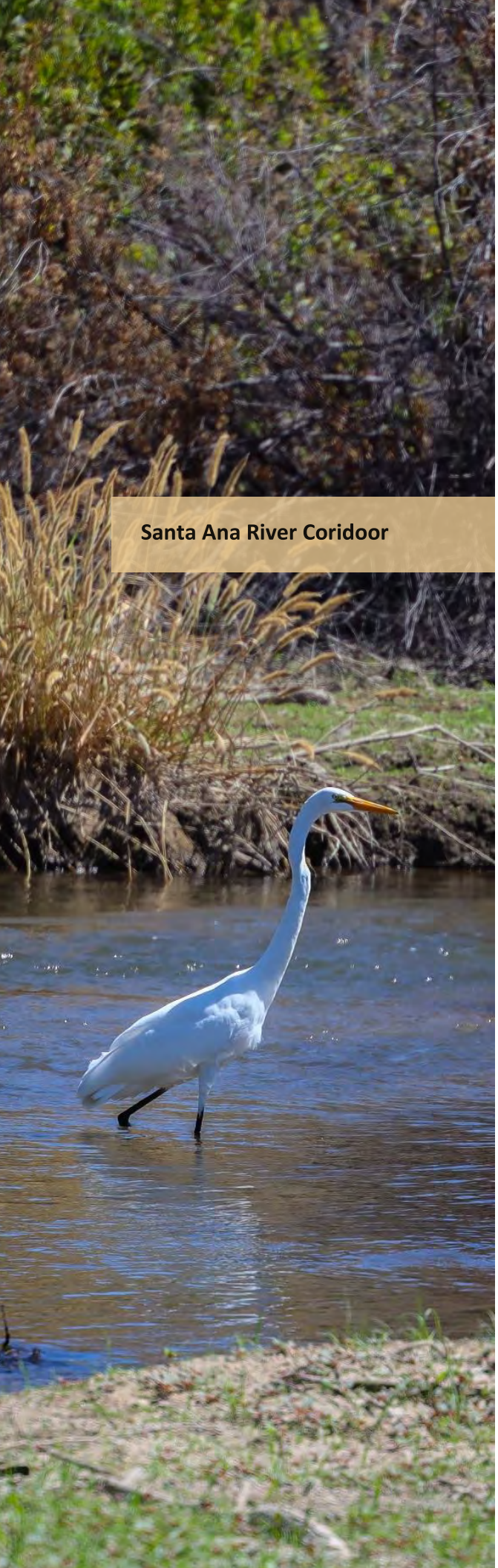


Figure 2-6. Land Uses within the Region





Santa Ana River Coridoor

2.5 Ecological and Environmental Resources

The Region contains unique and valuable ecological and environmental resources. The following section will discuss these resources, and the various management plans used to maintain them.

2.5.1 SAR Corridor

The SAR corridor is defined as the area located within the incised channel of the river. Persistent aquatic and riparian habitats are present immediately downstream of the Seven Oaks Dam plunge pool; in oxbows; in fault zones; in areas with manmade or natural water sources, such as a tributary confluence or a storm drain outfall; in areas with perched water tables; and downstream of river mile (RM) 54.5, where groundwater emerges and flows on the surface of the riverbed (USACE 2000). Much of the habitat within the SAR corridor provides optimal foraging opportunities and several areas provide adequate breeding areas for raptors. Trees found in the riparian woodlands provide perches for foraging over the scrub and grassland.

Except during the winter months of December through March, surface flows in the SAR between Seven Oaks Dam and the San Bernardino International Airport are generally absent, and the riverbed is a braided, dry channel. Cottonwood-willow riparian vegetation communities from Cuttle Weir to the airport are uncommon and limited to infrequent isolated patches or individual trees. This stretch is dominated by alluvial fan sage scrub vegetation, a vegetation community typical of alluvial fans with very porous soil types. Downstream from the airport, surface flows are more prevalent and large areas of contiguous, well-developed mesic riparian habitats exist. The nonnative and invasive giant reed (Arundo donax) is also common in spots along the banks of the SAR. Just downstream of the region are Prado Flood Control Basin and Prado Dam. Approximately

2,150 acres of land upstream of Prado Dam are owned by Orange County Water District, the local sponsor for Prado Dam. Within this area are approximately 465 acres of constructed wetlands as well as large areas of mature cottonwood-willow riparian vegetation, naturally occurring wetlands, and freshwater aquatic habitats.

The vegetation communities discussed above provide wildlife habitat throughout most of the SAR corridor. In general, there is a diverse array of wildlife present within the area. This is due to the large amount of connected natural open spaces that link various habitat types from the active river channels to the upmost upstream flood terraces. While a few wildlife species depend entirely on a single habitat type, the mosaic of the diverse vegetative communities within the Region and adjoining areas constitutes a functional ecosystem for a variety of sensitive native species.

The SAR contains a variety of riverine conditions and habitat types that support a number of fish species throughout nearly the entire river when winter and spring flows are present. Portions of the SAR, such as the segment that traverses the alluvial fan, are dry during most of the year and, consequently, offer only temporary habitat for fish.

The scrub, woodland, and riparian habitats in the SAR corridor provide foraging and cover habitat for songbirds including year-round, and seasonal residents, as well as migrating individuals. The overall condition of these communities in the corridor is good but requires long term management due to its location in the middle of the urban matrix. Water, provided by portions of the SAR and its tributaries provide an important resource for these birds.

Seven hundred and sixty acres of land belonging to the U.S. Bureau of Land Management (BLM) land within the Upper SAR wash area downstream from the Greenspot Bridge have been designated by BLM as an Area of Critical Environmental Concern (ACEC) because of the presence of the federally listed species, SAR woolly-star, and the San Bernardino kangaroo rat (U.S. Fish and Wildlife Service (USFWS) 1988) as well as the slender horned spineflower (South Coast Resource Management Plan, 1994).

Wildlife corridors link areas of suitable habitat that are separated by unsuitable habitat such as rugged terrain, development, or changes in vegetation. Riverbeds often provide an appropriate passageway for wildlife movement to otherwise disconnected areas. Historically, the SAR bed likely supported substantial movements by wildlife on a regional scale. In addition, the SAR floodplain may have acted as a hub for wildlife movement with many major tributaries converging in a relatively short section of the river. However, loss of habitat due to development on the floodplain and surrounding lowlands, including two dams, are likely to have greatly reduced the amount of regional movement through this corridor.

2.5.2 San Bernardino National Forest

The U.S. Forest Service (USFS) has jurisdiction over land uses in the San Bernardino National Forest, which is about 1/3 of the land within the Region. The San Bernardino National Forest Land and Resource Management Plan of 1988 (USDA Forest Service 1988) directs the management of the forest. Its goal is to provide a management program that reflects a mix of activities that allows both the use and protection of forest resources; fulfills legislative requirements; and addresses local, regional, and national issues.

The San Bernardino National Forest is divided into 15 management areas based on (1) combinations of watersheds that have similar characteristics, (2) wilderness areas, and (3) potential wilderness areas. The Seven Oaks Dam and adjacent areas are located in the Central Section of the San Gorgonio District of the Santa Ana Management Area. Much of the area in this district is classified as the Santa Ana Recreation Area, a designation designed to provide continued protection of the recreation values for which it was established.

The management for this area emphasizes (1) fire management, (2) recreation (dispersed recreation opportunities in the lower SAR area), and (3) other integrated activities (including wildlife management and non-motorized recreation).

2.5.2.1 San Bernardino National Forest Watershed Management Planning

The upper reaches of the SAR watershed are located in the San Bernardino National Forest. The San Bernardino National Forest is one of 18 national forests in California, collectively referred to as Region 5 of the USFS. In 1981, Region 5 entered into a Management Area Agreement with the SWRCB pursuant to Clean Water Act Section 208. This agreement designates Region 5 as the Water Quality Management Agency (WQMA) for the San Bernardino National Forest.

As the WQMA, Region 5 is responsible for the proper installation, operation, and maintenance of State- and EPA-approved BMPs in the San Bernardino National Forest. Region 5 is tasked with the responsibility of (1) correcting water quality problems in National Forests; (2) perpetually implementing BMPs; and (3) carrying out identified processes for improving or developing BMPs. In the Upper SAR watershed, the San Bernardino National Forest works conjunctively with the RWQCB on water quality issues such as TMDLs.

The San Bernardino National Forest is implementing its 2006 Land Management Plan for the San Bernardino National Forest (amended in 2014). The Forest Plan describes the strategic direction at the broad program-level for managing the San Bernardino National Forest, including watershed management initiatives over the next 10 to 15 years. In 2014, the United States Forest Service, San Bernardino National Forest completed a nonnative, invasive species removal National Environmental Policy Act (NEPA) decision for the Mill Creek drainage. Implementation of the decision is moving forward with various partners including Santa Ana Watershed Association (SAWA) and Southern California Edison (SCE). Additional partnerships

and funding opportunities are being pursued to reduce the seed source that ultimately works against forest management.

Valley District has also partnered with the San Bernardino National Forest to plan and ultimately implement important components of the conservation strategy associated with the Upper Santa Ana River Habitat Conservation Plan (River HCP). Collaborative efforts include those related to translocation of species including the Santa Ana sucker and mountain yellow-legged frog. More recently, Valley District has been pursuing a collaborative effort with the San Bernardino National Forest, SAWPA, Inland Empire Resources Conservation District (IERCD), and National Forest Foundation, amongst other potential partners to help increase the pace and scale of forest management. The goal of this collaborative management is to enable the forest to be resilient in the face of disturbances (i.e., catastrophic wildfire, drought, pest infestations, etc.) and other factors (i.e., politics, funding, etc.).

2.5.2.2 Hazardous Tree Removal Program/Fuels Management Program

It is estimated that approximately 90% of the precipitation in the Region falls on the San Bernardino National Forest. Presently, the forest has approximately 10 times more trees than can be supported by local precipitation. These “extra” trees are the result of development within the forest and the accompanying suppression of wildfire, which naturally thins the forest. These extra trees consume extra water and make the forest more susceptible to fire. When fire does occur, the resulting debris flows down the mountains and fills the SBCFCD debris basins, making them ineffective. As a result, Flood Control formed a partnership with the San Bernardino County Fire Protection District in 2005 to implement the Hazardous Tree Removal Program, later the Fuels Management Program, and participate in tree removal in the forest.

The SBCFCD Hazardous Tree Removal Operations Division (HTROD) is given responsibility for the development and contract administration of tree removal and fuels reduction projects on private lands in the vicinity of the San Bernardino National Forest. Tree removal/fuel reduction projects include the felling, removal, and disposal of dead, dying, and diseased trees, and any vegetation which creates a hazardous fuel for fires. In addition, the placement and/or installation of products and materials are required as needed, to prevent erosion and/or displacement of sediment.

Additional hazardous tree removal programs have surfaced in recent years. These efforts have been administered by the likes of Southern California Edison and CALFIRE.

2.5.3 U.S. Bureau of Land Management Area of Critical Environmental Concern

The BLM designated an ACEC in the SAR in 1994. The purpose of the ACEC designation is to protect and enhance the habitat of federally listed species occurring in the area while providing for the administration of valid existing rights (BLM 1996). The species of concern in the SAR

area include the SAR wooly-star, the Slender-Horned spineflower, and the San Bernardino kangaroo rat. The BLM manages over 1,100 acres that are part of the ACEC. Although the establishment of the ACEC is important in regard to conservation of sensitive habitats and species in this area, the administration of valid existing rights supersedes BLMs conservation abilities in this area. Existing rights include a withdrawal of federal lands in this area for water conservation through an act of Congress, February 20, 1909 (Pub. L. 248). The entire ACEC is included in this withdrawn land and may be available for water conservation measures such as the construction of percolation basins, subject to compliance with the act.

2.5.4 U.S. Army Corps of Engineers Woolly-Star Preserve Area

Santa Ana River Woolly-Star

To protect significant populations of the SAR woolly-star (a federally protected plant species), lands within the corridor of the SAR and portions of the alluvial fan terraces were set aside as a conservation area.

The Woolly-Star Preserve Area (WSPA) is a 764-acre area located west of the Greenspot Bridge that crosses the SAR.

The WSPA was established by mitigation in the 1990s by the USACE and local sponsors to address impacts related to the construction of Seven Oaks Dam.

Approximately 545 acres of the WSPA area are within the Santa Ana River Wash Plan planning area. As part of the Wash Plan Habitat Conservation Plan (Wash Plan HCP) (see **Section 2.5.7**), the Conservation District will provide additional management of 43.5 acres of land that is being added to the WSPA through the exchange between the Conservation District and a private landowner.

2.5.5 Western Riverside County Multi-Species Habitat Conservation Plan

The Multi-Species Habitat Conservation Plan (MSHCP) is a comprehensive, multi-jurisdictional plan that focuses on the conservation of species and their habitats in western Riverside County. The plan area includes all unincorporated land in Riverside County west of the crest of the San Jacinto Mountains to the Orange County line, as well as the jurisdictional areas of several cities. The MSHCP established a conservation area of more than 500,000 acres and focuses on the conservation of 146 species.

2.5.6 Upper Santa Ana River Habitat Conservation Plan

Water agencies and other stakeholders are in the process of finalizing the Upper Santa Ana River HCP (River HCP) to address the potential effects of local water management agency activities on the sensitive species and habitats in the watershed for purposes of acquiring an incidental take permit (ITP) under Section 10 of the Federal Endangered Species Act (FESA). The River HCP also provides the necessary elements for allowing other and similar permits under applicable California Endangered Species Act (CESA) provisions and addresses coordination efforts with California Department of Fish and Wildlife. The River HCP includes a Conservation Strategy for protecting, enhancing, and restoring the habitat for species either currently listed as threatened or endangered or may become listed during the permit term to mitigate the effects of water supply management activities. The Planning Area encompasses approximately 862,966 acres and was developed to ensure that the natural resources that might be affected by activities covered in the River HCP can be adequately assessed at a regional scale and that sufficient mitigation opportunities are available. When complete, the wildlife agencies will issue permits that will allow the projects in the River HCP to proceed.

More information on the River HCP can be found at www.uppersarhcp.com.

2.5.7 Wash Plan Habitat Conservation Plan

In 1993, representatives of numerous agencies - including water, mining, flood control, wildlife, and municipal interests - formed a Wash Committee to address mining issues local to the upper SAR wash area. The role of the Committee was subsequently expanded, and it began meeting in 1997 to determine how this area might accommodate all the important functions represented by the participating agencies.

The Wash Committee sought to disregard land ownership lines in favor of a "best use" strategy for land use planning. For example, significantly disturbed areas are more appropriate for mining while undisturbed lands are more favorable for wildlife. The primary goal of the Wash Plan HCP is to streamline permitting for the ground-disturbing activities associated with water conservation, aggregate mining, recreational activities, and other public service services in the Wash Plan HCP's Plan Area while balancing these impacts with the conservation of natural communities and populations of special-status plants and wildlife. The Upper Santa Ana River Wash Habitat Conservation Plan was approved in 2020 as part of an Incidental Take Permit application for its 63 projects from the USFWS. The project Planning Area covers approximately 4,900 acres ranging from Greenspot Road in the City of Highland to Alabama Street in the Cities of Redlands and Highland in the upper Santa Ana River wash.

As part of Wash Plan HCP implementation, the Santa Ana Wash Plan Land Exchange was signed into law in 2019 after nearly two decades of negotiation and collaboration among diverse interests. The Santa Ana Wash Plan Land Exchange Act will authorize BLM to exchange land

with the Conservation District, allowing agencies to move forward with Wash Plan projects to optimize implement critical water projects while expanding habitat for native and threatened species.

More information on the Wash Plan HCP can be found at https://www.sbvwcd.org/santa-ana-wash-plan

2.5.8 Unarmored Threespine Stickleback Shay Pond Fish Refugium

The unarmored threespine stickleback fish is a federally endangered species occurring in the eastern end of Big Bear Valley in Shay Pond. The refugium was developed to mitigate probable impacts of groundwater development on public and private lands, and to preserve USFS Special Use Permits issued to water and sewer agencies in Big Bear Valley. Collaboration between the BBCCSD, BBLDWP and the Big Bear Area Regional Wastewater Agency purchased 2.25 acres of private land surrounding a surviving population of the fish, and continually supplies up to 65 acre-feet of potable water annually to keep the pond filled. The agencies also supply equipment and operators to clean out the pond to maintain habitable area for the fish as directed by the U.S. Fish and Wildlife Service.

The agencies are in the process of developing a new water supply program called Replenish Big Bear that proposes to provide an alternate source of high-quality recycled water to the pond so that the current potable water source can be used to meet domestic water supply needs.

2.6 Regional Climate

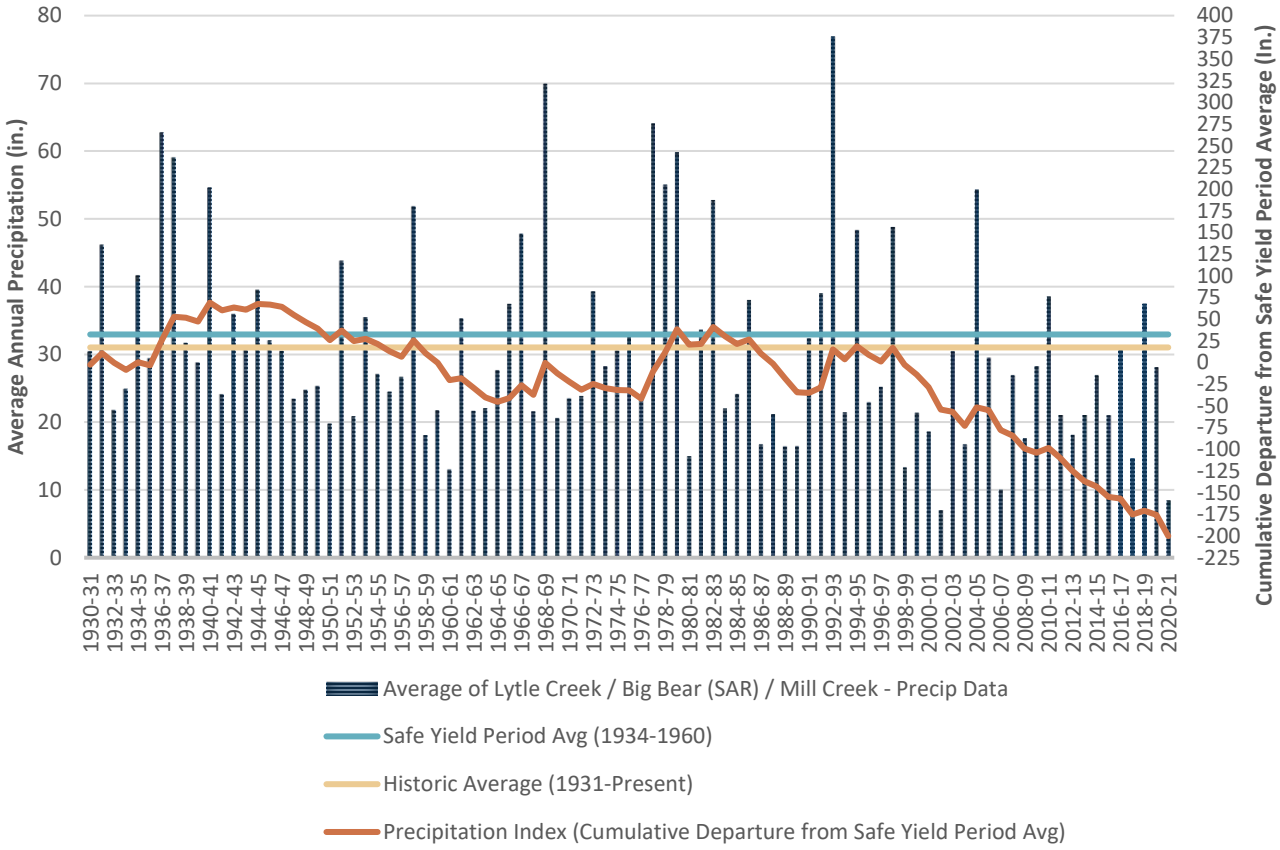
2.6.1 Current Regional Climate

Climate in the Region is characterized by relatively hot, dry summers and cool winters with intermittent precipitation. The largest portion (73%) of average annual precipitation occurs during December through March and rainless periods of several months are common in the summer. Precipitation is nearly always in the form of rain in the lower elevations and mostly in the form of snow above about 6,000 feet mean sea level (msl) in the San Bernardino Mountains. Mean annual precipitation ranges from about 12 inches in the vicinity of Riverside, to about 20 inches at the base of the San Bernardino Mountains, to more than 35 inches along the crest of the mountains.

San Bernardino Mountains

The historical record indicates that a period of above-average or below-average precipitation can last more than 30 years, such as the recent dry period that extended from 1947 to 1977. As shown by precipitation data in Figure 2-7, the Region has been experiencing an ongoing drought since 1999.

Figure 2-7. San Bernardino Basin Precipitation Index



Three types of storms produce precipitation in the SAR watershed: general winter storms, local storms, and general summer storms. General winter storms usually occur from December through March. They originate over the Pacific Ocean as a result of the interaction between polar Pacific and tropical Pacific air masses and move eastward over the basin. These storms, which often last for several days, reflect orographic (i.e., land elevation) influences and are accompanied by widespread precipitation in the form of rain and, at higher elevations, snow. Local storms cover small areas but can result in high intensity precipitation for durations of approximately six hours. These storms can occur any time of the year, either as isolated events or as part of a general storm, and those occurring during the winter are generally associated with frontal systems (a “front” is the interface between air masses of different temperatures or densities). General summer storms can occur in the late summer and early fall months in the San Bernardino area, although they are infrequent.

2.6.2 Potential Effects of Climate Change

Climate change modeling for the SAR watershed conducted in 2015 suggests that a changing climate will have multiple effects on the Region. Adaptation and mitigation measures will be necessary to account for these effects.

2.6.2.1 Predicted Impacts and Effects of Climate Change

The State of California completed the Fourth Climate Change Assessment (Fourth Assessment) in 2019. The Fourth Assessment examines climate-related vulnerability of people, infrastructure, and natural systems, and provides information to build resilience to climate impacts, including temperature, wildfire, sea level rise, and governance.

As part of this effort, the State prepared regional documents in which the region is included under the Los Angeles Region Report. Key projected climate changes from these documents include:

- Continued future warming, with increases in average maximum temperatures.
- Increases in extreme temperature
- Increases in dry and wet precipitation extremes
- Rising sea levels
- Increases in wildfire burned areas

The State's Cal-Adapt website provides a number of tools to use to estimate the effects of climate change at a local level. Cal-Adapt's Extreme Heat tool shows that in the future the number of days over 95°F will increase in multiple locations. The Region chose three cities with different temperature ranges to compare the increase across the entire watershed. The cities of Riverside, San Bernardino and Big Bear were used to see the projections of the number of days that would be above 95°F and the results are shown in **Table 2-3**.

Table 2-3: Average Number of Days per Year Exceeding 95°F

CITY	OBSERVED HISTORICAL (1961-1990)	2050	2070
Riverside	40	80	92
San Bernardino	32	72	80
Big Bear	0	0	0

Source: Cal-Adapt, Extreme Heat Days & Warm Nights tool. https://cal-adapt.org/tools/extreme-heat/. Accessed May 2021.
Scenario: RCP 4.5. Threshold temperature: 95°F. Models: Default GCMs.

The numbers of high temperature days in Riverside and San Bernardino are believed to double between the present and 2070. Similar increases in temperature can be anticipated throughout the inland valleys. These increased temperature levels will increase water demands across the watershed mainly for agricultural and irrigation purposes. The higher temperature days in Big Bear have the potential to affect the forest ecosystem and the snow related recreational activities in the area.

The forest ecosystems in the San Bernardino National Forest are currently on the decline. Alpine and subalpine forests are anticipated to decrease in area by fifty to seventy percent by 2100. It is believed that increased greenhouse gas emissions are a primary factor contributing to the decline of these fragile ecosystems. Wildfire risk is anticipated to increase particularly in the urban-wildland interface communities. Wildfires can pose serious threats not only to forest ecosystems, but also to critical water infrastructure. More frequent wildfires may also increase sediment and contaminant flows within the watershed, consequently degrading the quality of surface water bodies that are an important part of the ecosystem and Region's water supply.

Big Bear Lake and Stanfield Marsh in 2016

While high elevation ecosystems decrease, the severity of future floods is likely to increase. The likelihood of a 200-year storm event or longer is anticipated to be significantly higher in 2070. This increases the potential for negative impacts on nearby infrastructure. Furthermore, storms are expected to be more severe but less frequent. Despite these assumptions, the aftermath of a severe storm is highly variable. It is known that there are significant variabilities in the results of storm severity.

In addition to changes in ecosystems and storm severity, warmer temperatures may also decrease the annual amount of snow fall and increase the instance of rain in higher elevations. This alteration of precipitation type is likely to cause negative impacts for snow related recreational activities characteristic of the area's ski resorts. From a local standpoint, Big Bear and Snow Valley both lie below 3000 m and are anticipated to experience a decline in snowpack by 2070. Furthermore, it is projected that there will be a decrease in overall winter precipitation of the area by 2070. On a larger scale, the increased temperatures could affect the Sierras in a similar way, threatening the reliability of the SWP. Water quality could also suffer due to changes in precipitation and rising temperatures. Potential impacts such as increased contaminant concentrations and algal growth could increase water treatment needs.

A study was recently completed for the San Bernardino Valley area by RAND Corporation to identify vulnerabilities in demands and supplies according to various uncertainty factors, including climate change. The RAND study is discussed further in **Section 5.1**.

The vulnerability of the Region's water resources to these climate change effects are discussed further in Chapter 6.

PART 1: REGIONAL CONTEXT

3 Regional Water Sources and Management

This chapter describes the current and planned water resources available within the region for the 25-year period covered by the Plan. Management of the various water sources is also described, including legal judgements and regional management groups.

The Upper SAR watershed is an area with unique hydrological characteristics and complex water management issues. This Region was selected for IRWM planning in large part because of the following factors:

- Rapid population growth in the area and the potential for continued rapid growth in the future.
- Significant institutional issues, hydrological characteristics, and court judgments that separate the Upper SAR watershed from the downstream portion of the watershed at the Riverside Narrows just upstream from Prado Dam. The Orange County Water District v. City of Chino, et al., Case No. 117628 (Orange County Judgment) and the Western Municipal Water District of Riverside County v. East San Bernardino County Water District, Case No. 78426 (Western Judgment), have significant influence on water management of the Upper SAR and dictate, to some degree, how water resources should be managed in the Upper SAR watershed.

IN THIS SECTION

- Regional Water Sources
- Summary of Water Sources Used by Agency
- Local Water Management
- Water Quality
- Major Regional Water Infrastructure

- The Upper SAR watershed is an area with unique physical characteristics. The Upper SAR has widely variable hydrology and challenging water management issues, including the desire to optimize the use of local water supplies. The agencies in the Region coordinate and collectively manage the groundwater spreading and pumping, and work together on this cooperative, integrated plan which gives them the opportunity to regularly evaluate their needs and their management strategies.
- The region has significant groundwater basin storage.

3.1 Surface Hydrology

Surface hydrology of the Region is comprised of the SAR and its tributaries as shown in **Figure 3-1.** A number of surface reservoirs in the Region are operated primarily for agricultural and urban water use but are also regulated for instream flows and recharge of groundwater basins.

3.1.1 SAR Reaches

The IRWM Region is within the boundaries of the Santa Ana Regional Water Quality Control Board (SARWQCB). The SARWQCB has divided the mainstem of the SAR into six reaches. Reaches 1 through 6 have reach numbers beginning at the Pacific Ocean and increasing upstream. Reaches 3 through 6 are located in the Upper SAR watershed. These reaches are described in more detail below, from upstream to downstream.

Reach 6 (River Mile (RM) 70.93 and Above)

This reach includes the river upstream of Seven Oaks Dam where flows consist largely of snowmelt and storm runoff and water tends to be of excellent quality (SARWQCB 1995).

Reach 5 (RM 70.93 to RM 57.68)

This reach extends from Seven Oaks Dam to the Bunker Hill Dike (San Jacinto fault), which marks the downstream edge of the Bunker Hill Subbasin. This reach tends to be dry except during storm flows. The lower end of this reach sometimes has rising groundwater and includes the San Timoteo Creek, which flows on an intermittent basis (SARWQCB 1995).

Reach 4 (RM 57.68 to RM 49.00)

This reach includes the SAR from Bunker Hill Dike downstream to Mission Boulevard Bridge in Riverside. The bridge is the upstream limit of rising groundwater resulting from the constriction at Riverside Narrows. Until about 1985, most water in the reach percolated to the local groundwater leaving the lower part of the reach dry. However, flows in the lower end of this reach may now intermittently contain rising groundwater, RIX, and Rialto discharge, and flows from San Timoteo Creek.

Reach 3 (RM 49.00 to RM 30.50)

This reach includes the SAR from Mission Boulevard Bridge in Riverside to Prado Dam. At the Riverside Narrows, rising groundwater feeds several small tributaries including Sunnyslope Channel, Tequesquite Arroyo, and Anza Park Drain (SARWQCB 1995).

3.1.2 Natural Runoff

Runoff records provide information on the characteristics of flow in the SAR and its tributaries. Such records are available for a number of stream gaging stations located on the mainstem of the SAR and throughout the SAR watershed. The SAR runoff records demonstrate the highly variable nature of river flow, with large floods and long periods of extremely low flow. Three gaging stations provide streamflow data for the USARW. Mentone Gage (USGS record 11051500) is representative of SAR flow near Seven Oaks Dam. There are two other USGS gaging stations located downstream of Seven Oaks Dam, but within the USARW basin—the "E" Street Gage (USGS Gage 11059300) located in the City of San Bernardino at river mile (RM) 57.69 and the Metropolitan Water District Crossing Gage (Metropolitan Crossing) (USGS Gage 11066460) located at RM 45.7 near Riverside Narrows. **Table 3-1** provides the annual median, maximum, and minimum streamflow recorded at the Mentone, "E" Street, and Metropolitan Crossing gages (see **Figure 2-1** for gage locations).

Table 3-1 : Upper SAR Median, Maximum, and Minimum Annual Flow (in AF)

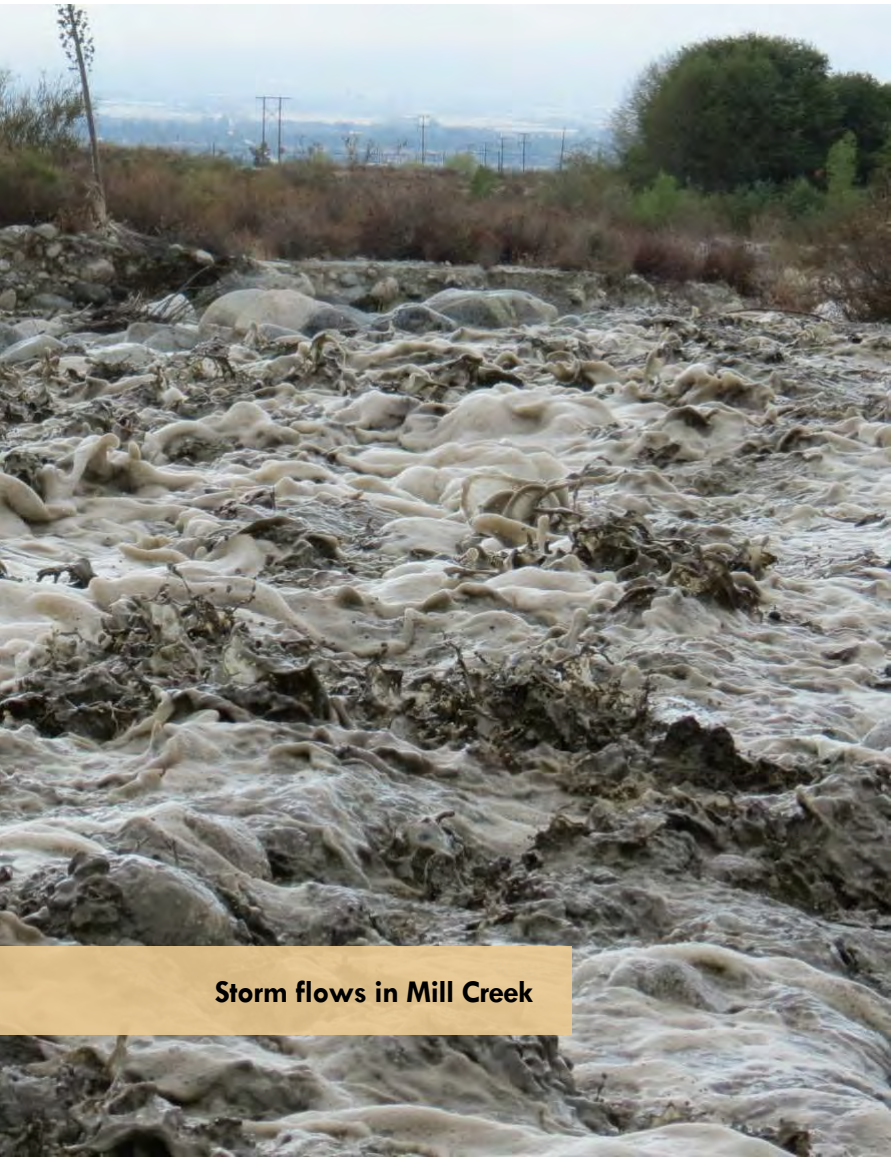
GAGE	MEDIAN ANNUAL FLOW	MAXIMUM ANNUAL FLOW	MINIMUM ANNUAL FLOW
Mentone[a]	8,977	204,812	9
"E" Street[b]	21,202	316,302	567
Metropolitan Crossing[c]	77,166	355,468	21,000

Source: USGS gage data.

[a] USGS Gage 11051500. Period of record is WY 1899-1900 through WY 2019-20.

[b] USGS Gage 11059300. Period of record is WY 1938-39 through WY 1945-46, WY 1947-48 through 1953-54, WY 1966-67 through WY 2019-20.

[c] USGS Gage 11066460. Period of record is WY 1969-70 through WY 2018-19.



Storm flows in Mill Creek

As exhibited in **Table 3-1**, flow in the SAR is highly variable from year to year. Flow in the SAR increases downstream due to inflows from tributaries, rising water[1], and treated water from wastewater treatment plants (WWTPs). SAR flows at the "E" Street Gage include flows from Mill Creek and San Timoteo Creek, but not from Lytle and Warm Creeks, which enter the SAR below the "E" Street Gage. SAR flows at the Metropolitan Crossing include inflows from Lytle and Warm Creeks, two large public WWTPs, and rising water.

Flows in excess of about 70,000 AFY have a frequency of occurrence of only 13% at the River Only Mentone Gage, whereas this same flow has a frequency of occurrence of 62% at the Metropolitan Crossing Gage. Additionally, in the upstream areas, minimum annual stream flows are generally much smaller than minimum annual flows in the downstream areas.

[1] Rising water is used to describe noticeable increases in streamflow in reaches where a subsurface restriction forces groundwater to the surface.

The largest monthly flows typically occurred in February and March, and the lowest monthly flows typically occurred between August and October. Although streamflow increases downstream, the timing of flows (i.e., when the monthly maximums and minimums occur) is similar to the timing of flows observed at the Mentone Gage.

There are numerous tributaries that contribute flow to the mainstem of the SAR in the Region, including Mill Creek, City Creek, Plunge Creek (a tributary of City Creek), Mission Zanja Creek (located upstream of San Timoteo Creek), San Timoteo Creek, East Twin Creek, Warm Creek, and Lytle Creek (Figure 3-1). The flow (under 100-year flood conditions[2]) contributed by each of these tributaries is provided in **Table 3-2**. As a reference, during a 100-year flood event, Seven Oaks Dam would release up to 5,000 cfs (USACE 1988).

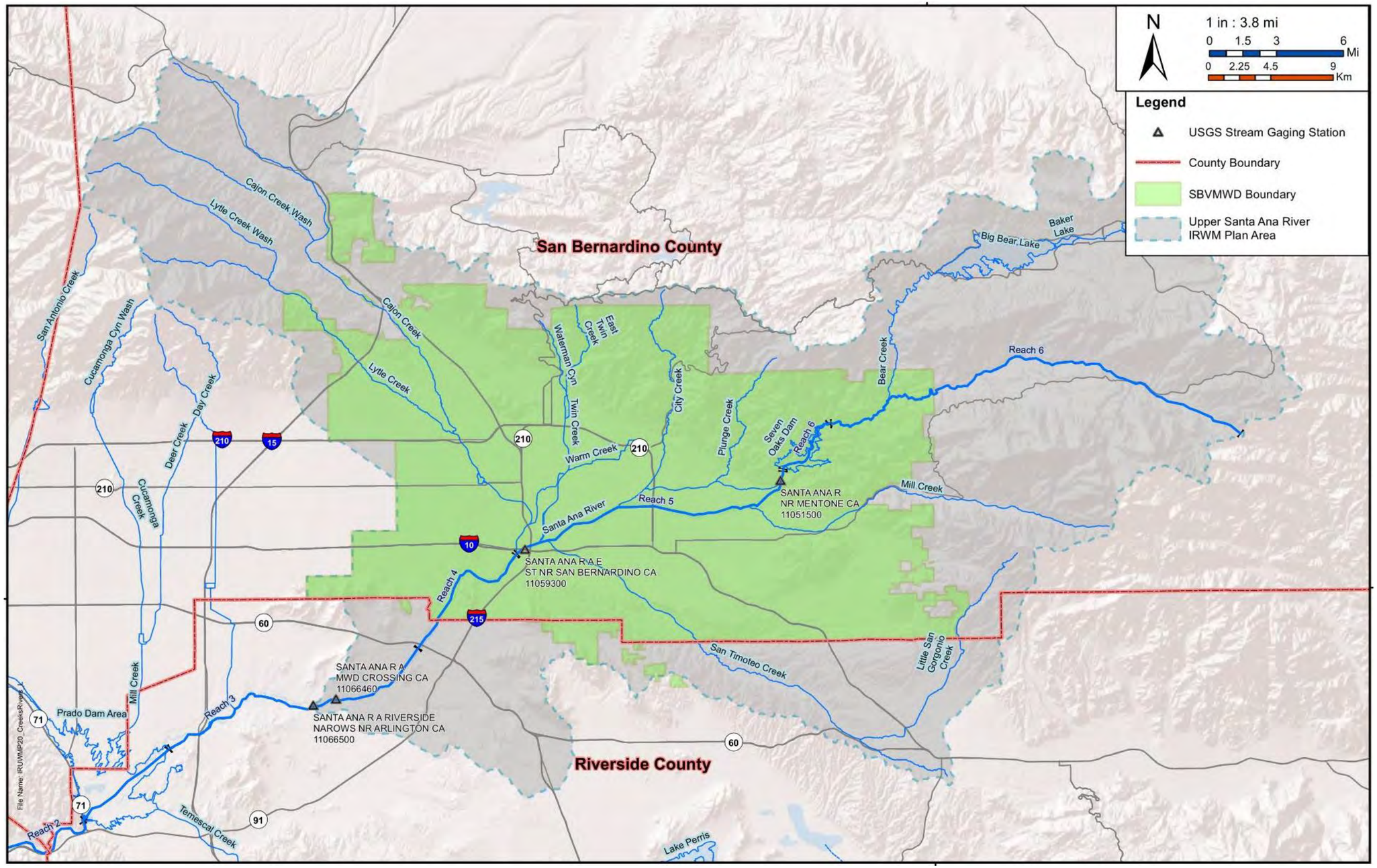
Table 3-2 : Tributary Flow Contribution to the SAR (100-Year Flood Event Discharge in cfs)

TRIBUTARY	INFLOW	RIVER MILE
Mill Creek	23,000	68.67
City Creek & Plunge Creek (Combined)	16,460	62.87
Mission Zanja Creek	6,100	59.08
San Timoteo Creek	19,500	58.44
East Twin Creek	18,000	58.14
Lytle Creek & Warm Creek (Combined)	70,000	56.74

Source: USACE 2000 and SBCFCD 2013

[2] A flood as defined under the Standard Flood Insurance Policy is a general and temporary condition of partial or complete inundation of normally dry land areas from overflow of inland or tidal waters or from the unusual and rapid accumulation of runoff of surface waters from any source. A 100-year flood refers to a flood level with a 1 in 100 percent chance of being equaled or exceeded in any given year.

Figure 3-1. Creeks and Rivers in the Region



3.2 Imported Water

Imported water from the California State Water Project (SWP), is available to the Region for the East Branch through the Region's State Water Contractors: Valley District, San Gorgonio Pass Water Agency, and Metropolitan Water District of Southern California (Metropolitan).

Valley District is the fifth (5th) largest State Water Contractor, with an annual entitlement of 102,600 AF. Valley District takes delivery of SWP water at the Devil Canyon Afterbay. From this location, Valley District can deliver water to the west via the San Gabriel Valley Municipal Water District Pipeline (Valley District owns capacity in this pipeline) or to the east to San Gorgonio Pass Water Agency through the East Branch Extension of the SWP.

San Gorgonio Pass Water Agency is downstream of Valley District on the East Branch of the California Aqueduct. See the San Gorgonio Pass Water Agency 2020 UWMP for more information. Valley District and the SGPWA coordinate work as they both share capacity along the East Branch Extension. Two retail water districts included in this plan (YVWD and SMWC) are co-located in the within the Valley District and SGPWA service areas. In addition to operating some mutually used facilities, the Valley District and SGPWA have an agreement in place to share excess imported supplies when available, which is included in **Part 3 Appendix B**.

Metropolitan provides SWP water to portions of the Region through their member agencies, Western and Inland Empire Utilities Agency (IEUA). Western does not currently deliver imported water to its retail agencies within the Region but may in the future. FWC and WVWD are co-located within both the Valley District and IEUA service areas and FWC uses imported water from both IEUA and Valley District.

In 2021, Valley District entered into a new Coordinated Operating Agreement (COA) with Metropolitan that would sell them most of Valley District's surplus imported water; this COA replaced the previous version that expired in 2016. One of the terms of the COA requires Metropolitan to offer 50% of any surplus water purchased under this agreement to their member agencies in the SARCCUP Program. The COA is included in **Part 3 Appendix B**. Metropolitan and its member agencies that are part of the SARCCUP have also developed a companion agreement that describes how SARCCUP will function within Metropolitan's existing policies.

3.2.1 SWP Overview

Imported water is available to the Region from the California State Water Project (SWP), which is the largest state-built, multi-purpose water project in the country; it is paid for by the 29 State Water Contractors, including Valley District, SGPWA and MWDSC and operated and maintained by DWR. It was authorized by the California State Legislature in 1959, with the construction of most initial facilities completed by 1973. The SWP is a water storage and delivery system of reservoirs, aqueducts, power plants and pumping plants. Its main purpose is to capture and store water at Lake Oroville and distribute it to the 29 State Water Contractors in

Northern California, the San Francisco Bay Area, the San Joaquin Valley, the Central Coast, and Southern California. Of the contracted water supply, approximately 70 percent goes to urban users and 30 percent goes to agricultural users. The SWP makes deliveries to two-thirds of California's population. The SWP is also operated to improve water quality in the Sacramento-San Joaquin Delta, control Feather River flood waters, provide recreation, and enhance fish and wildlife.

The SWP includes 34 storage facilities, reservoirs, and lakes, 20 pumping plants, four pumping-generating plants, five hydro-electric plants, and approximately 701 miles of aqueducts and pipelines. The primary water source for the SWP is the Feather River, a tributary of the Sacramento River. Water released from Oroville Dam on the Feather River flows down natural river channels to the Sacramento-San Joaquin River Delta (Delta). While some SWP supplies are pumped from the northern Delta into the North Bay Aqueduct, the vast majority of SWP supplies are pumped from the southern Delta into the 444-mile-long California Aqueduct. The California Aqueduct conveys water along the west side of the San Joaquin Valley to Edmonston Pumping Plant, where water is pumped over the Tehachapi Mountains. The aqueduct then divides into the East and West Branches.

Each SWP contractor's SWP Water Supply Contract includes a "Table A," which lists the maximum amount of water an agency is entitled to throughout the life of the contract. The Table A amount is each contractor's proportionate share, or "allocation," of the SWP water supply. However, actual deliveries of SWP water each year vary, based mainly on the amount of precipitation (for other factors, see **Section 3.2.2** below).

While the primary supply of water available from the SWP is allocated Table A supply, SWP supplies in addition to Table A water are periodically available, including "Article 56C" carryover water, "Article 21" water, "Turnback Pool" water, and DWR "Dry Year Purchase Programs". Pursuant to the long-term water supply contracts, SWP contractors have the opportunity to carry over a portion of their allocated water approved for delivery in the current year for delivery during the next year (Article 56C) with advance notice when they submit their initial request for Table A water, or within the last three (3) months of the delivery year. The carryover program was designed to encourage the most efficient and beneficial use of water and to avoid obligating the contractors to "use or lose" the water by December 31 of each year. The water supply contracts outline the criteria for carrying over Table A water from one year to the next. Normally, carryover water is water that has been exported during the year, has not been delivered to the contractor during that year, and has remained stored in the SWP share of San Luis Reservoir to be delivered during the following year. Storage for carryover water no longer becomes available to the contractors if it interferes with storage of SWP water for project needs.

Article 21 water (which refers to the SWP contract provision defining this supply) is water that may be made available by DWR when excess flows are available in the Delta (i.e., when Delta outflow requirements have been met, SWP storage south of the Delta is full, and conveyance capacity is available beyond that being used for SWP operations and delivery of allocated and scheduled Table A supplies). Article 21 water is made available on an unscheduled and interruptible basis and is typically available only in average to wet years, generally only for a limited time in the late winter.

In wet periods, the amount of water available may exceed the amount of storage in the SWP system. During these times, State Water Contractors may have excess SWP water. Valley District has agreements, in place, to sell surplus water to SGPWA and Metropolitan Water District of Southern California

3.2.1.1 SWP Contract Amendments

Contract Extension

DWR provides water supply from the SWP to 29 SWP Contractors (Contractors) in exchange for Contractor payment of all costs associated with providing that supply. DWR and each of the Contractors entered into substantially uniform long-term water supply contracts (Contracts) in the 1960s with 75-year terms. The first Contract terminates in 2035, and most of the remaining Contracts terminate within three years after that.

The majority of the capital costs associated with the development and maintenance of the SWP is financed using revenue bonds. These bonds have historically been sold with 30-year terms. It has become more challenging in recent years to affordably finance capital expenditures for the SWP because bonds used to finance these expenditures are limited to terms that only extend to the year 2035, less than 30 years from now. To ensure continued affordability of debt service to Contractors, it was necessary to extend the termination date of the Contracts to allow DWR to continue to sell bonds with 30-year terms.

Public negotiations to extend the Contracts took place between DWR and the Contractors during 2013 and 2014. An agreement-in-principle (AIP) was reached and was the subject of analysis under the requirements of the California Environmental Quality Act (CEQA) (Notice of Preparation dated September 12, 2104). On December 11, 2018 DWR Director approved the Water Supply Contract Extension Project. In accordance with CEQA, DWR also filed its Notice of Determination for the project with the Governor's Office of Planning and Research. In addition, DWR filed an action in Sacramento County Superior Court to validate the Contract Extension Amendments (https://water.ca.gov/Programs/State-Water-Project/Management/Water-Supply-Contract-Extension). After CEQA was completed and contract language was finalized, DWR and 18 contractors have executed the Extension Amendment. The Extension Amendment would extend the contracts through 2085 and improve the project's overall financial integrity and management. The Extension Amendment is the subject to a validation action and two CEQA lawsuits.

Water Management Tools

In a December 2017 Notice to Contractors, DWR indicated its desire to supplement and clarify the water management tools through this public process. Seeking greater flexibility to manage the system in order to address changes in hydrology and further constraints placed on DWR's operation of the SWP, PWAs and DWR conducted public negotiations in 2017 to improve water management tools (WMT Amendment). The goal of the negotiations was to develop concepts to supplement and clarify the existing SWP Contract's water transfer and exchange provisions to provide improved water management amongst the PWAs. Importantly, the transfers and exchanges provided for in the contract amendment are limited to those transfers and exchanges amongst the Public Water Agencies ("PWA's") with SWP Contracts.

In June 2018, PWAs and DWR completed an AIP which included specific principles to accomplish this goal. These principles included adding contract language to include a process for transparency for transfers and exchanges. The principles also include amending existing contract provisions to provide new flexibility for single and multi-year non-permanent water transfers, allowing PWAs to set terms of compensation for transfers and exchanges, and providing for the limited transfer of carryover and Article 21 water.

In October 2018, a Draft Environmental Impact Report (DEIR) was circulated for the contract amendments. The AIP at that time included cost allocation for the California WaterFix project

(WaterFix). In early 2019, the Governor decided not to move forward with WaterFix and DWR rescinded its approvals for WaterFix. After this shift, the PWAs and DWR held a public negotiation session and agreed to remove the WaterFix cost allocation sections from AIP, but to keep all the water management provisions in the AIP. The AIP for water management provisions was finalized on May 20, 2019. In February 2020, DWR amended and recirculated the Partially Recirculated DEIR for the State Water Project Supply Contract Amendments for Water Management and in August 2020, DWR certified the Final EIR. The EIR is being challenged in court. The WMT Amendment is effective when 24 SWP PWAs approve the amendment. The transfer and exchange tools will be available during litigation unless there is a final court order prohibiting their implementation.

Delta Conveyance Project

Consistent with Executive Order N-10-19, in early 2019, the state announced a new single tunnel project, which proposed a set of new diversion intakes along Sacramento River in the north Delta for SWP. In 2019 DWR initiated planning and environmental review for a single tunnel Delta Conveyance Project (DCP) to protect the reliability of SWP supplies from the effects of climate change and seismic events, among other risks. DWR's current schedule for the DCP environmental planning and permitting extends through the end of 2024. DCP will potentially be operational in 2040 following extensive planning, permitting and construction.

The third set of amendments would allocate Delta Conveyance Project costs and benefits among the SWP PWAs. Public negotiations between DWR and PWA's for the Delta Conveyance Project began in 2019 and were completed in April 2020. These negotiations led to an Agreement in Principle ("AIP") for an Amendment to the State Water Contract regarding the Delta Conveyance Project. The Parties' goal was to equitably allocate costs and benefits of a Delta Conveyance Facility and to preserve State Water Project operational flexibility. A decision by each participating PWA for approving a contract amendment with DWR would not occur until after the environmental review for the Delta Conveyance Project is completed. That decision would likely occur in 2023, at the earliest.

3.2.2 Imported Water Supply Reliability

This section presents the imported water supply reliability assumptions used in Valley District's water supply reliability analysis to meet the requirements of the UWMP Act; these apply only to Valley District. For assumptions and analysis used by San Gorgonio Pass Water Agency, Metropolitan and Western, refer to their respective 2020 UWMPs.

The amount of SWP water delivered to State Water Contractors in a given year depends on a number of factors, including the demand for the supply, amount of rainfall, snowpack, runoff, water in storage, pumping capacity from the Delta, and legal/regulatory constraints on SWP operation. Water delivery reliability depends on three general factors: the availability of water, the ability to convey water to the desired point of delivery, and the magnitude of demand for the

water. Urban SWP contractors' requests for SWP water, which were low in the early years of the SWP, have been steadily increasing over time. Regulatory constraints have changed over time, becoming more restrictive.

DWR prepares a biennial report to assist SWP contractors and local planners in assessing the availability of supplies from the SWP. DWR issued its most recent update, the 2019 DWR State Water Project Delivery Capability Report (DCR), in August 2020. In this update, DWR provides SWP supply estimates for SWP contractors to use in their planning efforts, including for use in their 2020 UWMPs. The 2019 DCR includes DWR's estimates of SWP water supply availability under both existing (2020) and future conditions (2040).

DWR's estimates of SWP deliveries are based on a computer model that simulates monthly operations of the SWP and Central Valley Project systems. Key inputs to the model include the facilities included in the system, hydrologic inflows to the system, regulatory and operational constraints on system operations, and contractor demands for SWP water. In conducting its model studies, DWR must make assumptions regarding each of these key inputs.

In the 2019 DCR for its model study under existing conditions, DWR assumed: existing facilities, hydrologic inflows to the model based on 82 years of historical inflows (1922 through 2003), current regulatory and operational constraints including 2018 COA Amendment, 2019 biological opinions and 2020 Incidental Take Permit, and contractor demands at maximum Table A Amounts.

To evaluate SWP supply availability under future conditions, the 2019 DCR included a model study representing hydrologic and sea level rise conditions in 2040. The future condition study used all of the same model assumptions as the study under existing conditions, but reflected changes expected to occur from climate change, specifically, projected temperature and precipitation changes centered around 2035 (2020 to 2049) and a 45 cm sea level rise.

3.2.2.1 Sites Reservoir

Sites Reservoir is a proposed new 1,500,000 acre-feet off-stream storage reservoir in northern California near Maxwell. Sacramento River flows will be diverted during excess flow periods and stored in the off-stream reservoir and released for use in drier periods. Sites Reservoir is expected to provide water supply, environmental, flood and recreational benefits. The proponents of Sites Reservoir include 31 entities including Valley District and SGPWA. Sites Reservoir is expected to compliment the Delta Conveyance Project by providing approximately 240 TAF (Sites Reservoir Value Planning Report, Table 8-1) of additional deliveries during drier years. Sites Reservoir is currently undergoing environmental planning and permitting. Sites was conditionally awarded $816 million in grant funds from the California Water Commission for ecosystem, recreation, and flood control benefits under Proposition 1. Reclamation may also invest in Sites under the Water Infrastructure Improvements for the Nation (WIIN) Act and recently transmitted a final Federal Feasibility Report to Congress for the project.

Both Valley District and SGPWA are proponents of the Sites Reservoir Project and have made financial contributions to its planning and development. As both agencies are financial contributors to the project, both would receive a share of deliveries to South of Delta agencies during average and drier years.

The Sites Reservoir and DCP are critical investments to protect and enhance the reliability of SWP supplies and increase deliveries in dry years. **Section 3.2.3.1** describes how these improvements are incorporated into Valley District's UWMP Analysis. For information on SWP supply reliability for the SGPWA, Metropolitan, IEUA and Western, see their respective 2020 UWMPs.

3.2.3 Valley District SWP Supply Reliability (Review)

Once the bonds from initial construction of the SWP have been paid off in 2035, the taxpayers in Valley District's service area will have invested over $1.23 billion for their share of the SWP storage and delivery system. **Table 3-3** presents historical total SWP water deliveries to Valley District.

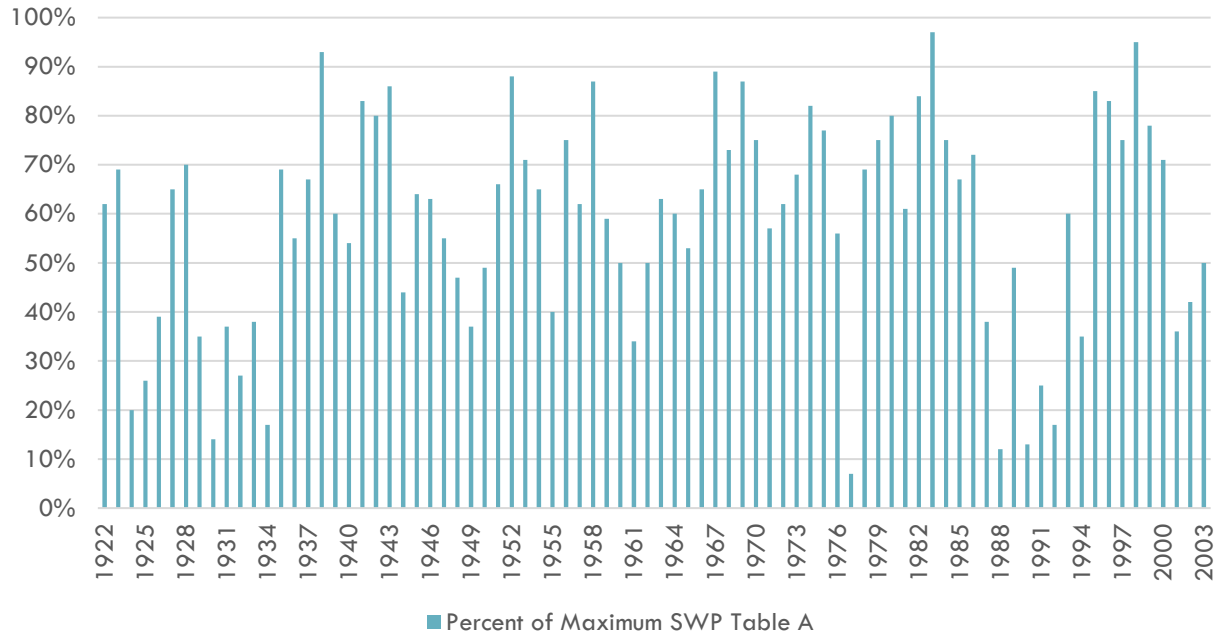
Table 3-3. Historical State Water Project Deliveries to Valley District

CALENDAR YEAR	TOTAL DELIVERIES (AF)
2010	30,310
2011	29,129
2012	40,216
2013	31,020
2014	19,223
2015	35,430
2016	62,600
2017	78,396
2018	44,307
2019	78,478
2020	23,504

Valley District's analysis assumes that the long-term average allocation reported in the 2019 DCR for the existing conditions study provide appropriate estimate of the SWP water supply availability under current conditions. For the long-term planning purposes of the Valley District supply reliability analysis, the long-term average allocations reported for the future conditions study from 2019 DCR are used to estimate future SWP water supply availability. It is assumed

that the existing condition allocations will apply until 2035 and the future conditions allocations will apply in 2040 and 2045.

Figure 3-2. Estimated SWP Water Supply Availability from the DWR 2019 DCR Existing Conditions Scenario



The estimated long-term average SWP water supply availability from the 2019 DCR is shown in **Figure 3-2** and **Table 3-4**.

Table 3-4. SWP Table A Water Supplies Available (Long-term Average – 1922-2003)

STATE WATER PROJECT SUPPLIES	2025	2030	2035	2040	2045
% of Table A Amount Available	58%	58%	58%	52%	52%
Anticipated Deliveries (AFY)	59,508	59,508	59,508	53,352	53,352

Source: 2019 DWR Delivery Capability Report

Table 3-5 summarizes estimated SWP supply availability to Valley District in a single-dry year (based on a repeat of the worst-case SWP allocations of 2014 and 2021) and over a multiple-dry year period (based on a repeat of the worst-case historic six-year drought of 1987 to 1992). To further evaluate the range of potential supply conditions, the Region has elected to evaluate supplies under a 30-year drought and a wet year. The wet year reliability is provided in the 2019 DCR. The 30-year drought reliability was calculated using the same methodology DWR uses to determine the six-year drought supplies but extended over a longer period. These values are also shown in **Table 3-5** and the range of water supply availability by year used in each scenario is shown in

Figure 3-3.

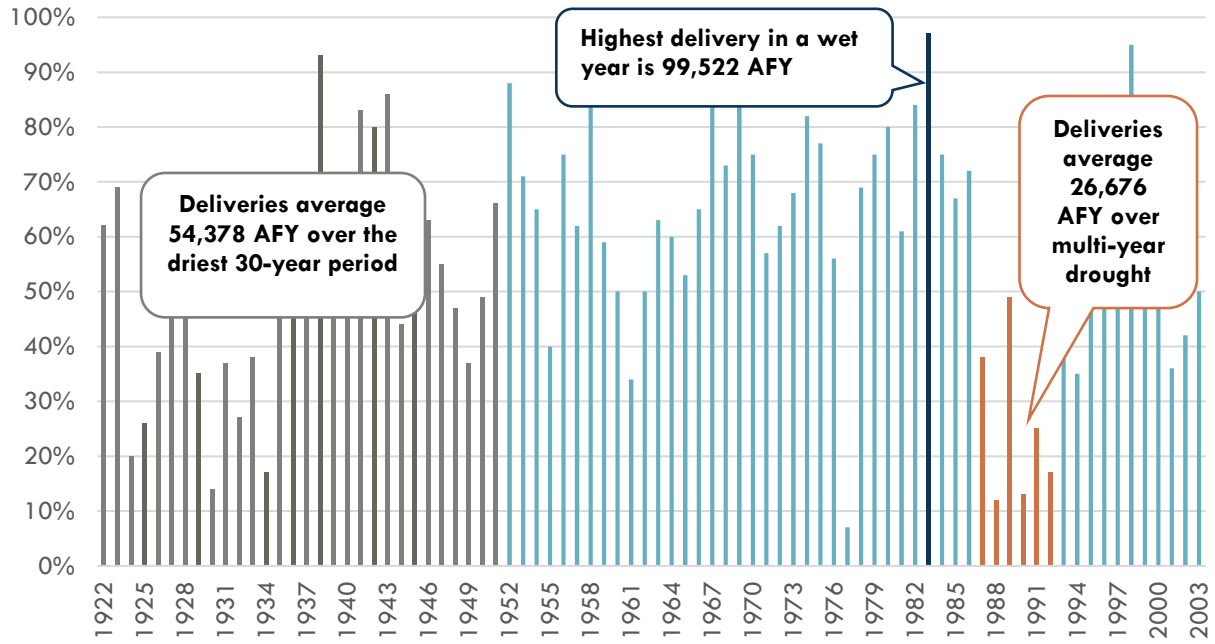
For each condition, it is assumed that the existing condition allocations will apply until 2035 and the future conditions allocations will apply in 2040 and 2045.

Table 3-5 Estimated SWP Table A Supply Reliability

STATE WATER PROJECT SUPPLIES	2025	2030	2035	2040	2045
SINGLE DRY YEAR (2014 AND 2021)					
% of Table A Amount Available	5%	5%	5%	5%	5%
Anticipated Deliveries (AFY)	5,130	5,130	5,130	5,130	5,130
MULTIPLE DRY YEAR (1987-1992)					
% of Table A Amount Available	26%	26%	26%	22%	22%
Anticipated Deliveries (AFY)	26,676	26,676	26,676	22,572	22,572
30-YEAR DROUGHT (1922-1951)					
% of Table A Amount Available	53%	53%	53%	48%	48%
Anticipated Deliveries (AFY)	54,378	54,378	54,378	49,248	49,248
WET YEAR (1983)					
% of Table A Amount Available	97%	97%	97%	97%	97%
Anticipated Deliveries (AFY)	99,522	99,522	99,522	96,444	96,444

Source: 2019 DWR Delivery Capability Report, except for Single Dry Year (see Section 3.2.3.1)

Figure 3-3. Estimated SWP Supply Availability for Wet Year, Multiple Dry Years and a 30-Year Drought



As described in **Section 3.2.1**, there are several programs that give Valley District flexibility to increase deliveries above the Table A allocation in a given year, including the use of carry over water. As urban contractor demands increase in the future, the amount of water turned back and available for purchase will likely diminish. In critical dry years, DWR has formed Dry Year Water Purchase Programs for contractors needing additional supplies. Through these programs, water is purchased by DWR from willing sellers in areas that have available supplies and is then sold by DWR to contractors willing to purchase those supplies. Because the availability of these supplies is somewhat uncertain and do not represent a large quantity of water, they are not included as supplies available to Valley District in this Plan. However, Valley District's access to these supplies when they are available may enable it to improve the reliability of its SWP supplies in extremely dry years to help meet its direct delivery demands. The main strategy Valley District will use to supplement supplies in dry years is wet year water stored in local groundwater basins and water banks. Valley District is already implementing conjunctive use in the SBB and there are plans to develop additional conjunctive use programs.

3.2.3.1 Lowest SWP Water Supply Allocation

DWR's 2019 Delivery Capability Report indicates that the modeled single dry year SWP water supply allocation is 7% under the existing conditions. However, historically the lowest SWP allocations were at 5% in 2014 and initial allocations in 2021. Due to extraordinarily dry conditions in 2013 and 2014, the initial 2014 SWP allocation was a historically low 5% of Table A Amounts, was later reduced to 0% in January 2014, and was later raised back to 5%, the lowest ever final total SWP water supply allocation, at the time. The circumstances that led to

the low 2014 SWP water supply allocation was unusual, and although possible, likely have a low probability of frequent occurrence.

Each year by October 1, SWP contractors submit their requests for SWP supplies for the following calendar year. By December 1, DWR estimates the available water supply for the following year and sets an initial supply allocation based on the total of all contractors' requests, current reservoir storage, forecasted hydrology through the next year, and target reservoir storage for the end of the next year. The most uncertain of these factors is the forecasted hydrology. In setting water supply allocations, DWR uses a conservative 90% hydrologic forecast, where nine out of ten years will be wetter and one out of ten years drier than assumed. DWR re-evaluates its estimate of available supplies throughout the runoff season of winter and early spring, using updated reservoir storage and hydrologic forecasts, and revises SWP supply allocations as warranted. Since most of California's annual precipitation falls in the winter and early spring, by the end of spring the supply available for the year is much more certain, and in most years DWR issues its final SWP allocation by this time. While most of the water supply is certain by this time, runoff in the late fall remains somewhat variable as the next year's runoff season begins. A drier than forecasted fall can result in not meeting end-of-year reservoir storage targets, which means less water available in storage for the following year.

Water year 2013 was a year with two hydrologic extremes. October through December 2012 was one of the wettest fall periods on record but was followed by the driest consecutive 12 months on record. The supply allocation for 2013 was a low 35% allocation. However, the 2013 hydrology ended up being even drier than DWR's conservative hydrologic forecast, so the SWP began 2014 with reservoir storage lower than targeted levels and less stored water available for 2014 supplies. Compounding this low storage situation, 2014 also was a critically dry year, with runoff for water year 2014 the fourth driest on record.

The exceedingly dry sequence from the beginning of January 2013 through the end of 2014 was one of the driest two-year periods in the historical record. As noted above, the circumstances that led to the low 2014 and 2021 SWP water supply allocation were unusual, and likely have a low probability of frequent occurrence in the future.

For the reasons stated above, Valley District's UWMP uses a more conservative assumption of a 5-percent allocation of SWP Table A amounts instead of the 7% from the DCR.

3.2.3.2 Reliability Improvements from Sites Reservoir and DCP

There are currently four alternatives being evaluated for the Sites Reservoir Project and each would yield a different volume of water for Valley District based on the level of federal participation in the project. Since a final alternative has not been selected, Alternative 3, which yields the lowest deliveries to South of Delta's participants out of all the alternatives, is represented in this section to be conservative. Based on Alternative 3, estimated deliveries from

Sites Reservoir to Valley District during dry and critically dry years and average over the life of the project are shown in **Table 3-6**.

Table 3-6: Estimated Sites Reservoir Deliveries to Valley District

	LONG TERM AVERAGE DELIVERIES (AFY)	DRY AND CRITICALLY DRY YEAR DELIVERIES (AFY)
Alternative 3	12,100	30,400

Source: Sites Reservoir Value Planning Report, Table 8-1

For purposes of this report, it is estimated that the Sites Reservoir Project will come online between in 2040. DWR estimates of SWP supply reliability in its 2019 Delivery Capability Report are based on existing facilities, and do not include the proposed Sites Reservoir. For supply projections made for years 2020 through 2035, it is assumed that SWP reliability is equal to values shown in the 2019 Delivery Capability Report. For supply projections made for years 2040 and beyond, additional SWP supply available from Sites Reservoir is included.

The DCP is still under development and no published yield numbers were available at the time this plan was published.

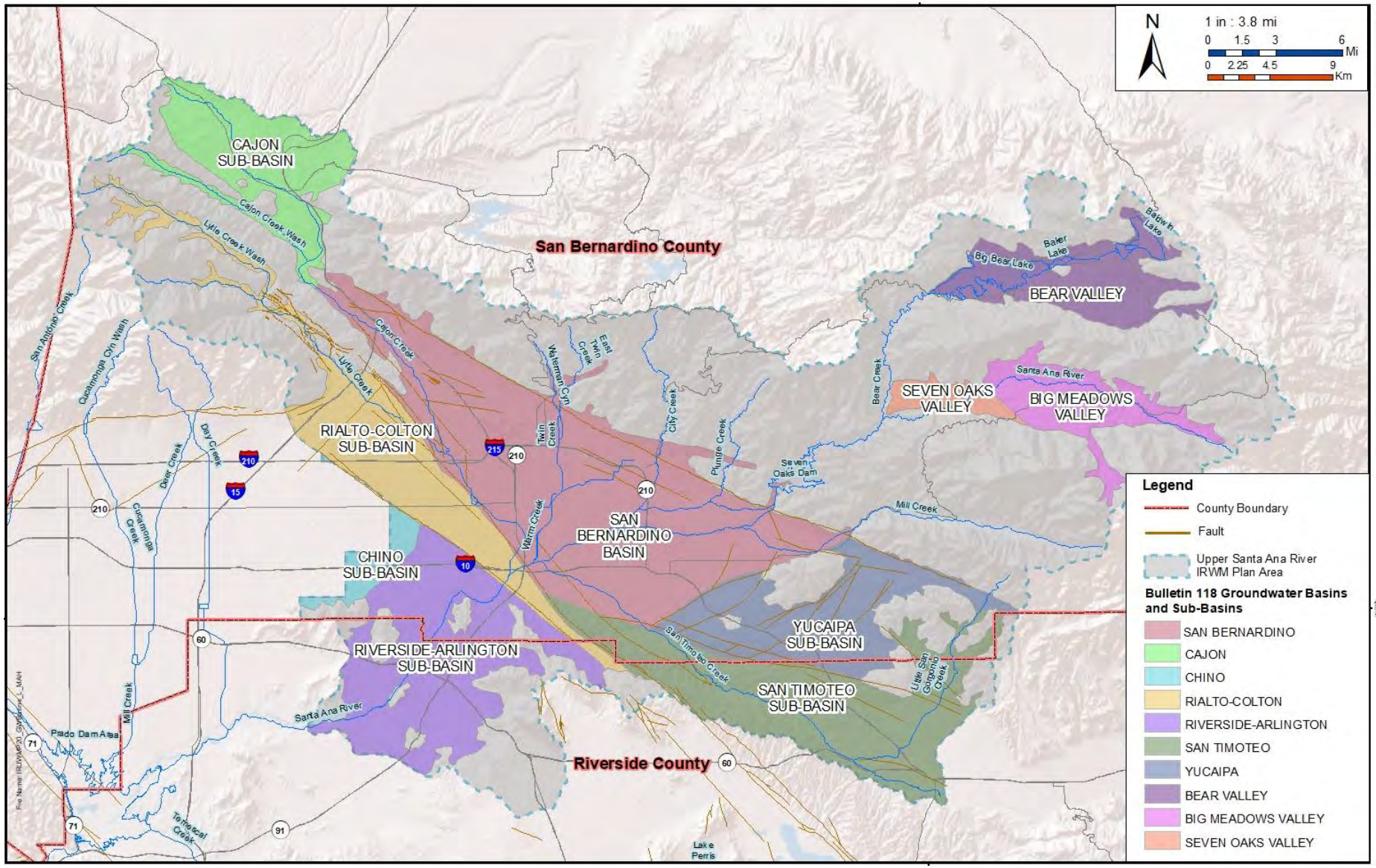
3.3 Groundwater

Local precipitation that runs off as surface water and soaks into the ground, called "groundwater", meets about 60% of the regional demand in an average year. This section provides a description of local surface water and groundwater management in the San Bernardino Valley, including court judgments, groundwater management plans, and groundwater pumping rights.

The groundwater basins utilized by IRUWMP agencies are depicted in Figure 3-4. The figure also shows the San Bernardino Basin (SBB), which encompasses basins previously known as the Bunker Hill and Lytle Creek Basins.

The basins of the IRUWMP area are among the most rigorously managed in the State. Planning and management efforts evaluating needs and supplies have been established for most of the basins within the watershed through the next 20 to 40 years. Groundwater extractions and conditions are monitored and tracked annually by the Western-San Bernardino Watermaster and the Basin Technical Advisory Committee.

Figure 3-4. Groundwater Basins of the Region



3.3.1 San Bernardino Basin

The San Bernardino Basin (SBB), labeled the "San Bernardino Basin Area" in the Judgment, was adjudicated in gross, by the Western-San Bernardino Judgment (Western Judgment) in 1969. The SBB has a surface area of approximately 141 square miles and lies between the San Andreas and San Jacinto faults. The basin is bordered on the northwest by the San Gabriel Mountains and Cucamonga fault zone; on the northeast by the San Bernardino Mountains and San Andreas fault zone; on the east by the Banning fault and Crafton Hills; and on the south by a low, east-facing escarpment of the San Jacinto fault and the San Timoteo Badlands. Alluvial fans extend from the base of the mountains and hills that surround the valley and coalesce to form a broad, sloping alluvial plain in the central part of the valley. The SBB encompasses the Bunker Hill sub basin (DWR Number 8.02-06) defined by DWR and also includes a small portion of the Yucaipa Basin (8-02.07) and Rialto-Colton Basin (8-02.04) as defined by DWR.

The Western Judgment calculated the natural safe yield of the SBB to be 232,100 AF per year (AFY) for all extractions, including surface water diversions and groundwater pumping (the Western Judgment is provided in Appendix I). Surface water is diverted from Mill Creek, Lytle Creek, and the SAR.

The Western Judgment allocates 64,862 AFY of the safe yield, which equates to 27.95 percent, to the Plaintiffs. The Plaintiffs include the City of Riverside (the successor to the Riverside Water Company and the Gage Canal Company), Riverside Highland Water Company, Meeks & Daley Water Company, and Regents of the University of California. The Riverside County agencies may not exceed their allocation unless they participate in "New Conservation" (explained below).

The Non-Plaintiffs' (agencies within San Bernardino County) rights were defined in the Judgment as 167,238 AFY, which equates to 72.05 percent of the safe yield. San Bernardino agencies are allowed to extract more than 167,238 AFY from the SBB, as long as they import and recharge a like amount of supplemental water into the SBB. The Western-San Bernardino Watermaster provides an annual accounting of both the plaintiff and non-plaintiff extractions and a comparison to the safe yield. The Judgment requires the non-plaintiffs to provide replenishment water whenever the cumulative extractions exceed the cumulative safe yield. If the cumulative extractions are less than the cumulative safe yield, a "credit" is earned. When cumulative extractions are greater than the cumulative safe yield, a "debit" is taken. To date, the cumulative extractions have been less than the cumulative safe yield since the judgment was signed so that the non-plaintiffs have never been required to recharge the basin.

Recharge is also required to offset the export of water outside the SBB in excess of the amount recorded during the base period (1959-1963). Credits are earned for any new supplies such as stormwater capture. As of the accounting performed for the 2020 Annual Western-San

Bernardino Watermaster Report, the Non-Plaintiffs have 463,168 AF of net credit accumulated in the SBB and are, therefore, not required to recharge. Although there is no recharge requirement under the Judgment, the Non-Plaintiffs have continued to recharge the SBB.

3.3.1.1 Lytle Creek Sub basin

Lytle Creek Basin is part of the SBB, and it is not identified as a separate sub-basin in DWR Bulletin 118-2003; however, the sub basin is an integral part of the Upper Santa Ana Valley Groundwater Basin. Historically, local agencies have recognized Lytle Creek sub basin as a distinct groundwater sub basin. In the Western Judgment, the Bunker Hill and Lytle Creek sub basins are combined into the SBB. However, the three separate water-bearing zones and intervening confining zones of the Bunker Hill sub basin are not observed in the Lytle sub basin. Sediments within the Lytle sub basin are, for the most part, highly permeable, and the aquifer has a high specific yield. High permeability and specific yield tend to result in an aquifer that responds rapidly to changes in inflow (precipitation and streamflow) and outflow (groundwater pumping, streamflow, and subsurface outflow).

Lytle Creek sub basin is adjoined on the west by the Rialto-Colton sub basin along the Lytle Creek fault, and on the east and southeast by the Bunker Hill sub basin along the Loma Linda fault and Barrier G. The northwestern border of the sub basin is delineated by the San Gabriel Mountains, and runoff from the mountains flows south/southeast through Lytle and Cajon Creeks into the basin.

Numerous groundwater barriers are present within Lytle Creek sub basin, resulting in six compartments within the sub basin. Barriers A through D divide the northwestern portion of the sub basin into five sub-areas and the southeastern portion of the sub basin comprises the sixth sub-area. Barrier F divides the northwestern sub-areas from the southeastern sub-area. Studies have shown that the groundwater barriers are less permeable with depth. When groundwater levels are high during wet years, more leakage occurs across the barriers than when groundwater levels are lower (i.e., during dry years). The amount of pumping in each sub-area, in large part, controls the movement of groundwater across the barrier within the older alluvium but not the younger alluvium.

It is important to note that the water rights in Lytle Creek are set forth in long-standing court judgments governing the rights of the parties in that basin. The Lytle Creek Basin was adjudicated under the 1924 Judgment No. 17,030 from the Superior Court of San Bernardino County and is managed by the Lytle Creek Water Conservation Association, which is made up of the successors to the stipulated parties of the judgment (a copy of the 1924 judgment is provided in Part 3).

3.3.2 Rialto-Colton Sub basin

The Rialto-Colton sub basin (DWR 8-02.04) underlies a portion of the upper Santa Ana Valley in southwestern San Bernardino County and northwestern Riverside County. This sub basin is

about 10 miles long and varies in width from about 3.5 miles in the northwestern part to about 1.5 miles in the southeastern part. This sub basin is bounded by the San Gabriel Mountains on the northwest, the San Jacinto fault on the northeast, the Badlands on the southeast, and the Rialto-Colton fault on the southwest. The Santa Ana River cuts across the southeastern part of the basin. The basin generally drains to the southeast, toward the Santa Ana River. Warm and Lytle Creeks join near the southeastern boundary of the basin and flow to meet the Santa Ana River near the center of the southeastern part of the sub basin.

The principal recharge areas are Lytle Creek, Reche Canyon in the southeastern part, and the Santa Ana River in the south-central part. Lesser amounts of recharge are provided by percolation of precipitation to the valley floor, underflow, and irrigation and septic returns. Underflow occurs from fractured basement rock and through the San Jacinto fault in younger Santa Ana River deposits at the south end of the sub basin and in the northern reaches of the San Jacinto fault system. Groundwater recharge has been augmented through the use of spreading basins.

The groundwater extractions in the Rialto-Colton sub basin are governed by the Rialto Basin Decree, the Rialto Basin Settlement Agreement, and the Western Judgment. The basin was adjudicated under the 1961 Decree No. 81,264 of the Superior Court of San Bernardino County and is managed by the Rialto Basin Management Association (stipulated parties of the judgment). The Rialto Basin Decree only provides the rights of the stipulated parties to pump out of the Rialto Basin, which is an area defined within the Decree that is smaller than the Rialto-Colton sub basin and includes only a portion of the northwestern half of the Rialto-Colton Basin. The boundary of the Rialto Basin is described in the Rialto Decree as Exhibit 1.

When the basin's three index wells (WVWD Well No. 11, and 16, and Rialto's Well 4) average mean groundwater level elevations are above 1002.3 feet msl when measured during March, April, or May, the stipulated parties have no restrictions on yearly extractions. When the average standing water levels in the three index wells (Duncan Well, Willow Street Well, and Boyd Well) falls below 1002.3 feet msl and is above 969.7 feet msl, the Rialto Basin Decree stipulated parties are restricted to total extraction rights of 15,290 AFY distributed amongst the parties as shown in **Table 3-7**.

When the average of the three index wells drops below 969.7 feet msl, ground water extractions are reduced for all parties stipulated in the decree by 1 percent per foot below the 969.7-foot level, but not to exceed 50-percent reduction. Historic reductions to adjustable rights are summarized in **Table 3-8**.

Table 3-7: 1961 Decree Adjudicated Rights to the Rialto Basin

MEMBER	ADJUSTABLE RIGHTS	FIXED RIGHTS	TOTAL RIGHTS	WATER RIGHTS ALLOCATION PERCENTAGE
Colton	3,010	890	3,900	25%
Rialto	2,846	1,520	4,366	29%
WVWD	5,594	510	6,104	40%
FUWC	550	370	920	6%
TOTAL	**12,000**	**3,290**	**15,290**	**100%**

Table 3-8: Historic Reductions to Pumping Rights in the Rialto Decree Area

WATER YEAR	% REDUCTION
2009-10	7
2010-11	14
2011-12	19
2012-13	17
2013-14	27
2014-15	32
2015-16	30
2016-17	31
2017-18	38
2018-19	39
2019-20	29

Fontana Water Company and the City of Rialto extract water from a small area referred to as "No Man's Land" that is outside the boundary of the Rialto Basin in the 1961 Decree but is still believed to be within the Rialto-Colton sub basin. In 2018, Rialto, Colton, WVWD, Valley District, Cucamonga Valley Water District, and Fontana Water Company entered into a Settlement Agreement that resulted in Fontana's No Man's Land production of 5,014 acre feet/year being counted as part of the Rialto Basin production limits in the 1961 Decree in addition to the total established decree rights of 15,290 AFY. The rights of the parties of the Settlement Agreement to extract water from the Rialto Basin based on the 1961 Decree and the Settlement Agreement are provided in **Table 3-9**. As part of the Settlement Agreement, these parties also agreed to form a Rialto Basin Groundwater Council (Rialto Basin GC), which was formed in 2021.

The Rialto Basin GC will develop, adopt, and implement a sustainable groundwater management plan, which will include implementing groundwater recharge projects to restore groundwater levels.

Table 3-9: 2018 Settlement Agreement Updated Adjudicated Rights to the Rialto Basin

MEMBER	ADJUSTABLE RIGHTS	FIXED RIGHTS	NO MAN'S LAND ADJUSTABLE RIGHTS	TOTAL RIGHTS	WATER RIGHTS ALLOCATION PERCENTAGE
Colton	3,010	890	0	3,900	19%
Rialto	2,846	1,520	0	4,366	22%
WVWD	5,594	510	0	6,104	30%
FUWC	550	370	5,014	5,934	29%
Total	12,000	3,290	5,014	20,304	100%

The Rialto-Colton sub basin is named the "Colton Basin Area" in the Western Judgment.

The Western Judgment requires the average lowest static water levels in three index wells in the Rialto-Colton Basin and Riverside North Basins to be no lower than 822.04 feet above mean sea level (MSL). If the water levels fall below 822.04 feet above MSL, the non-plaintiffs are obligated to recharge the basin with imported water or reduce extractions. Extractions by the plaintiffs are limited to 3,381 AFY.

The safe yield for the Rialto-Colton Basin was not defined by the Western Judgment or the Rialto Basin decree. Valley District developed an estimate of the safe yield, as shown in Table 3-10. The estimate uses a period when the storage level in the basin starts and ends at nearly the same point, from 1979 through 2014. During that period, the average production from the basin was 15,567 AF which includes water imported from the State Water Project. The estimate adjusts the production by the relative decrease in storage over the period. After adjusting for the decline in storage and the recharge of imported water, the estimated safe yield is estimated to be 13,623 AFY. The Western Judgment set aside 3,381 AFY for Riverside entities, leaving the balance, 10,242 AFY for San Bernardino entities within the Valley District service area.

Table 3-10 Estimated Safe Yield from Rialto-Colton Basin

PARAMETER	VALUE (AF)
Average groundwater production from 1979 through 2014	15,567
Adjustment for average change in storage, 1979 through 2014	(864)
Adjustment for average imported water recharged,1979 through 2014	(1,080)
Estimated Safe Yield	13,623
Portion of Safe Yield reserved for Riverside entities	3,381
Portion of Safe Yield for San Bernardino entities	10,242

3.3.3 Riverside-Arlington Sub-basin

The Riverside-Arlington sub basin, (DWR 8-02.03) underlies part of the Santa Ana River Valley in northwest Riverside County and southwest San Bernardino County. This sub basin is bounded by impermeable rocks of Box Springs Mountains on the southeast, Arlington Mountain on the south, La Sierra Heights and Mount Rubidoux on the northwest, and the Jurupa Mountains on the north. The northeast boundary is formed by the Rialto-Colton fault, and a portion of the northern boundary is a groundwater divide beneath the community of Bloomington. The Santa Ana River flows over the northern portion of the sub basin. Annual average precipitation ranges from about 10 to 14 inches. The Riverside-Arlington sub basin is replenished by infiltration from Santa Ana River flow, underflow past the Rialto-Colton fault, intermittent underflow from the Chino sub basin, return irrigation flow, and deep percolation of precipitation.

The Western Judgment includes the Riverside Basin Area which consists of a portion of the Riverside-Arlington sub-basin upstream of Riverside Narrows. Groundwater extractions in the Riverside North Groundwater Basin (the portion of the Riverside Basin Area in San Bernardino County) are governed by the Western Judgment. Extractions from the Riverside North Basin for use in Riverside County are limited to 21,085 AFY by the Judgment. Extractions for use in San Bernardino County are unlimited, provided that water levels at three index wells in the Rialto-Colton and Riverside North Basins stay above 822.04 feet MSL. The 2015 IRWMP provided an estimate of 30,100 AFY as the sustainable supply from Riverside North for use in San Bernardino County, based on extractions from 1996 to 2005.

3.3.4 Yucaipa Sub basin

The Yucaipa sub basin (DWR 8-02.07) underlies the southeast part of San Bernardino Valley. It is bounded on the northeast by the San Andreas fault, on the northwest by the Crafton fault, on the west by the Redlands fault and the Crafton Hills, on the south by the Banning fault, and on the east by the Yucaipa Hills. The average annual precipitation ranges from 12 to 28 inches. This part of the San Bernardino Valley is drained by Oak Glen, Wilson, and Yucaipa Creeks south and west into San Timoteo Wash, a tributary to the Santa Ana River.

Dominant recharge to the sub basin is from percolation of precipitation and infiltration within the channels of overlying streams, particularly Yucaipa and Oak Glen Creeks; underflow from the fractures within the surrounding bedrock beneath the sub basin; and artificial recharge at spreading grounds.

The Yucaipa Subbasin is a DWR medium-priority groundwater basin and is subject to SGMA. The Yucaipa Groundwater Sustainability Agency was established in 2017 to manage groundwater within the Sub-basin. Valley District, YVWD, Redlands, SGPWA, SMWC, South Mountain Water Company, Western Heights Water Company, and the City of Yucaipa are currently working together as the Groundwater Sustainability Agency, commonly referred to as the Yucaipa Sustainable Groundwater Management Agency (Yucaipa-SGMA) in support of the development of a Groundwater Sustainability Plan, which is currently under development.

A recent study estimates a sustainable yield for the Sub-basin of approximately 9,600 AFY and a storage capacity totaling more than 356,000 AF. From 2007 to 2012, artificial recharge efforts increased the total groundwater storage in the Yucaipa Basin to 1998 levels. Information utilized by the GSA indicates that the Subbasin is currently being sustainably managed. The GSA members are currently working together to develop a GSP to continue sustainably managing the Subbasin.

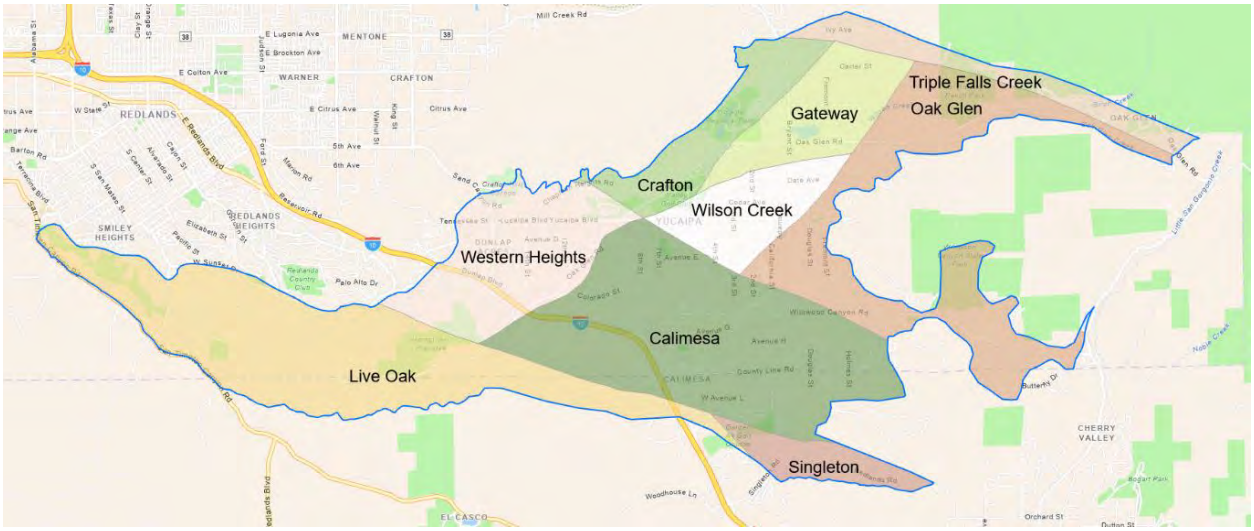


Figure 3-5. Yucaipa Basin Groundwater Management Zones

3.3.5 San Timoteo Sub basin

The San Timoteo Sub basin (DWR 8-02.08) is largely outside of the Valley District service area but is one of the sources used by YVWD and SMWC. The San Timoteo sub basin underlies Cherry Valley and the City of Beaumont in southwestern San Bernardino and northwestern Riverside counties. The sub basin is bounded to the north and northeast by the Banning fault and impermeable rocks of the San Bernardino Mountains, Crafton Hills, and Yucaipa Hills; on the south by the San Jacinto fault; on the west by the San Jacinto Mountains; and on the east by a topographic drainage divide with the Colorado River hydrologic region. The surface is drained by Little San Gorgonio Creek and San Timoteo Canyon to the Santa Ana River. Average annual precipitation ranges from 12 to 14 inches in the western part to 16 to 18 inches in the eastern part of the sub basin.

Holocene-age alluvium, which consists of unconsolidated clay, silt, sand, and gravel, is the principal water-bearing unit in this sub basin. The alluvium, which is probably thickest near the City of Beaumont, thins toward the southwest and is not present in the central part of the sub basin. The Pliocene-Pleistocene-age San Timoteo Formation consists of alluvial deposits that have been folded and eroded. These deposits are widely distributed and principally composed of gravel, silt, and clay, with comparatively small amounts of calcite-cemented conglomerate. The clasts are chiefly granitic, with lesser amounts of volcanic and metamorphic pebbles and cobbles. The total thickness of the San Timoteo Formation is estimated to be between 1,500 and 2,000 feet, but logs of deep wells near the central part of the sub basin indicate water-bearing gravels to depths of only 700 to 1,000 feet.

The Banning and Cherry Valley faults and two unnamed faults in the northeast part of the sub basin offset impermeable basement rocks, stepping down to the south. Water levels change across the Banning fault, dropping 100 to 200 feet to the south. In the western part of the sub basin, water levels drop to the south about 75 feet across the Loma Linda fault and about 50 feet across the San Timoteo barrier. In the northeastern part of the sub basin, water levels drop to the south across two unnamed faults. Each of these faults appears to disrupt groundwater movement in the sub basin.

Groundwater is replenished by subsurface inflow and percolation of precipitation, runoff, wastewater discharge, and imported water. Runoff and imported water are delivered to streambeds and spreading grounds for percolation. The San Timoteo Subbasin is not adjudicated, and reliable estimates of total groundwater extractions are not available. However, water table elevations within the San Timoteo Subbasin have not declined over the years which is likely due to the constant flow of treated wastewater from YVWD that flows through San Timoteo Creek.

3.3.5.1 Beaumont Groundwater Basin

DWR considers the Beaumont Groundwater Basin to be composed of three other groundwater basins, primarily the San Timoteo sub basin, the Upper Santa Ana Valley Groundwater Basin

(No. 8-02), and the San Gorgonio Pass Sub basin (No. 7-21.04). Locally, the Beaumont Basin is treated as a distinct basin. The Beaumont Basin is outside of the Valley District service area but is one of the sources used by YVWD and SMWC.

The Beaumont Basin is located in northwestern Riverside County, south of the Yucaipa Basin. The basin eventually drains to San Timoteo Creek, a tributary of the Santa Ana River, and covers approximately 26 square miles. Groundwater elevations generally slope from the northeast to southwest in the basin.

Groundwater within the basin is predominantly found in Holocene age alluvium and in the San Timoteo Formation. While the San Timoteo Formation extends to depths in excess of 1,500 feet, water bearing sediments within the Beaumont Basin exist to depths of 700 to 1,000 feet. Estimates for total groundwater storage capacity within the basin vary. The Beaumont Basin storage capacity is estimated at approximately 1,000,000 AF.

In February 2004, the San Timoteo Watershed Management Authority filed a judgment adjudicating the groundwater rights in the Beaumont Basin and assigned the Beaumont Basin Watermaster (BBW) with the authority to manage the groundwater basin. The Beaumont Basin Watermaster is comprised of managers from the Beaumont Cherry Valley Water District, City of Banning, City of Beaumont, SMWC, and YVWD. The Beaumont Basin Watermaster originally established a long-term yield for the Beaumont Basin of 8,560 AFY. The safe yield is reevaluated every ten years and on April 1st, 2015, the BBW approved the adoption of Resolution 2015-01 (2013 Reevaluation of the Beaumont Basin Safe Yield Report and Redetermination of the Safe Yield of the Beaumont Basin), which reduced the safe yield to 6,700 AFY.

The Beaumont Basin Watermaster Website provides copies of the Judgment, Annual Reports and related information: https://beaumontbasinwatermaster.org/

The Judgement includes a controlled overdraft (temporary surplus) provision that allows extraction up to 160,000 AF over the 10-year period immediately following the Judgement inception. During the first 10 years, the agencies could extract 16,000 AFY; after the first 10 years, extractions are limited to the amount each agency has in storage or credit. Agencies must provide the BBW with funds necessary to replace any amount of overproduction that may have occurred over a 5-year consecutive period.

The adjudication of the Beaumont Basin has defined overlying and appropriator pumping rights and also allows for supplemental water to be stored and recovered from the basin. The Beaumont Basin, under this adjudication, is considered to be in a condition of overdraft with assigned maximum annual overlying production rights of 8,650 AF.

3.3.6 Chino Sub basin

Fontana Water Company, the City of Rialto, and WVWD extract water from Chino Sub basin (DWR 8-02.01), an adjudicated basin managed by the Chino Basin Watermaster. The Chino

Sub basin lies in the southwest corner of San Bernardino County. The Chino Sub basin is bordered to the east by the Rialto-Colton fault. In the other three directions, the Chino Sub basin is ringed by impermeable mountain rock, the San Gabriel Mountains to the north, the Jurupa Mountains and Puente Hills to the south and southwest. Average annual precipitation across the basin is 17 inches. This part of the San Bernardino Valley is drained by San Antonio Creek and Cucamonga Creek southerly to the Santa Ana River.

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. adjudicating water rights in the Chino Basin and establishing the Chino Basin Watermaster. The Judgment adjudicated all groundwater rights in Chino Basin and contains 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. The Basin is managed through implementation of the Chino Optimum Basin Management Plan. Per the Judgment, WVWD has a minimum of approximately 1,000 AFY of extraction rights. Extractions above that amount must be replenished with SWP water through a program with the Chino Basin Watermaster.

3.3.7 Bear Valley Basin

The Bear Valley Basin (DWR 8-9) encompasses 30.6 square miles under Big Bear Valley, within the San Bernardino Mountains. There are two surface water lakes within the Bear Valley Basin: perennial Big Bear Lake and the ephemeral Baldwin Lake. Surface drainage within the Bear Valley Basin flows to one of the two lakes, typically to Big Bear Lake. Big Bear Lake empties to the west into Bear Creek, which is a tributary of the SAR.

Groundwater from the Bear Valley Basin is primarily found within unconsolidated alluvial deposits. The water-bearing deposits have been divided into upper, middle, and lower aquifers, with the upper and middle aquifers being the primary producers. The Bear Valley Basin is recharged through percolation from precipitation and runoff and underflow from fractured crystalline rocks, adjacent to and beneath the alluvium. Groundwater levels generally correlate with annual fluctuation of precipitation. Storage capacity is estimated by DWR at 42,000 AF (California Department of Water Resources, February 2004). Perennial yield is estimated to be 5,000 AFY basin-wide.

The Bear Valley Basin is not adjudicated and has not been identified by DWR to be in overdraft conditions. The Bear Valley Basin is monitored by Big Bear Lake Department of Water and Power (BBLDWP) and Big Bear City Community Services District (BBCCSD).

BBCCSD, BBLDWP, Big Bear Area Regional Wastewater Agency (BBARWA), and Big Bear Municipal Water District (BBMWD) formed the Bear Valley Basin Groundwater Sustainability Agency (BVBGSA) under a joint power's agreement on April 26, 2017. BVBGSA is governed by

one representative from BBCCSD, one representative from BBARWA, one elected representative from BBMWD and one appointed commissioner from BBLDWP. The Bear Valley Basin GSP is under development and is scheduled for completion in January of 2022, in accordance with the SGMA.

3.3.8 Recharge Area Programs

Conjunctive use of surface water and groundwater is a long-standing practice in the IRWM Region. Part of the potable water used in the Region is imported from sources in the Sierra and Northern California through the SWP. Several reservoirs are operated primarily for the purposes of storing surface water for domestic and irrigation use, but groundwater basins are also recharged from the outflow of some reservoirs. The concept is to maintain streamflow over a longer period of time than would occur without regulated flow and thus provide for increased recharge of groundwater basins. Most of the larger basins in this Region are managed with many conjunctive use projects being developed to optimize and manage water supply. Numerous groundwater spreading grounds have been developed to recharge the groundwater basins when adequate surface water supply is available. Management of the water level in the SBB, in general, and the Pressure Zone (see Figure 2-6), in particular, is a focus of the groundwater management of the Region.

3.3.8.1 Groundwater Storage Strategy

Storage of imported water during wet years helps the Valley District service area make it through dry periods.

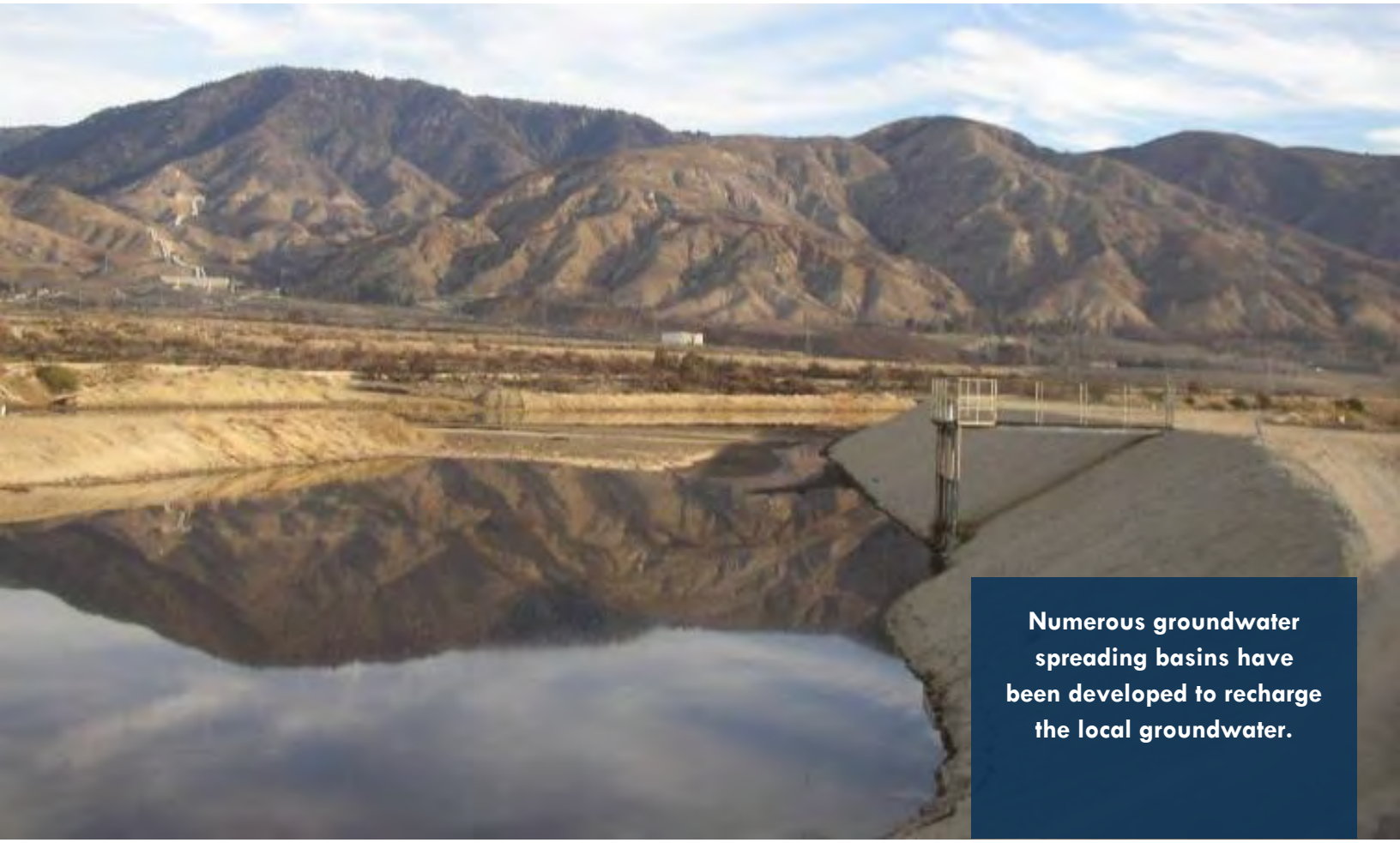
The primary storage location is local groundwater basins. Local groundwater basins are preferable due to the proximity to end users, the significant investment in wells, and the reduction in ongoing evaporation associated with storing the water underground. See Chapters 4 and 5 for a summary of estimated recharge needs for each groundwater basin in Valley District service area and the volume of SWP expected to be available for recharge.

3.3.8.2 Spreading Grounds

Artificial recharge in the IRWM Region's groundwater basins has been occurring as early as 1912. Because of the extremely permeable sand and gravel deposits in the Region's groundwater basins, maximum instantaneous recharge rates are high. Based on a recharge efficiency rate of 95%, the total quantity of artificial recharge in the basin averaged about 7,400 AFY from 1972 to 1992. Because of the size of several of the recharge basins and exceptionally permeable material, a larger quantity of water could be imported and recharged along the base of the San Bernardino Mountains, if necessary (i.e., recharge basin capacity and infiltration rates are not currently limiting the amount of imported water that is recharged). Any additional recharge and extraction should be carefully planned and implemented to avoid liquefaction and unacceptable decreases in groundwater levels in the basins

Numerous existing groundwater recharge facilities (spreading grounds or spreading basins) are located in the SBB, Rialto-Colton, and Yucaipa Subbasins. The locations of these facilities are shown in Figure 3-7, and selected characteristics are summarized in Table 3-11.

Conservation District facilities are used for both native water and SWP recharge. Existing turnouts provide SWP to most recharge facilities, with the exception of the Cactus Spreading and Flood Control Basins, which would be served by the Cactus Basins Pipeline proposed by Valley District.



Numerous groundwater spreading basins have been developed to recharge the local groundwater.

Table 3-11: Regional Recharge Basins

FACILITY NAME	OWNER	UNDERLYING GW BASIN	SWP AVAILABILITY	CONSTRAINTS
Waterman Basin	SBCFCD	Bunker Hill A	Foothill Pipeline	Seasonal restrictions due to storm water
East Twin Creek Spreading Grounds	SBCFCD	Bunker Hill A	Foothill Pipeline	Seasonal restrictions due to storm water
Cactus Basin – 3 and 3a	SBCFCD	Rialto-Colton	Devil Canyon-Azusa Pipeline	Seasonal restrictions due to storm water
Redlands Recharge Basins	Redlands	Bunker Hill B	No	Operation due to WWTP flows
Lytle Creek North WRP Effluent Disposal Ponds	San Bernardino County Special Districts Department (SBCSDD)	Lytle Basin	Potential from nearby Devil Canyon-Azusa Pipeline	Operation due to WWTP flows
Wilson Basin	SBCFCD	Yucaipa Basin	East Branch Extension	Seasonal restrictions due to storm water
Proposed Plunge Basin	Valley District	Bunker Hill B	No	Seasonal restrictions due to storm water
Sweetwater Basins	SBCFCD	Bunker Hill	Foothill Pipeline	Seasonal restrictions due to storm water
Santa Ana	SBVWCD	Bunker Hill	Foothill Pipeline	Seasonal restrictions due to storm water
Santa Ana Low	SBVWCD	Bunker Hill	Greenspot Pipeline	Seasonal restrictions due to storm water
Mill Creek	Valley District, RPU, SBVWCD	Bunker Hill	Greenspot Pipeline	Seasonal restrictions due to storm water
Oak Glen	SBCFCD, YVWD	Yucaipa Basin	No	Seasonal restrictions due to storm water

3.4 Recycled Water

Development of recycled water is a strategy in the IRUWMP. Although it is costly, it is also highly reliable since there will be flows to wastewater plants whether the weather is wet or dry. For that reason, recycled water is often labeled “drought-proof”. Because it is the costliest supply, the region has not heavily developed this supply choosing instead to develop other, less costly supplies first. The recent drought highlighted the advantage of having a drought-proof supply, like recycled water, as a part of the regional water portfolio. This led to Valley District and the agencies within its service area, as well as Western and the City of Riverside, to prepare a Regional Recycled Water Concept Study. This is a collaborative process to identify recycled water projects that maximize regional benefits to water supply reliability, water quality, and habitat sustainability. The stakeholder group is targeting development of 18,023 AFY of new recycled water supply in the near term, however there is an obligation to discharge a minimum of 57,402 AFY to the SAR to sustain the natural habitat. The recycled water projects identified in this process were incorporated into the HCP analysis to ensure that implementation of these projects support both water supply and habitat sustainability.

Currently, some individual agencies are using recycled water for non-potable reuse. Recycled water produced in the Valley District service area that is not currently used for non-potable reuse is discharged to the SAR or its tributaries and has become a critical source of water that sustains habitat in natural rivers and streams, including the Santa Ana Sucker, which is a Federally listed endangered species. Development of new recycled water supplies in the upper SAR watershed must be balanced with the need to conserve and maintain this habitat.

Potential recycled water supplies for each retailer are described in their respective chapters. Anticipated recycled water supplies are included in the regional summary of supplies.

3.4.1.1 Wastewater

There are 12 publicly owned WWTPs located within the Region. Eight of these plants contribute to surface flow of the SAR as shown in the effluent use column of

Table 3-12. Between 1970 and 2019, the total volume of treated wastewater contributions to SAR flows increased from 44,000 AFY to 116,000 AFY, with a peak of 188,000 AF in 2004-2005 (SAR Watermaster 2019).

Three wastewater treatment plants (Redlands, Beaumont, and Yucaipa) discharge to the SAR and its tributaries upstream of the City of San Bernardino, but these discharges generally do not flow continuously to the SAR at “E” Street (SAR Watermaster 2013). Two plants, the Rapid Infiltration and Extraction (RIX) WWTP in the City of Colton and the Rialto WWTP in the City of Rialto, discharge directly to the SAR via a discharge channel at RM 53.46. Wastewater discharges from these plants have hydraulic continuity to the SAR above Riverside Narrows.

Table 3-12: Wastewater Treatment Plants in the Region

FACILITY	INFLUENT FLOW SOURCE	CAPACITY (MGD)	2020 AVERAGE FLOW (MGD)[1]	EFFLUENT USE
San Bernardino County Special Districts Department Lytle Creek North WRP	SBCSDD, WVWD	1.75	0.4	Non-potable reuse for Irrigation and Dust Control (336 AF) Remaining discharged onsite disposal ponds
Big Bear Area Regional WWTP	BBCCSD, BBLDWP, SB County	4.9	2.0	Non-potable reuse for irrigation in Lucerne Valley. Remaining discharged to disposal ponds. Future discharge to Big Bear Lake planned
Rialto WWTP	Rialto	11.7	7	Non-potable reuse for irrigation (10 AFY) Remaining discharged to Rialto Channel/SAR
Colton WRP	Colton & RHWC	10.4	5	Conveyed to RIX
SBMWD WRP	SBMWD, EVWD, Loma Linda	33	21	Conveyed to RIX. Planned Tertiary Treatment System will produce RW for groundwater recharge
RIX WWTP	Colton WRP & SBWRP	40	28	100% Discharged to SAR
Riverside RWQCP	Riverside	46	25.3	Non-potable reuse for irrigation (200 AF) Remaining discharged to SAR
Redlands WWTF	Redlands	16.2	6	Non-potable reuse for Irrigation and Industrial (3,032 AF) Remaining discharged to onsite disposal ponds (3,254 AF)
YVWD WRWRF	YVWD	8	3.8	Non-potable reuse for irrigation Remaining discharged to San Timoteo Creek Groundwater recharge (planned)
City of Beaumont WWTP	Beaumont	4	3.6	Discharged to Cooper's Creek and remaining reused for non-potable irrigation
EVWD SNRC	EVWD	8	-	Groundwater recharge (beginning in 2022)
IEUA Regional Treatment Plant No. 4[2]	Fontana, WVWD, other IEUA customers	-	-	Non-potable reuse Groundwater Recharge

1. Flows for the Lytle Creek North WRP and City of Beaumont WWTP are 2015 annual average flow from 2015 Regional Recycled Water Concept Study
2. RP-4 is outside the Region but provides RW to FWC

3.4.1.2 Recycled Water Programs

Despite the likelihood that WWTP discharges will increase in the future, not all of the treated water may enter the SAR. Several cities and utilities are in the process of developing plans to recycle water for non-potable uses, which could decrease discharges to the river. Valley District contracted with the City of San Bernardino and the City of Colton to ensure that the RIX facility continues to release quantities of treated effluent to the SAR adequate to fulfill Valley District service area's obligation to provide 15,250 AF of baseflow each year at the Riverside Narrows as called for in the Orange County Judgment.

A number of other agencies have plans to improve recycled water production capacity and implement projects to use recycled water for non-potable uses in the future. Table 3-13 summarizes the proposed water recycling programs in the IRWM Region. Several agencies have constructed recycled water distribution systems or are in the process of planning and constructing recycled water distribution systems. These systems are discussed below.

Table 3-13: Upper Santa Ana River Water Agencies Recycling Water Programs

WATER AGENCY	RECYCLING PLANT	PRODUCTION CAPACITY	DESCRIPTION
East Valley Water District	Sterling Natural Resource Center	10 MGD	Construction of a tertiary plant to produce recycled water.
Fontana Water Company	IEUA Regional treatment Plant 4	5.4 MGD	Fontana Water Company has completed constructing infrastructure to deliver recycled water in its service area.
City of Redlands Municipal Utilities and Engineering Department	City of Redlands WWTP	7.2 MGD	Recycled water used for basin recharge, irrigation, and industrial purposes.
Rialto	City of Rialto Water Treatment Plant	12.0 MGD	Recycled water used for landscape irrigation on the I-10 and habitat. Additional non-potable use planned.
Riverside Public Utilities	Riverside Regional Water Quality Control Plant	40 MGD	Plans to implement the Riverside Parks and Water Project as part of the HCP.
SBMWD	Tertiary Treatment System	5.0 MGD	Construction of a tertiary treatment system at the existing San Bernardino Water Reclamation Plant to recycle water for plant use, landscape irrigation, and recharge.
Yucaipa Valley Water District	Henry N. Wochholz WWTP	6.7 MGD	Recycled water used for irrigation, in-stream flow requirements and groundwater recharge (planned)
SBMWD, City of Colton, City of Loma Linda, County of San Bernardino, and East Valley Water District	RIX	40 MGD	All the water from the RIX is currently released into the Santa Ana River. The City of San Bernardino and East Valley Water District are currently developing recycled water programs.

WATER AGENCY	RECYCLING PLANT	PRODUCTION CAPACITY	DESCRIPTION
BBARWA, BBCCSD, BBLDWP, BBMWD	BBARWA WWTP	2 MGD	All water from the BBARWA WWTP is currently discharged outside the Region for disposal. Replenish Big Bear is a proposed project to upgrade the BBARWA WWTP to produce recycled water for discharge to Big Bear Lake to increase lake levels, sustain habitat and retain the water in the Region.

3.4.1.2.1 Replenish Big Bear

In an effort to protect Big Bear Valley and the Region from the impacts of drought and variable precipitation, Big Bear Area Regional Wastewater Agency (BBARWA), Big Bear City Community Services District, City of Big Bear Lake Department of Water and Power, Big Bear Municipal Water District, and the Bear Valley Basin Groundwater Sustainability Agency have partnered to develop Replenish Big Bear, a recycled water project that will recover a local water resource currently discharged outside of the watershed. Replenish Big Bear will secure a reliable and sustainable local water supply, protect the local environment, and strengthen the tourism industry that drives the recreation-based economy for a small-disadvantaged community at the top of the Santa Ana River watershed in the San Bernardino National Forest.

Currently, all wastewater generated within Big Bear Valley is treated to secondary standards and disposed of outside the watershed. Replenish Big Bear will recover this lost resource by purifying the water using advanced treatment processes, creating a new drought-resistant source of water for beneficial use in the community. Specifically, Replenish Big Bear includes construction of advanced treatment facility upgrades at the existing BBARWA wastewater treatment plant, more than 7 miles of pipeline for product water and brine, three pump stations, a groundwater recharge facility and monitoring wells.

Replenish Big Bear will provide the following regional and statewide benefits:

- **Maintain and Diversify Water Supplies.** High-quality water produced by Replenish Big Bear will sustain up to 20 percent of the Valley's needed groundwater supply, the community's sole source of drinking water, in times of drought. Currently, municipal wastewater is treated and pumped out of the Valley. Through this practice, 800 million gallons of water leaves the Big Bear Valley each year. Replenish Big Bear will allow us to keep this water in the community for recycling.
- **Support Economic Development and Stability.** Big Bear Valley is home to approximately 23,000 residents and is designated as a Disadvantaged and Severely Disadvantaged Community by the State of California Department of Water Resources. Recovering local water resources strengthens the ability to support a thriving tourism industry, that this small community depends greatly on and is an essential element of the local economy. Replenish

Big Bear will enhance water levels in Big Bear Lake and other area water bodies, supporting year-round recreational activities, wildlife viewing, and scenic landscapes.

- **Protect and Enhance Natural Ecosystems.** Big Bear Valley is rich in wildlife that is heavily responsive to local hydrologic conditions. Retaining local water within the watershed stabilizes and sustains year-round habitat for waterfowl and the high number of plant species known only to this area, including the largest population of wintering bald eagles in southern California and the federally-listed Unarmored Threespined Stickleback fish.

The project is currently in the preliminary design and permitting phase and this Community Project Funding request is critical for the project to move into implementation. Federal funding will enable the project team to leverage existing participating agency contributions and State funding to implement Replenish Big Bear.

Additional information about Replenish Big Bear can be found at www.replenishbigbear.com/.

Big Bear Lake

Sterling Natural Resource Center

EVWD is currently constructing a new water recycling facility called the Sterling Natural Resource Center (SNRC). SNRC, which is expected to be completed in 2022, will allow the District to treat wastewater to a point that it can be recharged into the Bunker Hill groundwater basin to supplement the groundwater supply. Initially, the facility will treat up to 8 million gallons per day and will be expandable to be able to treat ultimate buildout of approximately 10 million gallons per day.

EVWD has partnered with Valley District to maximize the regional benefit of the recycled water produced at SNRC to recharge the SBBA groundwater. Given the consistent need for groundwater replenishment compared to the potential uses for recycled water, there are currently no plans to use recycled water for any other purposes in the foreseeable future. For the purposes of this plan, projected recycled water supplies were estimated using the per capita wastewater flow projection methodology used in EVWD's 2019 Sewer Master Plan, adjusted to align with the population projection in this UWMP, which are inclusive of long-term growth plus expected near term developments.

Sterling Natural Resource Center under construction in 2021

Recycled Water Use for Fontana Water Company

Fontana Water Company is working cooperatively with the City of Fontana to design and construct the first phase of a recycled water program. Once recycled water becomes available and the necessary infrastructure is constructed, Fontana Water Company will be the purveyor of recycled water to those customers within its service area who can make use of such water. In the first phase of the recycled water program, Fontana Water Company will provide approximately 1,700 AF of recycled water to schools, parks, commercial customers, and Community Facilities Districts' landscape irrigation locations in the southern portion of the City of Fontana. Ultimate build-out in Fontana Water Company's service area will enable Fontana Water Company to provide approximately 6,000 AF of recycled water. Fontana Water Company supports the use of recycled water where its use is appropriate and where recycled water is available.

Recycled Water Use for City of Redlands

The City is a sewer agency that treats approximately 5.9 million gallons of wastewater daily as of 2020. The City's Wastewater Treatment Plant (WWTP) has the capability of treating 9 million gallons a day (MGD) to a secondary level. Of that, 7.2 MGD can be treated to a Title 22-Recycled Water level.

The City utilizes all wastewater collected and treated at its WWTP in its service area for:

- Distribution to customers
- Percolation into Bunker Hill

Treated wastewater distributed to customers is tertiary treated, known as Title 22-Recycled Water. The City's recycled water customers include Southern California Edison (SCE) Company, a landfill and recycled/non-potable water customers located in the 1350 pressure zone. SCE uses recycled water as cooling water at its Mountain View Power Plant and recycled/non-potable water customers use recycled water for irrigation when supply is available. All remaining wastewater is treated to a secondary level and released into spreading basins located east of the WWTP for recharge back into Bunker Hill ground water basin. Based on 2020 volumes, approximately 1.6 mgd of treated wastewater was used as recycled water supply for customers, and 3.4 mgd was used for recharge. The remaining water was used within the WWTP or accounted for as losses through the process, meter inaccuracies or evaporation.

The expansion of the recycled water system is limited by its supply, as well as infrastructure development and the Title 22-Recycled Water permitting process. However, because the City requires new commercial development to provide dual metering for irrigation systems, to accommodate the use of recycled/non-potable water, all recycled water may be utilized for distribution to recycled/non-potable water customers in the 1350 zone and eventually the 1570 pressure zone, as demand and infrastructure increases. The City's Capital Improvement Plan includes the design and construction of two recycled water reservoirs that will total up to a

volume of 2,000,000 gallons of storage, a 1,500 gallons per minute booster pump station, and 9,400 linear feet of pipeline. Construction of these facilities will increase the use of recycled water in the 1350 and 1570 pressure zones by 826 AFY.

Recycled Water Use for City of Rialto and West Valley Water District

The City of Rialto has facilities to provide the California Department of Transportation (Caltrans) with recycled water for 42,000 feet of landscape irrigation for Interstate-10. Caltrans has been using approximately 10 AFY. Currently, there are no other users of the recycled water.

Rialto plans to reduce the amount of treated effluent that is discharged from the Rialto Wastewater Treatment Plant into the Rialto Channel, which is a tributary to the Santa Ana River. The reduction of flow would occur in two parts as infrastructure is constructed, demand for recycled water increases, and certain habitat modifications are implemented within the Rialto Channel. The City of Rialto would recycle/reuse the wastewater by transporting treated wastewater through a pipeline system to recycled water consumers within their service area for direct application.

WVWD has evaluated the feasibility of adding recycled water as a non-potable supply but would rely on the City of Rialto or San Bernardino County to provide the recycled water from their wastewater treatment facilities. In 2012, WVWD prepared a master plan to evaluate potential uses of recycled water within its service area. WVWD does not currently have a recycled water distribution system and is not pursuing recycled water use at this time because it is not cost effective to extend facilities from the wastewater treatment plants to the locations of potential use.

Recycled Water Use for City of Riverside

The City of Riverside Public Works Department operates and maintains the Riverside Regional Water Quality Control Plant (RRWQCP). The daily average wastewater inflow to the RRWQCP is 34 mgd. Construction for an upgrade is currently underway to increase treatment plant capacity to 46 mgd, with the final plant capacity to reach 52 mgd by 2024. The service area of the RRWQCP extends beyond the Riverside Public Utilities service area to include the areas served by Jurupa, Rubidoux, and Edgemont Community Services District. Tertiary-treated effluent (recycled water) is discharged into the SAR.

The SWRCB approved Order WR 2008-0024 in May 2008, in which RRWQCP is required to discharge 25,000 AFY, compared to previous minimum discharge requirements of 15,250 AFY per the 1968 Prado Settlement.

This order changed the place of use and purpose of use of a portion of the treated wastewater discharged into the SAR requested through Wastewater Change Petition WW-0045 as follows:

- **Change of Place of Use:** The Order expanded the place of use to include areas within the City's limits, the City's water service area boundary, and within the boundary of the Jurupa Area Plan to reflect diversion of treated wastewater to recycled water use sites. The point of discharge to the SAR remained the same.
- **Change of Purpose of Use:** The Order modified the purpose of recycled water use to include municipal, industrial, and agricultural purposes.

Recycled Water Use for San Bernardino Municipal Water Department

SBMWD is developing the Tertiary Treatment System (TTS) Project a recycled water project which will be a Title 22-compliant tertiary treatment facility that will supply recycled water for:

- Operational needs within the plant, eliminating in-plant use of groundwater and onsite groundwater storage
- Groundwater recharge of the Bunker Hill Groundwater Basin, which is SBMWD's sole source of water supply
- Supplying potential future recycled water customers.

The TTS project location is sited east of the Unit 1 secondary clarifiers, adjacent to East Twin Creek. The design includes a new pump station and pipelines to convey secondary effluent to new filtration and disinfection processes.

After treatment, the tertiary recycled water will be stored in a rehabilitated existing reservoir that currently stores groundwater. Production of tertiary disinfected recycled water from the TTS will be phased with provisions to allow future expansion of up to 5 mgd (AECOM, 2019) using water in excess of the discharge commitments to the Santa Ana River. The TTS is in the final design phase and is expected to be operational in 2021.

The proposed effluent discharge reduction would occur in two parts corresponding to Phases 1 and 3 of the HCP implementation. In Phase 1 the Water Department will reduce flows from the RIX facility to the Santa Ana River from the baseline of 41.2 cfs (22.2 mgd) to 28 cfs (15.1 mgd). In Phase 3 of RIX, effluent reduction could occur if the HCP demonstrates that the success criteria for mitigation actions in this HCP for Santa Ana sucker are being met or exceeded. If the success criteria are not met until Phase 4, then implementation would be delayed until Phase 4 of the HCP. In this phase the RIX effluent discharge could be reduced to a minimum of 16,651 afy/23 cfs/12.4 mgd.

Recycled Water Use for Yucaipa Valley Water District

YVWD's existing recycled water system went into operation in 2002. The system currently includes 22 miles of pipeline, approximately 460 service connections, and 5 reservoirs capable of storing 12 million gallons (36.8 AF) of water.

Due to an increasing demand of recycled water, YVWD will continue expanding the recycled water system. YVWD will be constructing a Regional Recycled Water Conveyance System to the southernmost service area boundary. This extension would involve the construction of a 24" recycled water pipeline, approximately 18,500 linear feet (3.5 miles) through the City of Calimesa. The purpose of the pipeline is to provide recycled water service to customers residing within the newly developed dual-plumbed community in the City of Calimesa.

Recycled water is currently used to provide about 16 percent of Yucaipa Valley Water District's overall water demands. A significant portion of YVWD's projected future water demands will be met with the use of recycled water for irrigation of golf courses, parks, landscape areas and front-/rear-yard irrigation of residential dwellings.

To serve the projected water demands, YVWD has implemented an extensive dual water distribution system. The dual water system includes a drinking water conveyance system to convey potable water to customers and a separate recycled water distribution system to convey recycled water to customers.

As water becomes an increasingly precious commodity, Yucaipa Valley Water District is stepping up its recycling efforts so that more water can be reused on golf courses, school grounds, roadside medians and for other landscaping purposes -- even the front and rear yards of new homes.

YVWD has already initiated a significant recycled water program within their service area for landscape irrigation. Future homes in the YVWD service area will be constructed with drinking water for interior use and recycled water for exterior use. These improvements will significantly reduce the GPCD for the community and provide the framework for a robust, sustainable and water conscientious community.

3.5 Transfers, Exchanges, and Groundwater Banking Programs

3.5.1 Transfers and Exchanges

Transfers and exchanges are discussed in chapters for each individual agency.

3.5.2 Groundwater Banking Programs

As stated previously, storing water in local groundwater basins during wet years for later use during droughts is one of the primary management strategies in the USARW IRWMP.

> Valley District has been conducting groundwater recharge activities in the SBBA since 1972. The San Bernardino Valley Water Conservation District and its predecessors have conducted water conservation (groundwater recharge) activities since 1912 in areas that overlie the SBBA.

The USARW IRWMP evaluated additional conjunctive use scenarios and concluded that they were feasible. Conjunctive use projects currently under development in the Valley District Service area are described in **Section 3.6.2.**

Phase 1A Enhanced Recharge Project

3.6 Planned Water Supply Projects and Programs

The USARW has collaborated to manage the region's unique water supply, water quality, flood, and habitat challenges. These challenges are key considerations in the implementation of new water supply projects and are reflected in the goals of the USARW IRWMP.

3.6.1 Recycled Water

Planned recycled water projects are described in Section 3.4.

3.6.2 Conjunctive Use Projects

One of the foundational water management strategies in the USARW IRWMP is conjunctive use which has been generally described as using our groundwater basins to store water that is available in wet years so that it is available to be pumped out during dry years (dry year yield). Groundwater modeling for the IRWMP concluded that conjunctive use is feasible up to certain limits.

In February 2012, the BTAC recommended a cumulative total of 40,000 acre-feet per year of dry year yield. This capacity represents an efficient, initial project size with the possibility for expansion, given modeling to support it.

The five regional water agencies in the Santa Ana River Watershed have identified a watershed scale project, the Santa Ana River Conservation and Conjunctive Use Program (SARCCUP), a cooperative program with, Metropolitan and other agencies in the Santa Ana Watershed to store imported water during wet years for use during dry years.

The group includes representatives from the following regional water agencies:

- Valley District
- Western
- Eastern Municipal Water District
- IEUA
- Orange County Water District

The program goals of SARCCUP include:

- Providing watershed-wide benefits based upon regional collaboration
- Creating significant new dry-year yield
- Increasing the resiliency and reliability of the water supply

SARCCUP includes four separate groundwater banks located in different groundwater basins within the Santa Ana Watershed, including a comprehensive conjunctive use program in the SBB. SARCCUP will provide water for the SBB and the companion project, Bunker Hill Conjunctive Use Program (BHCUP) provides the extraction facilities for the SBB.

Conjunctive use will benefit the retail water agencies with wells in the Region by increasing water levels and reducing pumping costs. The portion of these projects ultimately available to agencies in the Valley District service area is up to 88,500 acre-feet of storage and up to 29,500 acre-feet of dry year yield.

3.6.3 Groundwater Recharge

One of the water supply strategies of the region is to recharge groundwater through spreading of imported water or through direct use of imported water which results in in-lieu recharge, managing floods and increasing stormwater recharge, and percolating recycled water. The region utilizes multiple spreading basins to recharge imported water and excess surface water, percolates effluent from multiple wastewater treatment facilities, and receives some recharge through percolation of stormwater. Proposed new recharge projects under development are shown in **Table 3-14**. In addition to these projects, local flood control districts are repairing and improving existing flood control channels and basins to reduce the velocity of water and allow additional groundwater recharge.

A goal of the USARW IRWMP is to balance flood management and increase stormwater recharge.

Stormwater management has been an ongoing challenge in the USARW Region and flood control facilities, such as detention basins, have provided much needed control of these flows. While conveying flood water safely through the upper SAR watershed is of critical importance, detaining runoff for recharge is also desirable. The region's groundwater managers are working with flood control agencies to optimize the use of these flood control facilities to increase the recharge of stormwater into the groundwater basin. The goal is to strike a balance between flood control and recharge that will ensure protection from flooding, while providing additional supplies to meet growing future demands and to supplement these supplies during drought years. Valley District has had an agreement with SBCFCD since 1972 which allows Valley District to recharge water in flood control detention basins. The two agencies are currently working on a replacement agreement that will continue to allow Valley District to use flood control basins for recharge when they are not needed for flood control.

Table 3-14: Planned Groundwater Recharge Projects

PROJECT NAME	AGENCY	BASIN	IMPLEMENTATION YEAR/PHASE	ESTIMATED YIELD (AFY)	WATER RECHARGED
SAR TRIBUTARY ACTIVE RECHARGE PROJECTS					
City Creek Basins	Valley District, Western, RPU, SBVWCD	Bunker Hill	Planning	4,660	Stormwater
Mill Creek Basins	Valley District, Western, RPU, SBVWCD	Bunker Hill	Planning	940	Stormwater
Waterman Creek Basins	Valley District, Western, RPU, SBVWCD	Bunker Hill	Planning	1,420	Stormwater
East Twin Creek Basins	Valley District, Western, RPU, SBVWCD	Bunker Hill	Planning	3,310	Stormwater
Plunge Creek and Oak Creek	Valley District, Western, RPU, SBVWCD	Bunker Hill	Planning	3,110	Stormwater
Cable Creek Basins	Valley District, Western, RPU, SBCFCD	Bunker Hill	Planning	2,420	Stormwater
Lytle Creek Basin	Valley District, Western, RPU	Bunker Hill	Planning	3,620	Stormwater
Cajon – Vulcan Basins	Valley District, SBMWD	Bunker Hill	Planning	490	Stormwater
Lytle – Cajon Basin	Valley District, Western, RPU	Bunker Hill	Planning	2,910	Stormwater
Devil Creek Basin	Valley District, SBMWD	Bunker Hill	Planning	1,910	Stormwater
ADDITIONAL RECHARGE PROJECTS					
Enhanced Recharge in Santa Ana River Spreading Basins, Phases 1B & 1C	Valley District, Western, SBVWCD	Bunker Hill	2022	N/A	
Recharge in Cactus Basins	Valley District, SBCFCD	Rialto-Colton	2022	N/A	Imported Water
Riverside North Aquifer Storage & Recovery Project	Valley District, Western, RPU	Riverside-Arlington	Planning	6,000	
Victoria Basin Recharge	Western	Riverside-Arlington	2020	1,800	Stormwater
Riverside Basin Recharge Project	RPU	Riverside-Arlington	Planning	N/A	Stormwater, Imported water
Vulcan Mining Groundwater Recharge Basin	Valley District, SBMWD	Bunker Hill	Planning	N/A	Imported water
Calimesa Recharge Basin	South Mesa Water Company	Yucaipa	2022	N/A	Stormwater

PROJECT NAME	AGENCY	BASIN	IMPLEMENTATION YEAR/PHASE	ESTIMATED YIELD (AFY)	WATER RECHARGED
Calimesa Aquifer Storage and Recovery	Yucaipa Valley Water District	Yucaipa	2022	N/A	Recycled Water
Sterling Natural Resource Center	EVWD	Bunker Hill	2022	8,200	Recycled Water
Tertiary Treatment System	SBMWD	Bunker Hill	2022	5,600	Recycled Water

Sources: Upper SAR HCP October 2020 Stakeholder Draft, Geoscience Integrated SAR Model results for Active Recharge projects and project information submitted by Plan participants in the Call for Projects (see Chapter 7)

3.6.3.1 Santa Ana River Tributary Active Recharge Project

The Active Recharge Project is envisioned to help better manage surface water available to the SBBA.

In 2015, a stormwater flow and capture analysis were performed to determine:

- The volume of surface water which has historically migrated out of the SBBA,
- The volume of surface water that is generated internally within the SBBA as the result of historical and on-going urbanization of the SBBA,
- The quantity of stormwater that is generated by the major tributary creeks to the Santa Ana River,
- The location and preliminary (conceptual) designs of potential new stormwater capture facilities that could maximize the capture and recharge of surface water flows,
- Potential environmental constraints for each of the selected tributaries,
- Potential modifications to existing retention basins and spreading grounds to further increase surface water capture and recharge, and
- The volume of potential additional recharge to the SBBA and the effect to surface water volumes leaving the SBBA that will occur as a result of implementation of an active recharge project (this remaining flow out of the SBBA would be available for recharge in the proposed Riverside North Aquifer Storage and Recovery Project; see Section 3.6.3.4).

The study included preparation of proposed conceptual designs for new and improved existing surface water capture and recharge facilities in areas of the tributary creeks having the greatest stormwater flows and the least number of environmental constraints. The project stakeholders are currently working to refine the conceptual designs and estimates of recharge

3.6.3.2 Santa Ana River Enhanced Recharge Project

The Enhanced Recharge Project is located on the Santa Ana River and will divert up to 500 cubic feet per second (cfs) and up to approximately 80,000 AFY. Water will be temporarily captured at the Seven Oaks Dam and diverted flows will flow to recharge basins for recharge

into the SBBA or be delivered for direct use through the first phase of the Plunge Pool Pipeline. This project is estimated to provide up to 12,000 acre-feet per year of new water to the region.

3.6.3.3 Cactus Basin Recharge

Valley District is working cooperatively with the San Bernardino County Flood Control District (Flood Control) to recharge SWP supplemental water in the Cactus Basins, which would recharge high quality water into the Rialto-Colton sub basin. The project includes the construction of new basins 3 and 3A, which are being built for flood control. Basin development will include the construction of a bypass pipeline to manage flood flows. To optimize the joint use of these basins for flood control, the recharge is planned to occur during the dry-season, from April to October.

3.6.3.4 Riverside North Aquifer Storage and Recovery

The Riverside North Aquifer Storage and Recovery Project is a proposed storm water capture project located in the southern portion of the City of Colton and north of the City of Grand Terrace. The project consists of proposed in-channel and off-channel recharge. The proposed off-channel recharge facility location is along the west side of the Santa Ana River and proposes the construction of up to eight individual recharge basins encompassing approximately 25 acres. The in-channel recharge basin proposes construction of an inflatable dam across the Santa Ana River channel, which can be raised and lowered depending on the amount of water flowing in the river.

This project is estimated to provide up to 12,800 acre-feet of new water per year. The in-channel and off-channel water captured will be recharged into the Riverside North sub basin and a portion of the retained water will be diverted to the Riverside Canal pipeline for direct use.

3.6.3.5 Arlington Basin Water Quality Improvement

Western is planning to construct new artificial recharge basins at three different stormwater channels within the Arlington groundwater basin to provide additional water supply to the cities of Norco and Corona. The selected sites, located in the immediate vicinity of the Arlington Desalter in the City of Riverside, are commonly referred to as the Victoria site and other potential sites. Stormwater from Mockingbird Reservoir would be captured during stormwater events within the Victoria basin, and when water is available in the channel and capacity remains at the basins. The Victoria site is located in previously disturbed, non-operational farmlands. Common to the Victoria site and other potential sites, construction will include clearing and grubbing, earth work/removal, grading, inlet works, berms, and outlet works (spillway and interconnecting pipelines). These basins would be designed to capture and recharge stormwater, as well as any other recycled water that may be available in the future.

By enabling an increase of Arlington Desalter product water by up to 1,800 afy/2.5 cfs/1.3 mgd, this project effectively integrates various water resource management goals, including improved runoff management, groundwater recharge and water quality management, and provides a cost

effective solution for preserving lower-cost local groundwater supplies for those areas receiving Arlington Desalter product water including the City of Norco and the City of Corona.

3.6.3.6 Riverside Basin

RPU plans to construct new recharge basins and/or repurpose existing retention basins within the northern part of the Riverside Basin. These basins will be used to recharge the Riverside Groundwater Basin and therefore increase the operating yield from the basin. The source of the water will be onsite stormwater, imported water, and/or water from the Riverside North Aquifer Storage and Recovery Project via the existing Riverside Canal and associated delivery systems, if necessary.

3.6.3.7 Vulcan Mining Groundwater Recharge

The Vulcan Mining Groundwater Recharge Basins are located east of Lytle Creek, northerly of Devil Creek Channel, and westerly of Cajon Boulevard within existing aggregate mining pits owned by Vulcan Materials Company. SBMWD proposes to develop groundwater recharge facilities within the basins in conjunction with Vulcan Materials Company for recharge of water supplied through the SWP, which would include construction of an SWP turnout, a metering facility, and the placement of a pipeline. The project will not include water supply from surface water diversions.

3.6.3.8 Calimesa Recharge Basin

The Calimesa Recharge Basin Project is a proposed project by the South Mesa Water Company in cooperation with the City of Calimesa and Riverside County Flood Control and Water Conservation District. The City and Flood Control District are currently designing a road improvement project along County Line Road between Park Avenue and Bryant Street, including just under 1 mile of infrastructure enhancements for traffic control. Additionally, the project will entail construction of the Calimesa Recharge Basin on an adjacent 4-acre parcel to collect stormwater captured from the improved roadway and detain it for percolation into the Yucaipa groundwater basin.

3.6.3.9 Calimesa Aquifer Storage and Recovery

The Yucaipa Valley Water District will be installing four injection wells and two extraction wells as an Aquifer Storage and Recovery Facility in the City of Calimesa. This system will provide for the recharge of fully treated (reverse osmosis) recycled water to provide additional drinking water supplies and to meet peak recycled water demands by reversing the flow of water from the injection wells.

3.6.3.10 Sterling Natural Resource Center

The Sterling Natural Resource Center (SNRC) is a wastewater reclamation facility under construction and scheduled to begin treating raw wastewater from East Valley Water District in 2022. SNRC will treat wastewater to tertiary levels and discharge effluent via pipeline to the proposed Weaver groundwater recharge basin. SNRC is estimated to recharge 8,200 AFY to

the Bunker Hill sub basin when it comes online in 2022, and recharge will likely increase over time as the EVWD population grows and more wastewater is treated at the facility.

3.6.3.11 Tertiary Treatment System

The Tertiary Treatment System project is an upgrade to the City of San Bernardino Water Reclamation Plant (WRP). The project includes upgrading treatment processes to produce tertiary effluent at WRP and changing the location of effluent discharge from the Santa Ana River to the Weaver groundwater recharge basins via pipeline. The Tertiary Treatment System is estimated to initially recharge 2,200 AFY to the Bunker Hill sub basin starting in 2022 and will increase to 10,000 AFY by 2040 as the improvements are phased in and the City of San Bernardino population grows.

3.7 Development of Desalination

3.7.1 Opportunities for Brackish Water and/or Groundwater Desalination

Desalination, or desalting, is a process to create drinking water from water containing higher salt levels. Desalination can use a thermal distillation process or a membrane process (such as electrodialysis or reverse osmosis). All desalination processes produce a brine waste stream that must be disposed. Brackish groundwater desalting is not currently needed in the San Bernardino Valley.

Although elevated salts are currently not a concern in the San Bernardino Valley, elevated salts are an issue for retailers that overlie the San Timoteo Groundwater Basin where agencies in this basin are considering implementing desalter operations. The area is fortunate to have a Brine Line which can transport non-reclaimable waste, by gravity, from the City of San Bernardino Wastewater Reclamation Plant to the Orange County Sanitation District's treatment plant.

3.7.2 Opportunities for Seawater Desalination

Because the San Bernardino Valley is an inland area and has developed less costly management strategies to achieve a reliable water supply, the region is not pursuing this option.

3.8 Local Water Management

3.8.1 Western Judgement

The Western Judgment, entered simultaneously with the Orange County Judgment, proportioned the water resources within the upper Santa Ana River watershed amongst the residents of the watershed.

The Orange County Judgment ensures minimum flows in the Santa Ana River to Orange County and the Western Judgment generally provides for:

- A determination of safe yield of the SBBA at 232,100 AFY.
- The amount (64,862 AF) of safe yield from the SBBA by for the plaintiff parties (parties in Riverside County). This is equal to 27.95 percent of safe yield.
- An obligation of the non-plaintiff parties (entities in the Valley District service area) to provide replenishment anytime their cumulative extractions exceed their cumulative amount of safe yield;
- An obligation of Western to replenish the Colton Basin Area and the Riverside North Basins if extractions for use in Riverside County in aggregate exceed 3,381 AF and 21,085 AF respectively; and
- An obligation of Valley District to replenish the Colton Basin Area and Riverside North Basin Areas if water levels are lower than 822.04 MSL in specified index wells.

The Judgments establish a Watermaster to be responsible, on behalf of the numerous parties bound thereby, for ensuring implementation of the judgments. The Watermaster for the Western Judgment is made up of one representative from Valley District and Western. Valley District and Western represent the retail water agencies that pump from the groundwater basins.

The Western Judgment contemplates that the parties will develop “new conservation” which is defined as any increase in replenishment from natural precipitation which results from operation of works and facilities not in existence as of 1969, other than works installed to offset losses from flood control channelization. The Western Judgment specifies that the parties to the Judgment have the right to participate in any new conservation projects, provided they pay the appropriate share of the cost. The net effect of new conservation is an increase in safe yield for both the Plaintiffs and non-Plaintiffs. A copy of the Western Judgment is provided in **Part 3 Appendix B**.

In 2013, both the Plaintiffs and Non-Plaintiffs agreed to participate in the cost to capture some of the water that historically flowed to the ocean. This New Conservation was due to the construction and operation of the Seven Oaks Dam. The 2015 Annual Report for the Western-San Bernardino Annual Report effectively increases the safe yield for both Parties as shown in **Table 3-15**.

Table 3-15. Adjusted SBBA Rights Due to New Conservation Allocation

PARTIES	PERCENTAGE	SAFE YIELD ALLOCATION (AF)	NEW CONSERVATION ALLOCATION (AF)	ADJUSTED RIGHT (AF)
Non- Plaintiffs	72.05%	167,238	5,507	172,745
Plaintiffs	27.95%	64,862	2,136	66,998
City of Riverside		52,199	1,719	53,918
Riverside Highland Water Company		4,294	141	4,435
AM and MD Water Company		7,833	258	8,091
Regents of the University of California		536	18	554
TOTAL SUM OF EXTRACTIONS	**100%**	**232,100**	**7,643**	**239,743**

3.8.2 Orange County Judgement

In 1963, the Orange County Water District (OCWD) filed suit against substantially all water users in the area tributary to Prado Dam seeking adjudication of water rights on the Santa Ana River. The litigation ultimately involved over 4,000 served water users and water agencies, the four largest of which were OCWD, Valley District, Western, and the Chino Basin Municipal Water District (now the Inland Empire Utilities Agency). Given the magnitude of the potential litigation, these four districts and other parties developed a settlement that was approved by the Orange County Superior Court in a stipulated judgment entered on April 17, 1969, Orange County Water District v. City of Chino et al., Case No. 117628 (Orange County Judgment). The Orange County Judgment imposes a physical solution that requires parties in the upper Santa Ana River watershed to deliver a minimum quantity of water to points downstream including Riverside Narrows and Prado Dam. A provision of the Orange County Judgment related to conservation establishes that, once the flow requirements are met, the Upper Area parties "may engage in unlimited water conservation activities, including spreading, impounding, and other methods, in the area above Prado Reservoir." The Orange County Judgment is administered by the five-member Santa Ana River Watermaster that reports annually to the court and the four representative agencies. Valley District, the Inland Empire Utilities Agency, and Western nominate one member each to the Watermaster, OCWD nominates two members, and members are appointed by the court. A copy of the Orange County Judgment is provided in **Part 3 Appendix B.**

3.8.3 1961 Rialto Basin Decree

The Rialto Basin Decree was described previously in **Section 2.2.2**. A copy of the Rialto Basin Decree is provided in **Part 3 Appendix B.**

3.8.4 Seven Oaks Accord

On July 21, 2004, Valley District, Western, the City of Redlands, EVWD, Bear Valley Mutual Water Company, Lugonia Water Company, North Fork Water Company, and Redlands Water Company signed a settlement agreement known as the Seven Oaks Accord (Accord). The Accord calls for Valley District and Western to recognize the prior rights of the water users for a portion of the natural flow of the Santa Ana River. In exchange, the water users agree to withdraw their protests to the water right application submitted by Valley District on behalf of itself and Western. All the parties to the Accord have agreed to support the granting of other necessary permits to allow Valley District and Western to divert water from the Santa Ana River. By means of the Accord, Valley District agreed to modify its water right applications to incorporate implementation of the Accord. Additionally, the Accord requires Valley District and Western to develop a groundwater spreading program in cooperation with other parties, "that is intended to maintain groundwater levels at the specified wells at relatively constant levels, in spite of the inevitable fluctuations due to hydrologic variation." In response, local agencies included groundwater management in the USARW IRWMP and have collectively prepared the Basin Technical Advisory Committee Regional Water Management Plan annually since 2008.

3.8.5 SBBA Groundwater Sustainability Council

In 2018, Valley District, the City of Colton, City of Rialto, SBMWD, City of Loma Linda, EVWD, Conservation District, Fontana Water Company, WVWD, YVWD, BVMWC, and Loma Linda University entered into the San Bernardino Basin Area Groundwater Council Framework Agreement to form the SBBA Groundwater Sustainability Council (SBBA GC). The City of Redlands joined the SBBA GC in 2021. The purpose of the SBBA GC is to coordinate and implement groundwater management activities in the Bunker Hill Sub-basin and achieve groundwater sustainability throughout the basin.

The primary function of the SBBA GC is to purchase and recharge imported water into the SBB. The SBBA GC collectively determines the amount of water to purchase and recharge. The current sustainability goal is 28,823 AFY which corresponds to the estimated 2040 need for SWP as determined by the last version of the RUWMP. The SBBA GC created an Equitable Allocation Model (EAM) to proportion each member's recharge obligation. The EAM takes into consideration an agencies' investments in water conservation and other supplies and infrastructure, including recycled water supplies and surface water treatment plants.

3.8.6 Yucaipa Sustainable Groundwater Management Agency

In July 2017, Valley District, the City of Calimesa, City of Redlands, San Gorgonio Pass Water Agency (Pass), South Mesa Water Company, South Mountain Water Company, Western Heights Water Company, City of Yucaipa, and Yucaipa Valley Water District formed the Yucaipa Sustainable Groundwater Management Agency (Yucaipa-SGMA) under the Sustainable

Groundwater Management Act (SGMA). The Yucaipa-SGMA is currently developing a Groundwater Sustainability Plan (GSP) that is required to be completed by January 31, 2022. The Yucaipa GSP will evaluate supplies and demands on the basin, establish sustainability goals including recharge obligations to address any shortages between supplies and demands, identify, and evaluate management actions and impacts of the GSP, and establish a framework for how the basin will be managed collaboratively by all entities who rely upon the basin.

> The Yucaipa-SGMA GSP is under development and was not completed by the time this plan was published, however, some findings from the GSP development process have informed supply and demand projections for entities who are included in this plan.

3.8.7 Settlement Agreement with Conservation District

Valley District, Western, and the San Bernardino Valley Water Conservation District entered into a settlement agreement on August 9, 2005 whereby the agencies will work cooperatively to develop an annual groundwater management plan. Since both parties are members of the BTAC, this requirement is being met by the BTAC's Regional Water Management Plan, which largely establishes a recharge threshold to ensure recharge activities do not cause liquefaction or move contamination plumes.

3.8.8 MOUs with Flood Control

The Planning Memorandum of understanding (MOU) by and between the San Bernardino County Flood Control District (SBCFCD) and San Bernardino Valley Water Conservation District (Conservation District) serves as an agreement for stormwater recharge at various flood control facilities. Under this MOU, the Conservation District identified SBCFCD facilities where stormwater may be diverted for recharge purposes, granted that diversion does not impact SBCFCD's facilities functionality and purpose to maintain protection from floods. At this time, the potential for stormwater recharge using SBCFCD facilities is preliminary, and future studies pertaining to eligible facilities, the amount and quality of storm water flows for recharge, the location and capacity of SBCFCD facilities, recharge impacts to groundwater levels, migration of contaminant plumes, sand and gravel extraction or other land uses in the vicinity, subsidence protection, endangered and sensitive species habitat preservation, and any other concerns will need to be evaluated (San Bernardino County Flood Control District, January 2021). This MOU is for planning purposes only and any future projects that may use SBCFCD facilities will be subject to a separate water spreading agreement between both parties and CEQA.

3.8.9 Exchange Plan

On May 3, 1976, the San Bernardino Valley Water Conservation District (Conservation District), Valley District, Bear Valley Mutual Water Company (BVMWC), City of Redlands, Crafton Water

Company, EVWD, Lugonia Water Company, North Fork Water Company (now owned by EVWD), Redlands Water Company, and YVWD entered into the Santa Ana River – Mill Creek Cooperative Water Project Agreement (Exchange Plan). The Exchange Plan provided a way for Valley District to provide SWP water to the Yucaipa area, by exchange, before Valley District had a pipeline to deliver SWP water directly to Yucaipa. Since the construction of the State Water Project East Branch Extension and the Crafton Hills Pump Station, state water deliveries can be made directly to Yucaipa so that Valley District no longer requires the Exchange Plan .

In 2019, the parties to the Exchange Plan began the process of reviewing the plan to determine if there may be a way(s) to amend the agreement that may help the region overcome issues like varying surface water quality, or an outage on the State Water Project. The proposed amendments to the Exchange Plan are under legal review at the time this plan was completed.

3.8.10 1996 Agreement with Big Bear Municipal Water District

Bear Valley Mutual Water Company constructed the original Bear Valley Dam in 1884 to create Big Bear Lake as a storage reservoir for their customers, downstream farmers. In 1964, the residents of Big Bear Lake formed the Big Bear Municipal Water District (Big Bear Municipal) in an effort to eliminate Lake releases to Bear Valley Mutual so that the lake level would remain high for recreational use and tourism. After more than a decade of litigation, a Judgment was executed in 1977 which reduced the amount of Lake releases to Bear Valley Mutual. Under the terms of this Judgment, Big Bear Municipal purchased from Bear Valley Mutual the lake bottom, Bear Valley Dam, and the right to utilize and manage the surface of Big Bear Lake for recreation and wildlife. In return, deliveries to Bear Valley Mutual were capped at a total of 65,000 AF in any ten-year period. These deliveries can be made in the form of Lake releases or can be provided from other sources “in-lieu” of Lake releases (in-lieu deliveries). In-lieu deliveries to Bear Valley Mutual are preferable to Big Bear Municipal since they do not result in water being removed from the lake.

In 1996, Big Bear Municipal Water District entered into a water purchase agreement with Valley District that reduces the amount of water BBMWD must release from Big Bear Lake. For an annual payment to Valley District, Valley District provides SWP water for the downstream water needs that would have historically been met by lake releases whenever the Lake is at specified levels. Valley District may also provide water from other sources when the SWP supply is limited. This historic agreement helped Big Bear Municipal achieve its mission of Lake level stabilization for recreation while providing Bear Valley Mutual with the water it needs for its customers. Under the terms of the Agreement, Bear Valley Mutual may request any amount of delivery for a given year, provided that the total of all their requested deliveries do not exceed 65,000 AF in any ten-year period. Bear Valley Mutual typically limits its request to no more than the ten-year average, or 6,500 AFY.

The Judgment directed the in-lieu water program be monitored through a series of accounts that are managed by the Big Bear Watermaster Committee. The three-member committee consists

of one representative from each of the three member agencies: Big Bear Municipal Water District, Bear Valley Mutual Water Company and San Bernardino Valley Water Conservation District. This is a committee whose sole responsibility is to monitor the "physical solution" set forth in the Judgment. The basic premise behind the physical solution is the comparison of Big Bear Municipal's actual Lake management versus Bear Valley Mutual' s historic management. Big Bear Municipal is then responsible for making up any net groundwater deficiency in the San Bernardino basin which may occur as a result of maintaining a higher Lake level than would have occurred under Bear Valley Mutual' s historic operations. The amount of the deficiency or surplus is maintained in the basin make-up water account (commonly referred to as "basin compensation account"). A number of other accounting mechanisms are in place to calculate totals for Lake releases, inflow, spills, evaporation, wastewater export and other related data. An annual Watermaster report is prepared documenting the annual accounting procedures.

3.8.11 Annual Regional Water Management Plan

The BTAC was formed by the first IRWMP to implement the IRWMP and provide a forum to discuss technical issues regarding water management. The BTAC is primarily made up of water agencies that pump from the groundwater basins within the Valley District service area but is open to others who want to participate. BTAC works cooperatively and strives to make decisions by consensus. Currently, BTAC meets quarterly.

Each year, BTAC develops the Regional Water Management Plan that is considered by the two agencies that make up the Western Watermaster: Valley District and Western Municipal Water District. The plan generally establishes a recharge threshold to ensure water levels do not increase liquefaction potential or move contamination plumes

The latest version of the BTAC Regional Water Management Plan is available at http://www.sbvmwd.com/about-us/local-water-conditions.

3.8.12 Groundwater Recharge Programs

In addition to the ongoing recharge operations throughout the Valley District service area, this section describes new recharge projects that are currently being developed.

3.8.12.1 Cactus Basin Recharge

Valley District is working cooperatively with the San Bernardino County Flood Control District (Flood Control) to recharge SWP supplemental water in the Cactus Basins, which would recharge high quality water into the Rialto-Colton sub basin. The project includes the construction of new basins 3 and 3A, which are being built for flood control. Basin development will include the construction of a bypass pipeline to manage flood flows. To optimize the joint use of these basins for flood control, the recharge is planned to occur during the dry-season, from April to October.

3.9 Water Quality

3.9.1 Imported Water Quality

Water is imported into the Western service area of the IRWM Region from the Colorado River via the Colorado River Aqueduct (CRA), owned and operated by Metropolitan, and from Northern California via SWP facilities. The TDS level in the CRA water averages approximately 700 mg/L and, during drought years, can increase to above 900 mg/L (Metropolitan and USBR 1999). Salinity projections for wet year conditions show TDS values between 650 and 800 mg/L (Metropolitan and USBR 1999).

DWR has conducted water quality monitoring for the SWP since 1968. Initially, this program sought to monitor eutrophication (an increase in chemical nutrients) and salinity in the SWP. Over time, the water quality program expanded to include parameters of concern for drinking water, recreation, and wildlife. Water quality samples are collected at regular intervals throughout the year for chemical, physical, and biological parameters. The SWP water has moderate total organic carbon levels, resulting in higher disinfection byproduct (DBP) formation, and also has some taste and odor causing compounds. Real time data and forecasting for SWP water quality is available on DWR's website at https://water.ca.gov/Programs/Environmental-Services/Water-Quality-Monitoring-And-Assessment/RTDF-Summary.

The Valley District service area of the IRWM region imports water through the SWP which is Sierra snow melt with consistently low TDS levels of 200 to 300 mg/L (DWR 2003a) except during periods of drought, flood events, reservoir management practices, and salt input from local streams.

In order to protect against any water quality impacts from imported water, the City of Corona, City of Riverside, Eastern Metropolitan Water District, Elsinore Valley Municipal Water District, Orange County Water District, Valley District, San Gorgonio Pass Water Agency, and Western (Recharge Parties) entered into the "Cooperative Agreement to Protect Water Quality and Encourage the Conjunctive Uses of Imported Water in the Santa Ana River Basin" with the SARWQCB in 2007. The initial term of the agreement was 10 years, and it was recently extended to January 18, 2028.

This order states that long-term conjunctive use of groundwater in the Region requires that the quality of water in groundwater basins in the region be managed to meet the water quality objectives for nitrogen and TDS (collectively, the Salinity Objectives) adopted by the SARWQCB in the 1995 Water Quality Control Plan for the Santa Ana River Basin, as amended in 2004 by R8- 2004-0001 (Basin Plan).

The parties that recharge imported water within the Santa Ana Region (Recharging Parties) agree to collect, compile, and analyze the total inorganic nitrogen (TIN) and TDS water quality

data necessary to determine whether the intentional recharge of imported water in the region may have a significant adverse impact on compliance with the Salinity Objectives within the Region.

This agreement provides a framework for groundwater recharge of imported water and will facilitate conjunctive management in the region while protecting water quality. A copy of the agreement is included in **Part 3 Appendix B**.

3.9.2 Groundwater Quality

Groundwater quality varies among the Region's groundwater basins, particularly in the subbasins of the Upper SAR due to geology and faulting patterns and recharge points, and from anthropogenic sources of contamination.

3.9.2.1 Ambient Water Quality

The Water Quality Control Plan (Basin Plan) for the Santa Ana River Basin (Region 8) (RWQCB, 2016a) requires the implementation of a watershed-wide total dissolved solids (TDS) and nitrogen groundwater monitoring program to determine ambient water quality in groundwater, assess compliance with groundwater quality objectives, and determine if assimilative capacity exists in groundwater management zones (GMZs). The current Basin Plan requires that the ambient water quality (AWQ) be computed every three years.

According to the Basin Plan (RWQCB, 2016a):

> "TDS and nitrate-nitrogen water quality objectives for each management zone are based on historical concentrations of TDS and nitrate-nitrogen from 1954 through 1973 and are referred to herein as the 'antidegradation' objectives. This period brackets 1968, when the State Water Resources Control Board (State Water Board) adopted the state's antidegradation policy in Resolution No. 68-16, "Policy with Respect to Maintaining High Quality Waters". This Resolution establishes a benchmark for assessing and considering authorization of degradation of water quality.

A requirement of the January 2004 Nitrogen and TDS Basin Plan Amendment (Resolution No. R8-2004-0001) is to perform a recomputation of AWQ for all groundwater management zones in the watershed for which adequate data exist every three years. To date, seven AWQ determinations have been made with the most recently completed for the 1998 to 2018 time period. The triennial AWQ determinations from each current period are used to assess compliance with the new water quality objectives and to determine if assimilative capacity exists for each Groundwater Management Zone (GMZ). By definition, assimilative capacity is determined to be the difference between the objective and the current AWQ: if the current

quality of the GMZ is better than the water quality objective, then assimilative capacity exists. Assimilative capacity does not exist if the current quality of a GMZ is the same as or poorer than the water quality objectives.

According to the Basin Plan (RWQCB, 2016a), when a GMZ has little or no assimilative capacity:

"The Regional Board addresses such situations by providing dischargers with the opportunity to participate in TDS offset programs, such as the use of desalters, in lieu of compliance with numerical TDS limits. These offset provisions are incorporated into waste discharge requirements . . . An alternative that dischargers might pursue in these circumstances is revision of the TDS or nitrogen objectives, through the Basin Plan amendment process. Consideration of less stringent objectives would necessitate comprehensive antidegradation review, including the demonstrations that beneficial uses would be protected and that water quality consistent with maximum benefit to the people of the State would be maintained . . . a number of dischargers have pursued this 'maximum benefit objective' approach, leading to the inclusion of 'maximum benefit' objectives and implementation strategies in this Basin Plan. Discharges to areas where the 'maximum benefit' objectives apply will be regulated in conformance with these implementation strategies."

Table 3-16 shows the water quality objectives for both TDS and Nitrate for the nine (9) groundwater GMZs in the Upper Santa Ana River Watershed. As shown in the table below, the San Timoteo, Yucaipa and Beaumont GMZs have "maximum benefit" water quality objectives that require the implementation of certain projects and programs by specific dischargers as part of their maximum benefit demonstrations is required for the continued application of the "maximum benefit" objectives. The bold red numbers in the table indicate that the 2018 AWQ is above the WQO and assimilative capacity does not exist.

Table 3-16. TDS Water Quality Objectives, Ambient Water Quality, and Assimilative Capacity

GROUNDWATER MANAGEMENT ZONE	DWR BASIN NAME	WATER QUALITY OBJECTIVE	2018 AMBIENT TDS	WATER QUALITY OBJECTIVE NITRATE	2018 AMBIENT NITRATE
Bunker Hill-A	San Bernardino Basin	310	330	2.7	3.9
Bunker Hill-B	San Bernardino Basin	330	280	7.3	5.8
Lytle	San Bernardino Basin	260	240	1.5	2.4
Colton	Rialto-Colton	410	490	2.7	3.3
Rialto	Rialto Colton	230	240	2.0	3.4
San Timoteo, "maximum benefit"	San Timoteo	400	420	5.0	2.0
San Timoteo , "antidegradation"	San Timoteo	300	420	2.7	2.0
Yucaipa, "maximum benefit"	Yucaipa	370	320	5.0	6.2
Yucaipa, "antidegradation"	Yucaipa	320	320	4.2	6.2
Riverside A	Riverside-Arlington	560	440	6.2	5.6
Beaumont, "maximum benefit"	San Timoteo	330	280	5.0	2.7
Beaumont, "antidegradation"	San Timoteo	230	280	1.5	2.7

3.9.3 Known Groundwater Contaminant Plumes

The SBBA has the following groundwater contaminant plumes:

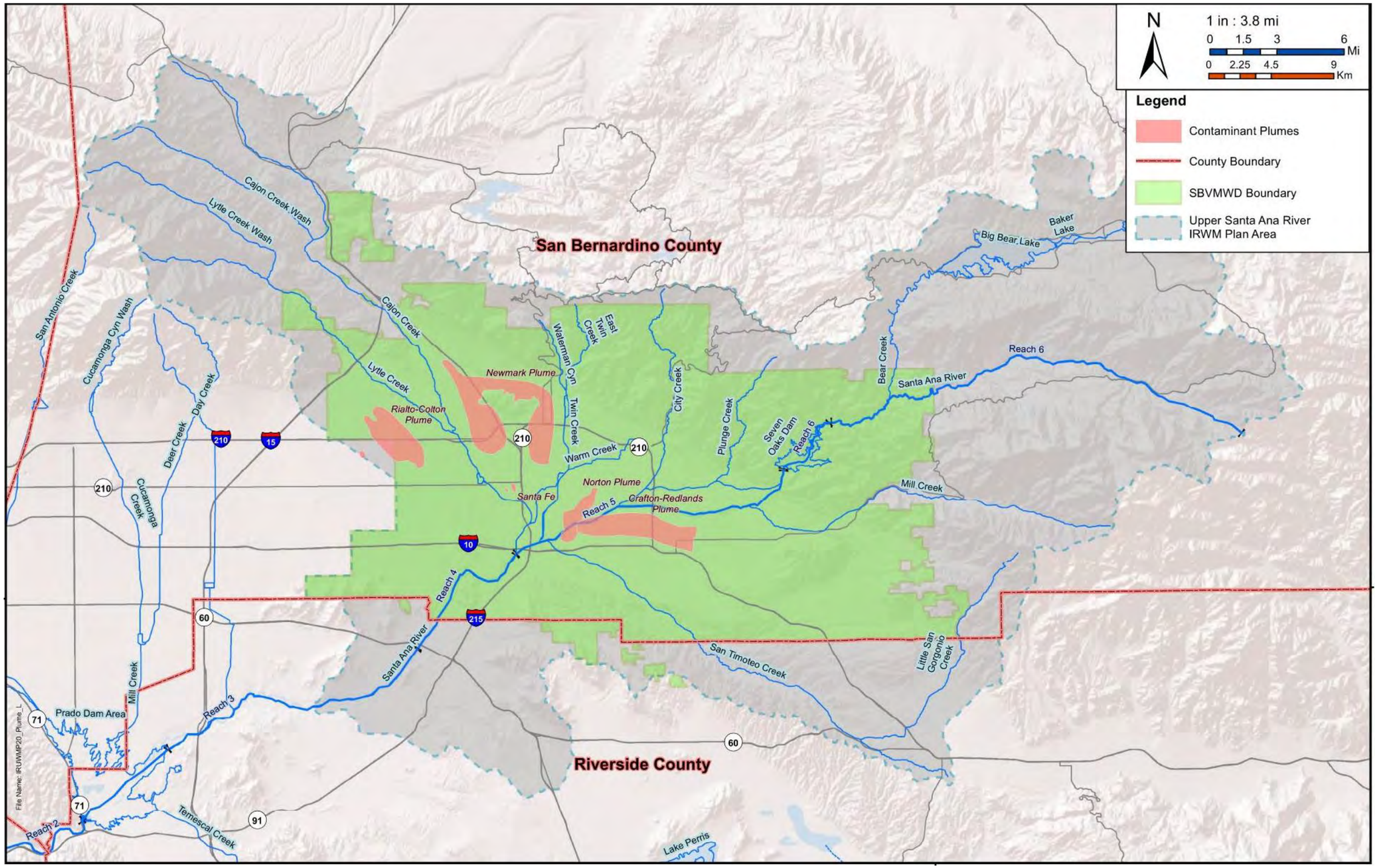
- The Crafton-Redlands plume, with trichloroethylene (TCE) and lower levels of perchloroethylene (PCE), debromochloropropane (DBCP) and perchlorate;
- The Norton Air Force Base TCE and PCE plume, stretching 2.5 miles from its source and contaminating 100,000 AF of groundwater;
- The Muscoy and Newmark plumes near the Shandon Hills, which are Superfund sites with TCE and PCE; and
- The Santa Fe plume with PCE, TCE, and 1,2 dichloroethylene (1,2-DCE)

Other plumes include:

- Rialto Area Perchlorate Plume (Rialto-Colton Basin)
- North Riverside Basin MTBE Contamination (Riverside North Basin)

These plumes are depicted in Figure 3-6.

Figure 3-6. Groundwater Contaminant Plumes in the Region



Separately from the foregoing remediation efforts, Fontana Water Company currently operates and maintains a groundwater remediation project at its Plant F10 pursuant to a long-term agreement with San Bernardino County, the owner and operator of the Mid Valley Sanitary Landfill and corresponding Clean-Up and Abatement Order issued to San Bernardino County by the RWQCB. The 5,000-gallons per minute (gpm) treatment plant utilizes liquid phase granular activated carbon to treat for volatile organic compounds including, but not limited to, PCE, TCE, 1,1-DCE, and cis-1,2-DCE. The plant treats and removes those contaminants from groundwater extracted from both the Rialto-Colton and No Man's Land sub basins.

3.9.3.1 Crafton-Redlands Plume

Two commingled plumes, comprising the Crafton-Redlands plume, have impacted water supply wells for the cities of Riverside, Redlands, and Loma Linda, including Loma Linda University wells. One plume contains TCE and the other perchlorate; both are in the upper 300 to 400 feet of groundwater. TCE has been measured in water supply wells at over 100 parts per billion (ppb), over 20 times the MCL of 6 ppb. Currently, however, water supply well concentrations are around 7 ppb. Perchlorate is present in water supply wells at concentrations up to 77 ppb.

As required by the Santa Ana Regional Water Quality Control Board (SARWQCB), the Lockheed Martin Corporation (Lockheed) has prepared contingency plans to address impacts of the plume on water supply wells. These include blending, treatment, and/or providing alternative water supply sources. The plumes are currently being captured by the City of Riverside's Gage Well Field. Lockheed has installed granular activated carbon treatment units at some of the gage wells to remove TCE and has installed ion exchange units on some of these wells for the removal of perchlorate.

3.9.3.2 Norton Air Force Base Plume

The Norton Air Force Base plume, located just to the southwest of the former installation in the City of San Bernardino, is a major contaminant plume, consisting primarily of TCE and PCE. The plume has impaired 10 wells owned by the City of Riverside and the City of San Bernardino. Cleanup efforts by the Air Force, consisting of soil removal, soil gas extraction, and groundwater treatment, have significantly reduced this plume. The treatment plants now operate in a standby mode.

3.9.3.3 Newmark and Muscoy Plumes

Within the City of San Bernardino, the Newmark plume and the Muscoy plume consist primarily of PCE. The plumes have impacted San Bernardino water supply wells. Under the federal Superfund Program, the U.S. Environmental Protection Agency (EPA) has implemented cleanup of these plumes, including use of groundwater extraction and treatment using granulated activated carbon. The treated water is then used to supplement the City of San Bernardino's potable water supply. It appears that cleanup efforts will be adequate to protect 32 down-gradient water supply wells. However, groundwater model simulations suggest that

containment of the plume will need additional extraction wells that will result in pumping of at least 14,000 AFY.

3.9.3.4 Sante Fe Plume

The Santa Fe groundwater plume consists primarily of 1,2-DCE, TCE, and PCE. This plume is currently being monitored.

3.9.3.5 Rialto Area Perchlorate Plume

Since 2002, the SARWQCB has been conducting an investigation of groundwater contamination in the area of the City of Rialto. The focus of the investigation has been facilities located on a 160-acre site in Rialto. The site has also been designated as a Superfund site by the US EPA. In 2005 the SARWQCB Executive Officer issued a Cleanup and Abatement Order and subsequent amendments naming a number of responsible parties. Since that time, the Cleanup and Abatement Order has been the subject of challenges in petitions filed by entities named as parties responsible for the contamination.

In September 2010, EPA issued the Interim Action Record of Decision to the Source Area Operable Unit (SAOU) of the B.F. Goodrich Superfund Site, now referred to as the "Rockets, Fireworks, and Flares Superfund Site." The EPA's Remedy required Emhart Industries to install, operate, and maintain a groundwater pump and treatment system to intercept and control the spread of contaminated groundwater from the 160-acre parcel. The EPA Remedy is designed to capture and remove perchlorate and Trichloroethylene (TCE) in the groundwater in the Rialto-Colton Groundwater Basin emanating from a 160-acre parcel located in north Rialto.

On August 12, 2015, the Rialto, Colton, the County of San Bernardino and Emhart Industries (Emhart), entered into a Four-Party Implementation Agreement to implement the interim remedial action plan as required by the Consent Decree as entered on July 2, 2013. The remedial action required by the Work Consent Decree was selected and approved and overseen by the EPA. A copy of the Four Party Agreement is included in **Part 3 Appendix B**.

The County and Emhart agreed that the EPA Remedy would be combined with an existing groundwater extraction and treatment remedy designed and constructed by the County to capture and remove perchlorate and TCE in the Basin due to the landfill and required by the SARWQCB. This combined project is referred to as the "Combined Remedy" project.

The Combined Remedy includes:

1. Installing a new extraction well (EW-1), located at the northwest corner of Jerry Eves Park and piping to the water treatment system,
2. Expanding the existing County groundwater treatment system at the Rialto 3 well site to treat extracted water from EW-1,
3. Upgrading the chlorination station at the Combined Remedy site,
4. Constructing an inter-tie between Rialto and Colton to deliver Colton's water rights produced out of EW-1 and,

5. System improvements to the Colton's drinking water distribution system, specifically modifications made by Emhart to a reservoir and pump station.

3.9.3.6 North Riverside Basin MTBE Contamination

In 1988, the SARWQCB issued a Cleanup and Abatement Order to the SFPP Colton Fuel Terminal (owned by Kinder Morgan) located in Bloomington, California. The Terminal, which is located just south of the I-10 freeway on the east side of Riverside Avenue, is a bulk petroleum storage and distribution facility which was built in the 1950s. It currently occupies 82 acres and contains 32 refined petroleum product tanks and fuel-loading racks where transport tanker trucks are filled.

In response to the Cleanup and Abatement Order, a monitoring and extraction well network for the Terminal was constructed. It consists of 131 wells in and around the Terminal as well as 14 soil vapor extraction wells. The site samples for Benzene, methyl tertiary butyl ether (MTBE) and tertiary butyl alcohol (TBA).

3.9.4 Surface Water Quality

Water quality within the Upper SAR watershed is addressed through several plans, regulations and guidelines including the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan), which includes beneficial use designations and water quality objectives. Those water bodies not meeting the Basin Plan water quality objectives and determined to have beneficial uses are listed on the State's 303(d) list of impaired water bodies and require a TMDL to be developed. **Table 3-17** shows the water bodies in the Upper SAR watershed that are listed on the State's 303(d) list for water quality impairments.

The SARWQCB states that the quality of the SAR is a function of the quantity and quality of the various components of the flows (SARWQCB 1995). Three components make up the flow of the water in the SAR: (1) storm flows, (2) baseflow, and (3) non-tributary flow. The relative proportion of these components varies throughout the year.

The first component, storm flows, results directly from rainfall, usually occurring between the months of December and April. Much of the rainfall and surface water runoff from the storms is captured and percolated into the groundwater basins. The quality of storm flow water is highly variable.

Table 3-17: 303(d) Listed Water Bodies in the Upper SAR

WATER BODY	IMPAIRMENTS
Big Bear Lake	Mercury, Noxious Aquatic Plants, Nutrients, PCBs
Grout Creek	Nutrients
Knickerbocker Creek	Pathogens
Lytle Creek	Pathogens
Mill Creek, Reach 1	Pathogens
Mill Creek, Reach 2	Pathogens
Mountain Home Creek	Pathogens
Mountain Home Creek, East Fork	Pathogens
Rathbone (Rathbun) Creek	Cadmium, Copper, Nutrients, Sediment/ Siltation
Santa Ana River, Reach 6	Cadmium, Copper, Lead
Santa Ana River, Reach 4	Pathogens
Santa Ana River, Reach 3	Copper (wet weather only), Lead, Pathogens
Summit Creek	Nutrients

Two TMDLs have been adopted to address the above impairments in the Upper SAR.

- **TMDLs for Bacterial Indicators in the Middle Santa Ana River Watershed (February 3, 2005):** Addresses pathogens in the Santa Ana River, Reach 3.
- **Nutrient TMDL for Dry Hydrological Conditions for Big Bear Lake (April 21, 2006):** Addresses nutrients in Big Bear Lake.

Baseflow makes up the second component of water flow in the SAR, a large portion coming from the discharge of treated wastewater into the river in addition to rising groundwater in the basin. This baseflow includes the non-point source discharges as well as the uncontrolled and unregulated agricultural and urban runoff. Water quality objectives are set in relation to the baseflow in the river, not to the total flow in the river (see **Table 3-18**). The intent of these objectives is to protect the river's groundwater recharge beneficial use. Compliance with these objectives is verified by annual measurement of the baseflow quality.

The quantity and quality of baseflow is most consistent during the month of August. At that time of year, the influence of storm flows and non-tributary flows is at a minimum and volumes of rising water and non-point source discharges tend to be low. The major component of baseflow in August is municipal wastewater. For these reasons, this period has been selected by the SARWQCB as the time when baseflow will be measured and its quality determined. To determine whether the water quality and quantity objectives for baseflow in Reach 3 of the SAR

are being met, the SARWQCB collects a series of grab and composite samples during August of each year. The results are compared with the continuous monitoring data collected by USGS and data from other sources.

Table 3-18: SAR Basin Surface Water Quality Objectives (WQO)[a]

	WATER QUALITY OBJECTIVES MILLIGRAMS PER LITER (MG/L)						
INLAND SURFACE STREAMS UPPER SAR BASIN	TOTAL DISSOLVED SOLIDS (TDS)	HARDNESS ($CACO_3$)	SODIUM (NA)	CHLORIDE (CL)	TOTAL INORGANIC NITROGEN (TIN)[B]	SULFATE (SO_4)	CHEMICAL OXYGEN DEMAND (COD)
Reach 2 - 17th Street in Santa Ana to Prado Dam	650[c]	---	---	---	---	---	---
Reach 3 - Prado Dam to Mission Blvd. - Baseflow	700	350	110	140	10^2	150	30
Reach 4 - Mission Blvd. in Riverside to San Jacinto Fault	550	---	---	---	10	---	30
Reach 5 - San Jacinto Fault in San Bernardino to Seven Oaks Dam	300	190	30	20	5	60	25
Reach 6 - Seven Oaks Dam to Headwaters	200	100	30	10	1	20	5

Source: SARWQCB 1995

[a] A number of amendments to the WQOs of the Basin Plan have been proposed. However, these proposed amendments do not include changes to the WQOs applicable to Reaches 3 through 6 of the SAR (SARWQCB 2004).
[b] Total nitrogen, filtered sample.
[c] Five-year moving average.

The SARWQCB sets discharge requirements on wastewater discharges, the major source of baseflow in the SAR. Waste discharge requirements are developed on the basis of the limited assimilative capacity of the river. Non-point source discharges, generally from urban runoff and agricultural tailwater, are regulated by requiring compliance with Best Management Practices (BMPs), where appropriate.

The third component of flow in the SAR that influences water quality is characterized by the SARWQCB as non-tributary flow. Non-tributary flow is generally imported water released in the upper basin for recharge in the lower basin (SARWQCB 1995).

Streams on the Santa Ana Basin generally have increasing dissolved minerals as one goes downstream. This effect is due to the fact that water is used, recycled, and used again. The magnitude or amount of TDS concentration rises with each use of water. Groundwater also enters basin streams in some reaches, and their sampling indicated that some of the highest TDS (and in some cases nitrates) may occur at sites on the valley floor that are dominated by rising groundwater (USGS 2006). Nitrate concentrations are higher in Santa Ana Basin streams

receiving treated wastewater than in streams without treated wastewater. The principal source of nitrate is fertilizer from historic agricultural operations.

Table 3-19 provides a summary of the available historical surface water quality data for TDS and nitrogen at points along the SAR (USGS 2007).

Table 3-19: Average Historic Surface Water Quality for Locations on the SAR (1990-2001)

WATER QUALITY CONSTITUENT	METROPOLITAN CROSSING GAGE (REACH 3)[A]	RIX-RIALTO EFFLUENT OUTFALL (REACH 4)[A]	MENTONE GAGE (REACH 5)[A]
TDS	560[b]	520[c]	230[b]
TDS Basin Plan Objective by Reach	700	550	300
Total Inorganic Nitrogen (TIN)	7.3[b]	8.5[c]	0.3[b]
TIN Basin Plan Objective by Reach	10[d]	10	5

Source: USGS gage data. Data for River Only Mentone Gage begins in October 1998. Data for Riverside Narrows Gage begins in August 1997.

[a] Proposed amendments to the Basin Plan do not include changes to the water quality objectives in Reaches 3 through 6 of the SAR (SARWQCB 2004).

[b] USGS 2004.

[c] The TDS and TIN values assigned for RIX-Rialto are the maximum values that occurred during 2001-2002 as reported in Table 4.4-9 of the SBMWD RIX Facility Recycled Water Sales Program Preliminary Environmental Impact Report (PEIR), March 2003.

[d] Total nitrogen, filtered sample.

3.9.5 Salt and Nutrient Management Plan

The stakeholders in the Upper Santa Ana River Watershed Groundwater Basins are collaboratively investigating the salt and nutrient loading to several of the underlying groundwater basins. The SNMP will focus on the upper Santa Ana River Watershed. Prolonged droughts have highlighted the need for an enhanced water supply portfolio, which includes plans to increase stormwater capture and recycled water use. Without enough assimilative capacity, existing and new wastewater/recycled water projects in the SBBA may be subject to costly salt removal using advanced treatment such as reverse osmosis (RO).

The SNMP will perform a sophisticated analysis through a collaborative process that will involve the Regional Water Quality Control Board (RWQCB). If the modeling demonstrates that higher objectives are warranted, then a Salt and Nutrient Management Plan would be developed and used as backup to request a change in water quality objectives to the GMZ's in the SBBA from the RWQCB.

3.9.6 Water Quality Impacts on Supply Reliability

Water quality is monitored, tracked, and addressed by implementing treatment, as necessary. In addition to the groundwater plumes described above, there are other contaminants in the basin, including but not limited to nitrate and DBCP, which can require treatment. There are also emerging contaminants and new water quality regulations which could increase the level of required treatment.

Per and polyfluoroalkyl substances (PFAS) are manmade fluorinated organic compounds found in and used in the manufacturing of common items such as carpet, clothing, fabric, food packaging, nonstick cookware, and fire retardant foams. PFAS are synthetically made to be resistant to both water and liquids, are not easily broken down and destroyed, and are believed to have adverse health effects. Two common PFAS, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS), are regulated by the California Division of Drinking Water and have notification limits of 5.1 ppt and 6.5 ppt, respectively. The Office of Environmental Health Hazard Assessment (OEHHA) is developing the Public Health Goal (PHG) for PFOS and PFOA which are scheduled to be released in 2021. Once the PHGs for PFOS and PFOA are established, the State Water Resource Control Board will develop a maximum contaminant level (MCLs) to regulate PFOS and PFOA concentrations in drinking water, both of which are constituents of emerging concern.

Water agencies are responsible for providing treatment to ensure their potable water supply meets all applicable water quality regulations.

3.10 Major Regional Water Infrastructure

The water-related infrastructure of the Upper SAR watershed reflects the complex water history of the IRWM Region. The predecessors of many of the water agencies that are participating in the IRWM Plan were constructing ditches in the 1800s. The water rights and facilities established in the 1800s have helped determine the structure of today's water agencies and the arrangement of today's infrastructure. After State Water Project (SWP) facilities were extended into the Region in the early 1970s, State Water Contractors receiving deliveries from the East Branch of the SWP – Valley District, San Gorgonio Pass Water Agency, and Metropolitan Water District of Southern California (Metropolitan) – constructed pipelines to take advantage of the imported water. Figure 3-7 shows the major water-related infrastructure in the Region.

3.10.1 Regional Water Supply Infrastructure

Groundwater and local surface water serve as important sources of regional water supply. The SBBA is a major source of water supply for agencies in San Bernardino and Riverside Counties. Three major regional transmission systems exist in the IRWM Region and are used to deliver water to the City of Riverside. These are the Gage Canal, Waterman Pipeline, and Riverside

Canal. The Gage Canal is owned by the Gage Canal Company. As of 2005, the City of Riverside owned approximately 59% of the Gage Canal Company. The canal extends from the SAR near Loma Linda to the Arlington Heights area. The Gage Canal is used to deliver both potable and irrigation water.

The Waterman Pipeline extends from the Bunker Hill Subbasin (discussed later in this chapter) to the Canyon Crest area and is used to deliver groundwater to portions of the City of Riverside.

The Riverside Canal is a 12-mile canal extending from the City of Colton to Jefferson Street in the City of Riverside. Non-potable groundwater is conveyed in the Flume Pipeline to the Riverside Canal.

3.10.2 State Water Project Facilities

SWP water is imported into the Upper SAR watershed via the East Branch of the California Aqueduct. At the Devil Canyon Power Plant, located at the foot of the San Bernardino Mountains near Interstate 215, SWP water can be delivered in several directions in State facilities or in transmission systems belonging to State Water Contractors.

The SWP's Santa Ana Pipeline extends south from the East Branch, roughly paralleling Lytle Creek and into Lake Perris. Deliveries from the Santa Ana Pipeline can be made to Metropolitan member agencies including Western, Eastern Municipal Water District (Eastern), and the San Diego County Water Authority.

The California Aqueduct delivers imported water to the Upper Santa Ana River Watershed.

The East Branch Extension of the SWP is a combination of facilities built by Valley District and the State and funded by Valley District and San Gorgonio Pass Water Agency. Valley District operates these facilities for the State and San Gorgonio Pass Water Agency. The East Branch Extension makes deliveries from Devil Canyon east along the foothills of the San Bernardino Mountains and out to the San Gorgonio Pass Water Agency service area. Phase 2 of the East Branch Extension increased the capacity to 17,300 acre-feet (AF), which is the Agency's official allotment of SWP water, and is enough to supply approximately 35,000 families each year.

3.10.3 State Water Contractors Facilities

Four State Water Contractors have facilities in the IRWM Region: Valley District, San Gorgonio Pass Water Agency, Metropolitan, and San Gabriel Valley Municipal Water District.

Metropolitan's Inland Feeder extends from Devil Canyon to Diamond Valley Lake and the tunnels within the San Bernardino Mountains. Currently, the Foothill Pipeline is being used to make deliveries of SWP water to the completed portions of the Inland Feeder for delivery to Diamond Valley Lake.

Metropolitan's Rialto Pipeline is used to make deliveries from Devil Canyon to Metropolitan's F.E. Weymouth Treatment Plant in the San Gabriel Valley and to its Robert B. Diemer Treatment Plant, which supplies treated water to Western and Eastern. In addition, the Rialto Pipeline makes deliveries to surface water treatment plants owned by Metropolitan's member agencies and to groundwater recharge facilities.

The Devil Canyon-Azusa Pipeline is used primarily to make deliveries for replenishment of the Main San Gabriel Basin. Valley District owns capacity in this pipeline. Through this pipeline, Valley District can deliver SWP water to the western portion of its service area including West Valley and Fontana Water Company as well as the Cactus Spreading Basins.

Many of Valley District's facilities have been integrated into the SWP, as described in Section 2.2.1. In addition, Valley District has three pipelines that are not integrated into the SWP. These are the Baseline Feeder, Baseline Feeder Extension South, and Central Feeder. The Baseline Feeder is a 48-inch pipeline that serves potable water from the SBBA to the City of Rialto, West Valley, and Riverside Highland Water Company.

The Baseline Feeder Extension South is a 78-inch pipeline that was constructed jointly with Western Municipal Water District north/south in alignment from the vicinity of 9th Street and Waterman Avenue in San Bernardino, south past the Antil area where there is a major concentration of production wells, and on to the vicinity of the SAR. This pipeline will ultimately serve water from the SBBA throughout Valley District's service area and on to Riverside County.

Valley District and their partners completed the construction of a portion of the Central Feeder, in an east/west alignment in San Bernardino Avenue from Opal Avenue Westerly to Texas Street in Redlands. The Central Feeder may eventually be extended and connected to the Baseline Feeder Extension South and possibly to the SWP Santa Ana Pipeline.

3.10.4 Regional Flood Control Infrastructure

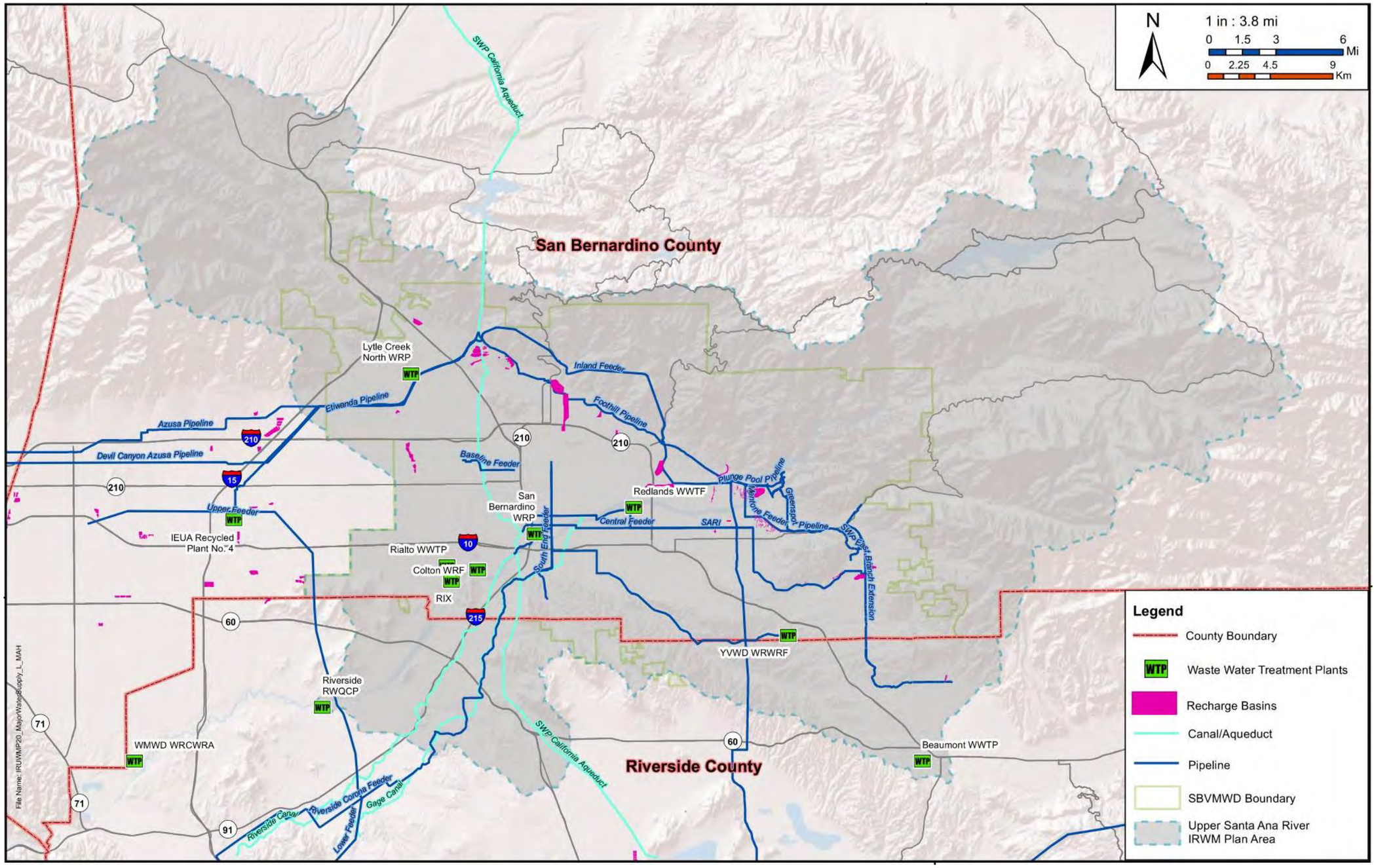
The Upper SAR watershed consists of many tributaries flowing to the SAR. These tributaries exhibit a range of development from natural streams to concrete-lined channels. Many of the stream's flow through heavily developed areas. The San Bernardino County Flood Control District (SBCFCD) operates and maintains many of the tributary systems that are deemed "regional" (750 cubic feet per second (cfs) or greater flow and/or 640 acres or greater of watershed as well as portions of the SAR). Smaller-scale control facilities are generally

operated by local jurisdictions. Flood control agencies' boundaries follow the county boundaries for those areas which they manage.

The regional flood control facilities have been continually developed and operated by SBCFCD since its establishment in 1939 and are operated for the general safety of the residents of San Bernardino County. Flood control facilities and improvements protect vital roadways and utility corridors along with providing public recreational amenities such as trails and landscaping. Endangered species habitat is protected with various project and non-project related improvements.

The San Timoteo flood channel is a concrete-lined channel.

Figure 3-7: Major Water Supply Infrastructure



PART 1: REGIONAL CONTEXT

4 Regional Water Use

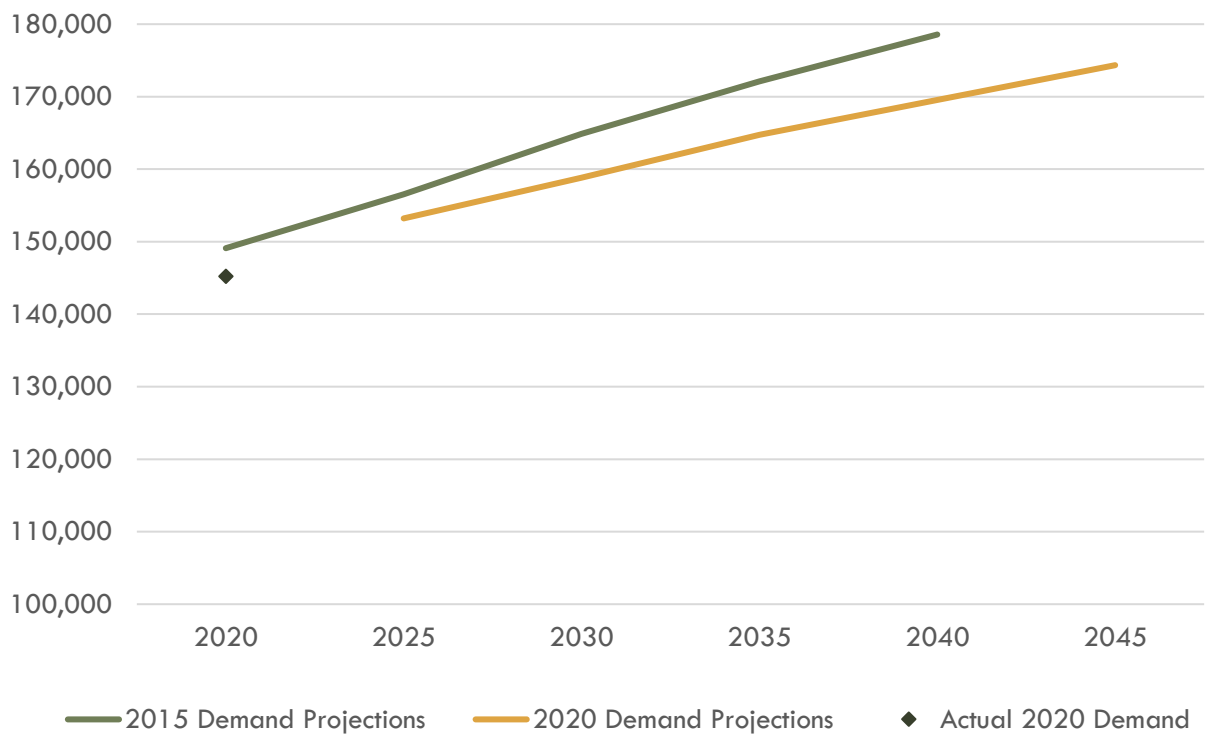
This chapter provides a summary of the projected water demands for the Region through 2045, by agency and source. This chapter also describes the significant improvements in water use efficiency that have been achieved within the Region as well as planned water use efficiency programs.

As described in **Part 1 Chapter 2**, the most recent population projections for the Region show slower growth than projected in previous plans. For the nine (9) agencies participating in the 2015 RUWMP, the total demand projections in this Plan are slightly lower than the projections from 2015 due to slower growth and increased water use efficiency. The 2015 RUWMP demands are a subset of the total demands in the Region, but the general trend illustrated in **Figure 4-1** is reflective of declining demand projections for the Region as a whole.

IN THIS SECTION

- Total Regional Water Demand
- Demand by Source
- Water Use Efficiency

Figure 4-1. Comparison of 2015 and 2020 Demand Projections for Nine 2015 RUWMP Agencies, AFY



4.1 Total Water Demands

The total water use projections for the Region presented in this Plan rely primarily on data provided by the participating agencies as part of their 2020 UWMP updates, some of which are included in **Part 2** of this Plan. Some water agencies (those that provide water to less than 3,000 connections and less than 3,000 AFY) are not required to publish a UWMP. For these agencies, estimates of future water demand were developed using historical water use data from the 2020 Western-San Bernardino Watermaster Annual Report or data prepared for the Yucaipa SGMA analysis.

To summarize the water demands, the Region's water agencies were divided into three groups:

1. Non-Plaintiffs of the Western Judgment (water agencies in San Bernardino (SB) County)
2. Plaintiffs of the Western Judgment (water agencies in Riverside County)
3. Participating water agencies outside the Western Judgment

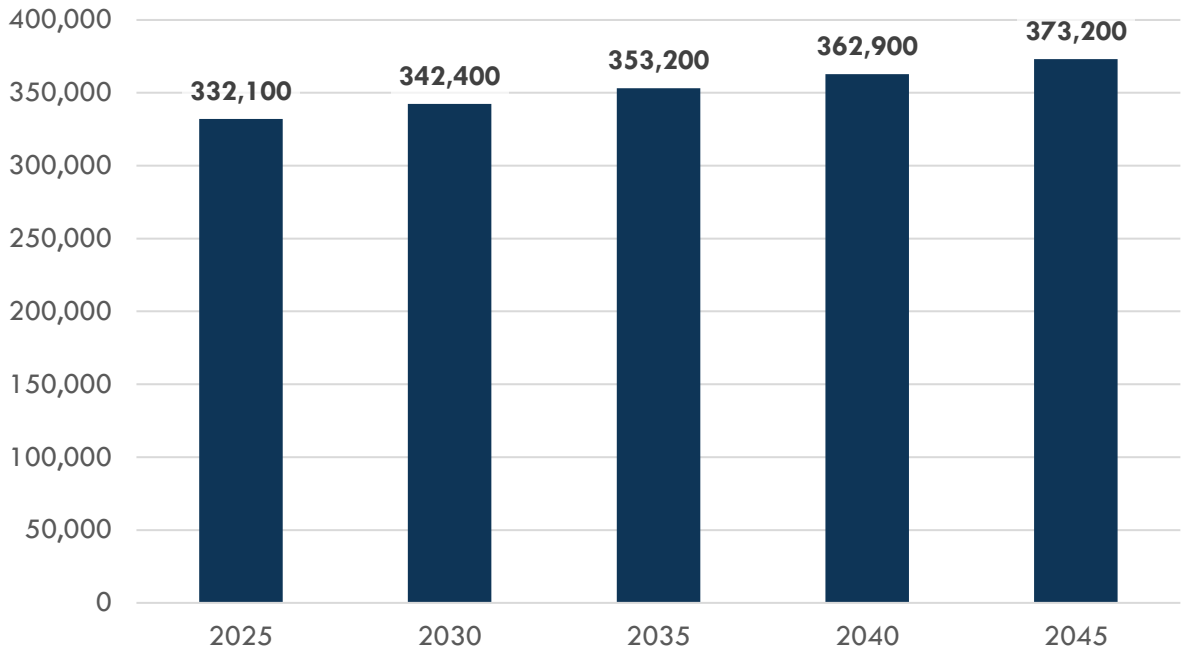
The projected water demands for an average year from 2025 to 2045 are summarized in **Table 4-1** and shown graphically in **Figure 4-2**. The total projected water demands in the Region are expected to increase by approximately 41,000 AFY between 2025 and 2045.

Table 4-1. Projected Average Year Regional Water Demand by Agency 2025 to 2045, AFY

WATER AGENCY	2025	2030	2035	2040	2045
SB COUNTY AGENCIES IN THE WESTERN JUDGEMENT (NON-PLAINTIFFS)					
Colton[1]	9,759	10,283	10,806	11,097	11,388
EVWD[1]	19,702	20,371	21,040	21,661	22,283
Fontana WC[2]	45,161	46,962	48,664	50,320	52,268
Loma Linda[1]	5,628	5,798	5,968	6,130	6,292
Marygold[3]	1,500	1,500	1,500	1,500	1,500
Muscoy[3]	1,600	1,600	1,600	1,600	1,600
Redlands[1]	26,991	28,033	29,075	29,991	30,908
Rialto[1]	9,603	10,215	10,827	11,220	11,613
SBMWD[1]	42,248	43,458	44,667	45,639	46,611
Terrace WC[3]	363	363	363	363	363
WVWD[1]	23,459	25,035	26,611	28,188	29,764
Western Heights WC[4]	2,278	2,629	3,122	3,708	4,404
Yucaipa Valley Water District[1]	12,263	11,886	11,795	11,542	11,321
Bear Valley Mutual Water Company[3]	1,557	1,557	1,557	1,557	1,557
Other/Private[3]	22,276	22,276	22,276	22,276	22,276
SUBTOTAL	**224,386**	**231,964**	**239,871**	**246,791**	**254,146**
RIVERSIDE COUNTY AGENCIES IN THE WESTERN JUDGEMENT (PLAINTIFFS)					
Meeks and Daley WC[5]	5,083	5,083	5,083	5,083	5,083
RHWC[1]	4,545	4,738	4,932	5,031	5,131
RPU [2]	85,012	87,383	89,839	92,387	95,028
Regents of California[5]	554	554	554	554	554
SUBTOTAL	**95,194**	**97,758**	**100,408**	**103,055**	**105,796**
PARTICIPATING WATER AGENCIES OUTSIDE THE WESTERN JUDGEMENT					
SMWC[1]	2,349	2,432	2,517	2,605	2,696
BBCCSD[2]	1,185	1,206	1,227	1,249	1,271
BBLDWP[2]	2,408	2,493	2,582	2,673	2,768
Bear Valley Mutual Water Company (in lieu of Big Bear Lake releases)	6,500	6,500	6,500	6,500	6,500
SUBTOTAL	**12,442**	**12,631**	**12,826**	**13,027**	**13,235**
TOTAL	**332,022**	**342,353**	**353,105**	**362,873**	**373,177**

1. Demand projections prepared as part of this Plan; see the respective agency UWMP chapters in Part 2 of this Plan.
2. Draft 2020 UWMP demands provided by the participating agency
3. Based on the average demands from 2015-2019 as presented in the 2020 Western-San Bernardino Watermaster Annual Report
4. Prepared by Western Heights Water Company as part of the Yucaipa SGMA analysis
5. Demands are assumed to be the party's adjusted rights in the SBBA, except that the RPU rights of 3,008 AFY are deducted from Meeks and Daley because they are included in the RPU total demand.

Figure 4-2. Total Projected Average Year Demand for the Region, AFY



In addition to population and employment, two major factors that affect water usage are weather and water conservation. Historically, when the weather is hot and dry, water usage increases. The increases vary according to the number of consecutive years of hot, dry weather and the conservation activities imposed.

For this analysis it is estimated that total regional demands will increase 10 percent during dry periods, including single dry years and a 5-year drought. Although conservation efforts may be effective in reducing demands during the later years of a 5-year drought, a 10% increase is assumed to be constant through the 5-year drought to be conservative.

4.2 Demands for Local Groundwater and Surface Water Supplies

This section summarizes the anticipated demand for each water source based on the planned use by each agency in the Region. For basins subject to the Western Judgement, demands are subtotaled by SB County Agencies and Riverside County Agencies and compared to the respective supplies for each in accordance with the Western Judgement.

As detailed in **Part 1 Chapter 3**, local groundwater sustainability is generally maintained by providing supplemental recharge whenever cumulative extractions exceed cumulative safe yield or when groundwater levels are lower than certain specific water level elevations in specified

wells. In the SBB, the amount of supplemental recharge needed is offset by planned recycled water recharge and stormwater recharge as well as any "return flow" from sources outside of the safe yield calculation.

For the SBB, the Western Watermaster assumes a 36% return flow for extractions above safe yield and imported water. To simplify the analysis in this Plan, it will not account for cumulative extractions, credits or groundwater levels. Instead, to estimate the demand for imported water for recharge, whenever the total planned extractions for a given year exceed the estimated safe yield for a basin plus return flow and other sources of recharge for that year, supplemental recharge with imported water will be assumed. The offsets for return flow used in the SBB will also be used for the other basins, as shown in the following tables.

Recharge in the Santa Ana River

Table 4-2. Projected Normal Year SBB Groundwater Pumping and Surface Water Diversions (AFY)

AGENCY		2025	2030	2035	2040	2045
SANTA BERNARDINO COUNTY AGENCIES (NON-PLAINTIFFS)						
PLANNED PUMPING AND DIVERSIONS						
Colton[1]	Groundwater	2,962	3,426	3,889	4,119	4,350
EVWD[1]	Groundwater	15,202	15,871	16,540	17,161	17,783
EVWD[1]	Surface Water	2,000	2,000	2,000	2,000	2,000
Loma Linda[1]	Groundwater	5,628	5,798	5,968	6,130	6,292
Redlands[1]	Groundwater	12,911	13,822	14,775	15,691	16,608
Redlands[1]	Surface Water	10,500	10,500	10,500	10,500	10,500
Rialto[1]	Groundwater	5,240	5,795	6,351	6,687	7,023
Rialto[1]	Surface Water	1,241	1,241	1,241	1,241	1,241
SBMWD[1]	Groundwater	41,115	42,325	43,534	44,506	45,478
WVWD[1]	Groundwater	6,433	6,498	7,462	8,426	9,890
WVWD[1]	Surface Water	3,100	3,100	3,100	3,100	3,100
YVWD[1]	Groundwater	750	750	750	750	750
Fontana WC[2]	Groundwater	6,390	6,390	6,390	6,390	6,390
Fontana WC[2]	Surface Water	4,860	4,860	4,860	4,860	4,860
Muscoy MWC[3]	Groundwater	1,600	1,600	1,600	1,600	1,600
Terrace WC[3]	Groundwater	363	363	363	363	363
Bear Valley Mutual Water Company[3]	Surface Water	1,557	1,557	1,557	1,557	1,557
Other/Private[3]	Groundwater	10,878	10,878	10,878	10,878	10,878
SUBTOTAL DEMAND		**132,729**	**136,772**	**141,757**	**145,959**	**150,662**
SUPPLY						
Adjusted Safe Yield with New Conservation		172,745	172,745	172,745	172,745	172,745
Direct Deliveries of SWP Water within SBB[5]		6,700	6,700	6,700	6,700	6,700
Return Flow from Direct Deliveries of SWP Water within SBB[6]		2,412	2,412	2,412	2,412	2,412
Recycled Water Recharge[7]		16,438	16,977	19,779	22,559	23,106
Stormwater Capture (Active Recharge Projects)[8]		17,390	18,333	25,348	34,811	34,811
SUBTOTAL SUPPLY		**208,985**	**210,467**	**220,283**	**232,527**	**233,074**
IMPORTED WATER RECHARGE NEED		**0**	**0**	**0**	**0**	**0**
UNUSED SUPPLY RETAINED IN STORAGE		**76,256**	**73,694**	**78,527**	**86,568**	**82,412**

*Table continues on the next page.

AGENCY		2025	2030	2035	2040	2045
RIVERSIDE COUNTY AGENCIES (PLAINTIFFS)						
PLANNED PUMPING AND DIVERSIONS						
RHWC[1]	Groundwater	1,800	1,800	1,800	1,800	1,800
RPU[2]	Groundwater	57,013	57,013	57,013	57,013	57,013
Meeks and Daley WC[4]	Groundwater	5,083	5,083	5,083	5,083	5,083
Regents of UC[4]	Groundwater	554	554	554	554	554
SUBTOTAL DEMANDS		**64,450**	**64,450**	**64,450**	**64,450**	**64,450**
SUPPLY						
Adjusted Safe Yield with New Conservation		66,998	66,998	66,998	66,998	66,998
Stormwater Capture (Active Recharge Projects)[8]		TBD	TBD	TBD	TBD	TBD
SUBTOTAL SUPPLY		**66,998**	**66,998**	**66,998**	**66,998**	**66,998**
IMPORTED WATER RECHARGE NEED		**0**	**0**	**0**	**0**	**0**
UNUSED SUPPLY RETAINED IN STORAGE		**2,548**	**2,548**	**2,548**	**2,548**	**2,548**

AGENCY	2025	2030	2035	2040	2045
OVERALL SBB SUMMARY					
TOTAL DEMANDS	**197,179**	**201,222**	**206,207**	**210,409**	**215,112**
TOTAL SUPPLY	**275,983**	**277,465**	**287,281**	**299,525**	**300,072**
TOTAL IMPORTED WATER RECHARGE NEED	**0**	**0**	**0**	**0**	**0**
TOTAL UNUSED SUPPLY RETAINED IN STORAGE	**78,804**	**76,242**	**81,075**	**89,116**	**84,960**

1. Data from agency 2020 UWMP chapter in Part 2 of this Plan
2. Data provided by agency from Draft 2020 UWMP not part of this Plan
3. Estimated based on 2015-2019 average pumping as reported in the 2020 Western San Bernardino Watermaster Annual Report
4. Total adjusted pumping right in the SBB, except Meeks and Daley WC excluded 3,008 AFY for RPU which is included in RPU planned pumping value
5. SWP direct deliveries to EVWD, Redlands and WVWD
6. Western Watermaster estimates return flow to be 36% of direct deliveries of SWP water
7. Existing and planned RW recharge by Redlands, EVWD and SBMWD into SBB
8. The Active Recharge Project is a joint project between Valley District, SBVWCD, Western, SBMWD and RPU. A portion of the yield will be allocated to Riverside County agencies (Plaintiffs), but the amount has not been determined as of the writing of this Plan. All yield from the Active Recharge Project is shown under San Bernardino County Agencies supply in this table. Average yield from River HCP modeling, see Section 5.2.2 for more information.

Table 4-3. Projected Normal Year Rialto-Colton Basin Pumping (AFY)

AGENCY	2025	2030	2035	2040	2045
SB COUNTY AGENCIES (NON-PLAINTIFFS)					
PLANNED PUMPING AND DIVERSIONS					
Colton[1]	2,997	3,057	3,117	3,178	3,238
Rialto[1]	1,912	1,969	2,026	2,083	2,140
WVWD[1]	4,426	4,538	4,650	4,761	4,873
Fontana WC[2]	5,865	5,976	6,087	6,199	6,310
Other/Private[3]	70	70	70	70	70
SUBTOTAL DEMAND	**15,270**	**15,610**	**15,950**	**16,291**	**16,631**
SUPPLY					
Estimated Safe Yield for SB County Agencies[8]	12,186	12,186	12,186	12,186	12,186
Extractions Above Safe Yield	3,396	3,736	4,076	4,417	4,757
Direct Deliveries of SWP Water[5]	3,500	3,500	3,500	3,500	3,500
Return Flow from Extractions above Safe Yield and Direct Deliveries of SWP Water[6]	2,483	2,605	2,727	2,850	2,973
SUBTOTAL SUPPLY	**14,556**	**14,679**	**14,801**	**14,924**	**15,046**
IMPORTED WATER RECHARGE NEED	**714**	**931**	**1,149**	**1,367**	**1,585**
UNUSED SUPPLY RETAINED IN STORAGE	**0**	**0**	**0**	**0**	**0**

AGENCY	2025	2030	2035	2040	2045
RIVERSIDE COUNTY AGENCIES (PLAINTIFFS)					
PLANNED PUMPING AND DIVERSIONS					
RHWC[1]	0	0	0	0	0
RPU[2]	2,728	2,728	2,728	2,728	2,728
Meeks and Daley WC[4]	0	0	0	0	0
SUBTOTAL DEMANDS	**2,728**	**2,728**	**2,728**	**2,728**	**2,728**
SUPPLY					
Pumping Limit[7]	3,381	3,381	3,381	3,381	3,381
SUBTOTAL SUPPLY					
IMPORTED WATER RECHARGE NEED	**0**	**0**	**0**	**0**	**0**
UNUSED SUPPLY RETAINED IN STORAGE	**653**	**653**	**653**	**653**	**653**

*Table continues on the next page.

AGENCY	2025	2030	2035	2040	2045
OVERALL RIALTO-COLTON BASIN SUMMARY					
TOTAL DEMANDS	**17,998**	**18,338**	**18,678**	**19,019**	**19,359**
TOTAL SUPPLY	**17,937**	**18,060**	**18,182**	**18,305**	**18,427**
TOTAL IMPORTED WATER RECHARGE NEED	**714**	**931**	**1,149**	**1,367**	**1,585**
TOTAL UNUSED SUPPLY RETAINED IN STORAGE	**653**	**653**	**653**	**653**	**653**

1. Data from agency 2020 UWMP chapter in Part 2 of this Plan
2. Data provided by agency from Draft 2020 UWMP not part of this Plan
3. Estimated based on 2015-2019 average pumping as reported in the 2020 Western San Bernardino Watermaster Annual Report
4. Total adjusted pumping right in the SBB, except Meeks and Daley WC excluded 3,008 AFY for RPU which is included in RPU planned pumping value
5. SWP direct deliveries to WVWD as shown in WVWD 2020 UWMP Chapter
6. Assumed return flow to be 36% of direct deliveries of SWP water and extractions over safe yield, same value used by Western Watermaster for SBB
7. Pumping limit for Riverside County agencies, Western Judgement
8. Total Estimated safe yield for SB County agencies (See Table 3-10)

Table 4-4. Projected Normal Year Riverside North Basin Pumping (AFY)

AGENCY	2025	2030	2035	2040	2045
SB COUNTY AGENCIES (NON-PLAINTIFFS)					
PLANNED PUMPING AND DIVERSIONS					
Colton[1]	3,800	3,800	3,800	3,800	3,800
Rialto[1]	1,200	1,200	1,200	1,200	1,200
WVWD[1]	2,500	3,000	3,500	4,000	4,000
RIX Overextraction[4]	2,400	2,500	2,600	2,700	2,700
Other/Private[3]	1,520	1,520	1,520	1,520	1,520
SUBTOTAL DEMAND	**11,420**	**12,020**	**12,620**	**13,220**	**13,220**
SUPPLY					
Estimated Safe Yield for SB County Agencies[7]	9,015	9,015	9,015	9,015	9,015
Extractions Above Safe Yield	2,405	3,005	3,605	4,205	4,205
Return Flow from Extractions above Safe Yield[5]	866	1,082	1,298	1,514	1,514
Stormwater Capture (Riverside North ASR)[8]	2,000	2,000	2,000	2,000	2,000
SUBTOTAL SB COUNTY AGENCY SUPPLY	**11881**	**12097**	**12313**	**12529**	**12529**
IMPORTED WATER RECHARGE NEED	**0**	**0**	**307**	**691**	**691**
UNUSED SUPPLY RETAINED IN STORAGE	**461**	**77**	**0**	**0**	**0**

*Table continues on the next page.

AGENCY	2025	2030	2035	2040	2045
RIVERSIDE COUNTY AGENCIES (PLAINTIFFS)					
PLANNED PUMPING AND DIVERSIONS					
RHWC[1]	2,495	2,688	2,882	2,981	3,081
RPU[2]	10,902	10,902	10,902	10,902	10,902
Other/Private[3]	8,450	8,450	8,450	8,450	8,450
SUBTOTAL DEMANDS	**21,847**	**22,040**	**22,234**	**22,333**	**22,433**
SUPPLY					
Pumping Limit[6]	21,085	21,085	21,085	21,085	21,085
Stormwater Capture (Riverside North ASR)[8]	4,000	4,000	4,000	4,000	4,000
SUBTOTAL RIVERSIDE COUNTY AGENCY SUPPLY	**25,085**	**25,085**	**25,085**	**25,085**	**25,085**
IMPORTED WATER RECHARGE NEED	**0**	**0**	**0**	**0**	**0**
UNUSED SUPPLY RETAINED IN STORAGE	**3,238**	**3,045**	**2,851**	**2,752**	**2,652**

AGENCY	2025	2030	2035	2040	2045
OVERALL RIVERSIDE NORTH BASIN SUMMARY					
TOTAL DEMANDS	**33,267**	**34,060**	**34,854**	**35,553**	**35,653**
TOTAL SUPPLY	**36,966**	**37,182**	**37,398**	**37,614**	**37,614**
TOTAL IMPORTED WATER RECHARGE NEED	**0**	**0**	**307**	**691**	**691**
TOTAL UNUSED SUPPLY RETAINED IN STORAGE	**3,699**	**3,122**	**2,851**	**2,752**	**2,652**

1. Data from agency 2020 UWMP chapter in Part 2 of this Plan
2. Data provided by agency from Draft 2020 UWMP not part of this Plan
3. Estimated based on 2015-2019 average pumping as reported in the 2020 Western San Bernardino Watermaster Annual Report
4. Groundwater extracted by RIX and discharged to the Santa Ana River, estimates from SBMWD SBWRP 2020 Facilities Master Plan
5. Assumed return flow to be 36% of extractions over safe yield, same value used by Western Watermaster for SBB
6. Pumping limit for Riverside County agencies, Western Judgement
7. Total Estimated safe yield for SB County agencies (See Section 3.3.3)
8. Estimated yield of the Riverside north ASR project is 6,000 AFY. The project is being developed jointly by Valley District, Western and RPU and each are allocated a one-third share of the total yield.

Table 4-5. Projected Yucaipa Basin Pumping (AFY)

AGENCY	2025	2030	2035	2040	2045
PLANNED PUMPING AND DIVERSIONS					
Redlands[1]	1,000	1,000	1,000	1,000	1,000
YVWD[1]	6,000	6,000	6,000	6,000	6,000
South Mesa WC[1]	2,377	2,461	2,547	2,636	2,728
Western Heights WC[2]	2,200	2,200	2,200	2,200	2,200
TOTAL DEMAND	**11,577**	**11,661**	**11,747**	**11,836**	**11,928**
SUPPLY					
Estimated Safe Yield	9,600	9,600	9,600	9,600	9,600
Extractions Above Safe Yield	1,977	2,061	2,147	2,236	2,328
Direct Deliveries of SWP Water[3]	6,828	7,929	8,422	9,008	9,704
Return Flow from Extractions above Safe Yield and Direct Deliveries of SWP Water[4]	712	742	773	805	838
SWP Recharge[1,5]	2,250	2,500	3,000	3,250	3,500
TOTAL SUPPLY	**14,610**	**15,221**	**15,900**	**16,357**	**16,849**
TOTAL IMPORTED WATER RECHARGE NEED	**0**	**0**	**0**	**0**	**0**
TOTAL UNUSED SUPPLY RETAINED IN STORAGE	**3,033**	**3,560**	**4,153**	**4,521**	**4,921**

1. Data from agency 2020 UWMP chapter in Part 2 of this Plan
2. Data provided for the Yucaipa SGMA analysis
3. SWP direct deliveries to YVWD, including water provided to Western Heights Water Company
4. Assumed return flow to be 30% of direct deliveries of SWP water and extractions over safe yield based on preliminary results from Yucaipa-SGMA analysis
5. Planned SWP recharge by YVWD

Table 4-6. Projected Normal Year Use of Other Groundwater and Surface Water Supplies (AFY)

AGENCY	SOURCE	2025	2030	2035	2040	2045
South Mesa WC[1]	San Timoteo Groundwater	324	336	348	360	372
YVWD[1]	San Timoteo Groundwater	1,750	1,750	1,750	1,750	1,750
YVWD[1]	Oak Creek Surface Water	250	250	250	250	250
YVWD[1]	SGPWA Supplies	450	450	500	500	600
BBCCSD[2]	Bear Valley Groundwater	1,185	1,206	1,227	1,249	1,271
BBLDWP[2]	Bear Valley Groundwater	2,408	2,493	2,582	2,673	2,768
WVWD[1]	Chino Groundwater	0	900	900	900	900
Fontana WC[2]	Chino Groundwater	8,846	10,196	11,447	12,651	14,148
RPU[2]	Riverside South Groundwater	16,880	16,880	16,880	16,880	16,880
TOTAL PROJECTED USE OF OTHER SUPPLIES		**32,093**	**34,461**	**35,884**	**37,213**	**38,939**

1. Data from agency 2020 UWMP chapter in Part 2 of this Plan.
2. Data provided by agency from Draft 2020 UWMP not part of this Plan

4.3 Demands for Imported Water

In the Region, imported water is used for direct deliveries to several retail water producers, direct delivery to Bear Valley Mutual Water Company in-lieu of releases from Big Bear Lake and groundwater recharge.

4.3.1 Direct Deliveries

Several retail water producers have water treatment plants to treat imported water. The following agencies are planning to continue taking direct delivery of imported water in the future: EVWD, Redlands, WVWD, YVWD, FWC and CLAWA.

4.3.2 In-Lieu Deliveries

In accordance with the 1996 Agreement with BBMWD described in Section 3.9.10, Valley District provides SWP water for the Bear Valley Mutual needs that would have historically been met by lake releases whenever the Lake is at specified levels. Under the terms of the Agreement, Bear Valley Mutual may request any amount of delivery for a given year, provided that the total of all their requested deliveries do not exceed 65,000 AF in any ten-year period. Bear Valley Mutual typically limits its request to no more than the ten-year average, or 6,500 AFY. Valley District may also provide water from other sources, such as groundwater in storage, when the SWP supply is limited.

4.3.3 Storage

One of the primary water management strategies in the Region is to store imported water when it is available so that it can be used during drought periods. Any unused Valley District SWP water is available to be stored in the regional groundwater basins for later pumping.

4.3.4 Total Imported Water Demands

Requests for delivery of supplemental imported water in the Valley District service area are subject to approval as set forth in Resolution 888. **Table 4-7** summarizes potential total demands for imported water during the period of this Plan. In addition, to imported water provided by Valley District, FWC can also receive imported water from IEUA and RPU can receive imported water from Western.

Table 4-7. Estimated Normal Year Demands for Imported Water (AFY)

AGENCY	2025	2030	2035	2040	2045
VALLEY DISTRICT SWP SUPPLIES					
DEMANDS - DIRECT DELIVERY					
EVWD[1]	2,500	2,500	2,500	2,500	2,500
Redlands[1]	700	700	700	700	700
WVWD[1]	7,000	7,000	7,000	7,000	7,000
YVWD[1]	6,828	7,929	8,422	9,008	9,704
CLAWA[3]	60	60	60	60	60
Marygold MWC[3]	320	320	320	320	320
Fontana WC[2]	3,200[5]	3,200[5]	3,200[5]	3,200[5]	3,200[5]
SUBTOTAL DIRECT DELIVERIES DEMAND	**20,608**	**21,709**	**22,202**	**22,788**	**23,484**
Bear Valley Mutual Water Company In-Lieu[3]	6,500	6,500	6,500	6,500	6,500
SUBTOTAL DIRECT DELIVERIES DEMAND + IN-LIEU	**27,108**	**28,209**	**28,702**	**29,288**	**29,984**
DEMANDS - GROUNDWATER RECHARGE[6]					
SBB Replenishment	0	0	0	0	0
Rialto-Colton Replenishment	714	931	1,149	1,367	1,585
Riverside North Replenishment	0	0	307	691	691
Yucaipa Replenishment	2,250	2,500	3,000	3,250	3,500
SUBTOTAL REPLENISHMENT DEMAND	**2,964**	**3,431**	**4,456**	**5,309**	**5,776**
TOTAL DEMAND	**30,072**	**31,641**	**33,158**	**34,597**	**35,760**
SUPPLY – TABLE A NORMAL YEAR					
Valley District SWP Table A Amount	102,600	102,600	102,600	102,600	102,600
EXPECTED ALLOCATION[4]	**59,934**	**59,934**	**59,934**	**53,740**	**53,740**
UNUSED ALLOCATION AVAILABLE FOR STORAGE	**29,862**	**28,294**	**26,776**	**19,143**	**17,980**
DEMANDS - OTHER SWP					
Fontana WC (From IEUA)[2]	15,000	15,000	15,000	15,000	15,000
RPU (From Western) [2]	2,000	3,000	3,000	3,000	3,000
SUBTOTAL OTHER SWMP DEMAND	**17,000**	**18,000**	**18,000**	**18,000**	**18,000**
TOTAL DEMAND	**47,072**	**49,641**	**51,158**	**52,597**	**53,760**

1. Data from agency 2020 UWMP chapter in Part 2 of this Plan
2. Data provided by agency from Draft 2020 UWMP not part of this Plan
3. Estimated based on previous SWP orders from Valley District
4. Based on DWR estimates, see Table 3-4
5. Requested pursuant to Resolution 888 and Subject to the 2019 Settlement Agreement between San Bernardino Valley Municipal Water District et al. and San Gabriel Valley Water Company et al.
6. Amounts from Table 4-2, Table 4-3, Table 4-4, Table 4-5. Agencies may elect to recharge additional water in these basins.

4.4 Demands for Recycled Water

Some water agencies in the Region are currently using recycled water to meet non-potable demands and for groundwater recharge. Additional recycled water production and use is planned in the future. **Table 4-8** summarizes the anticipated future uses of recycled water.

Table 4-8. Projected Uses of Recycled Water (AFY)

AGENCY	2025	2030	2035	2040	2045
DIRECT USE (NON-POTABLE USE)					
Redlands[1]	2,100	2,100	2,100	2,100	2,100
Rialto[1]	10	10	10	10	10
Fontana WC[2]	1,000	1,340	1,680	2,020	2,360
YVWD[1]	1,605	1,860	2,365	2,670	2,975
SBMWD[1]	1,133	1,133	1,133	1,133	1,133
RPU[2]	5,700	13,420	13,420	13,420	13,420
SUBTOTAL DIRECT USE OF RECYCLED WATER	**11,548**	**19,863**	**20,708**	**21,353**	**21,998**
GROUNDWATER RECHARGE (ALL IN SBB)					
Redlands[1]	3,766	4,015	4,275	4,513	4,760
SBMWD[1]	4,472	4,472	6,714	8,956	8,956
EVWD[1]	8,200	8,490	8,790	9,090	9,390
SUBTOTAL RECHARGE OF RECYCLED WATER	**16,438**	**16,977**	**19,779**	**22,559**	**23,106**
TOTAL PROJECTED RECYCLED WATER USE	**27,986**	**36,840**	**40,487**	**43,912**	**45,104**

1. Data from agency 2020 UWMP chapter in Part 2 of this Plan
2. Data provided by agency from Draft 2020 UWMP not part of this Plan

4.5 Water Losses

Distribution system water losses are the physical potable water losses from the water system, calculated as the difference between water produced and the amount of water billed to customers plus other authorized uses of water.

Sources of water loss include:

- Leaks from water lines - Leakage from water pipes is a common occurrence in water systems. A significant number of leaks remain undetected over long periods of time as they are very small; however, these small leaks contribute to the overall water loss. Aging pipes typically have more leaks.
- Water used for flushing and fire hydrant operations
- Unauthorized uses or theft of water
- Customer Meter Inaccuracies - Customer meters can under-represent actual consumption in the water system

In accordance with DWR requirements, the individual retail agencies have quantified their water losses, using the American Water Works Association (AWWA) Water Audit process, in their respective UWMPs. Water lost through leaks represents a loss of revenue for the retail agencies and increases the amount of groundwater or surface water that must be produced. Because the region relies so heavily on groundwater, this water is not permanently lost; it eventually contributes to recharge of the local groundwater basin.

The State Water Board is in the process of developing a water loss performance standard for each urban water supplier. These future standards are still being reviewed and finalized with stakeholder input and will be incorporated into the total water use projections in 2025 planning cycle. Suppliers will be required to demonstrate compliance with their supplier-specific water loss standards in 2028 and every 3 years thereafter.

Each supplier's 2020 UWMP includes a discussion of actions that are being taken to reduce water loss.

4.6 Water Use Efficiency

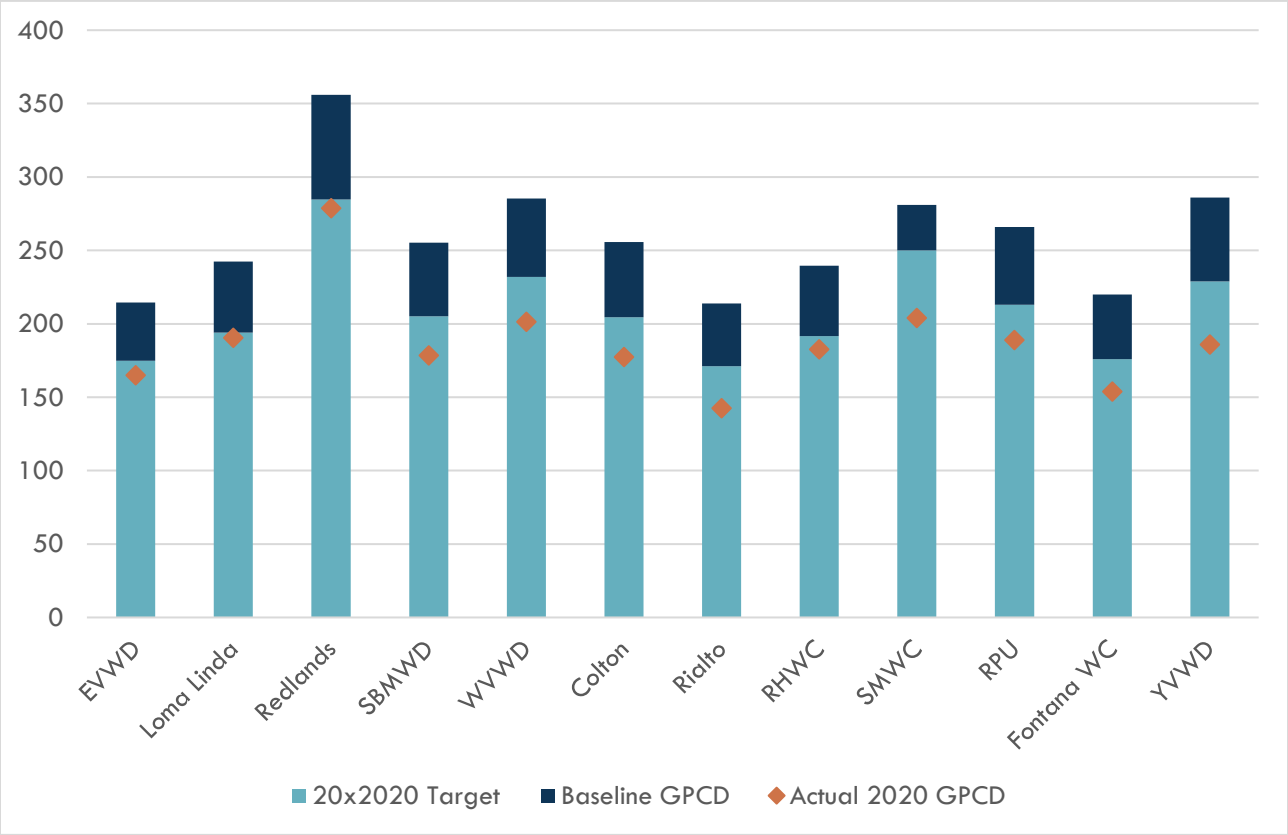
In recent years, water conservation has become an increasingly important factor in water supply planning in California. Since 2005, there have been several regulatory changes related to conservation including new standards for plumbing fixtures, a new landscape ordinance, a state universal retrofit ordinance, metering and billing requirements, new Green Building standards, demand reduction goals and more.

4.6.1 Reducing Per Capita Water Use (SB X7-7)

The Water Conservation Act of 2009 (SB X7-7) requires a 20-percent reduction in urban per capita water use in California by December 31, 2020 (20 by 2020). The bill requires each urban retail water supplier to determine their baseline per capita water use (gallons per capita per day or gpcd), develop an urban water use target for year 2020 and set a 2015 interim urban water use target. Each of the agencies participating in this Plan have met their 2020 targets, as shown in **Figure 4-3**.

These significant reductions in per capita water use have essentially created a new supply for the Region by reducing use of local groundwater supplies.

Figure 4-3. 20x2020 Compliance



4.6.2 New Water Conservation Legislation

In 2018, new water conservation legislation was signed into law. Together, AB 1668 and SB 606, lay out a new long-term water conservation framework for California.

To implement the new framework, DWR and the State Water Board are developing new standards for:

- Indoor residential water use
- Outdoor residential water use
- Commercial, industrial, and institutional (CII) irrigation of landscape areas with dedicated meters
- Performance measures for CII water use
- Variances for unique uses that have a significant effect
- Water losses

These standards, variances, and methodologies will become effective after June 2022, following the Water Board's adoption of the recommendations through a public rulemaking process. These future regulations and potential variances are still being reviewed and finalized with stakeholder input.

Beginning in 2023, each year urban retail water suppliers will have to calculate their 'urban water use objective' and assess whether they met their objective. This objective is based on an aggregate estimate of efficient water use for the previous year (calendar or fiscal) based on the adopted water use efficiency standards and local service area characteristics for that year.

The standards will be in effect prior to the 2025 update of this Plan and will be incorporated into future demand projections.

4.6.3 Regional Demand Management Program

Valley District has consistently invested in water conservation efforts since its Water Conservation Master Plan was first adopted in 2007. The demand reduction measures in the Master Plan were incorporated into the 2010 RUWMP and the 2015 RUWMP update and are making a measurable impact on demand reduction.

In 2021, Valley District developed a proposed Demand Management Program that will use demand management measures (DMMs) as the basis for funding and assessing the performance of water conservation measures, programs, and incentives within the Region. This data-oriented and performance-based approach will allow Valley District to fund a wide range of water conservation measures, programs and incentives proposed by retail suppliers that will have a greater impact on reducing the total amount of water use. It will also fund complementary efforts by cities, utilities, resource management entities, and community organizations.

The overarching goal is consistent demand management into the future. The proposed program will include both demand-side and supply-side conservation and will be cost effective through economies of scale and leveraging grant funding for the service area. The program will focus on enhancing the technical, managerial, and financial capacity of retail agencies to deliver on urban water conservation and utilize broad-based partnerships and public engagement to help the retail agencies meet their upcoming water use objectives. While each agency's conservation objectives will not be developed until 2023, the retail water agency's first reports will require the specific DMMs they will implement to meet their objectives. As such, the Valley District Demand Management Program should support the retail agencies and help them achieve their goals.

Demand Management Measures being implemented by individual retail agencies are described in their respective UWMPs.

PART 1: REGIONAL CONTEXT

5 Comparison of Regional Supplies and Demands

This chapter compares the total supplies and demands in the Region under various hydrologic scenarios, including an average (or "normal") year, single dry year, 5-year drought and 30-year drought. The analysis concludes that the Region has sufficient supplies to meet demands through 2045 and beyond, including a 15% Reliability Factor that accounts for uncertainties in the projections.

The UWMP Act requires urban water suppliers to assess water supply reliability by comparing total projected water use with the projected water supply over the next twenty years or beyond in 5-year increments. The UWMP Act also requires an assessment for a single-dry year and 5-year drought. In addition, the Plan participants have elected to assess a wet year scenario and a 30-year drought scenario to help support the goal of maximizing the use and storage of wet year supplies for later use during dry periods, even a 30-year drought.

IN THIS SECTION

- Reliability Factor
- Water Supply Reliability
- Summary of Regional Supplies and Demands

Chapter 3 provided information about regional water supplies during a normal year, while **Chapter 4** provided information on total demands. This section compares the total supplies and demands in the Region under the different hydrologic conditions listed above. A discussion of the supplies and demands for each participating retail agency are described in their respective chapters in **Part 2** or in their own separated 2020 UWMPs, if not included in this Plan.

5.1 Reliability Factor

The 2015 RUWMP accounted for uncertainty in supply and demand projections by planning for at least a 10% redundancy in supplies. This 10% redundancy is referred to as the "Reliability Factor".

In February 2019, Valley District hired the RAND Corporation (RAND) to perform an independent analysis of the uncertainty related to water supplies and demands in the 2015 RUWMP.

> An initial RAND Study evaluated the demands in the RUWMP by subjecting them to plausible variations in (1) future population growth, (2) water conservation and (3) temperature and generally concluded that the entire 10% Reliability Factor would be consumed by their list of plausible uncertainties. RAND then performed an evaluation of the water supplies in the RUWMP by subjecting them to plausible variations in (1) change in precipitation, (2) variability in precipitation, (3) change in temperature, (4) State Water Project (SWP) infrastructure configurations, (5) SWP environmental regulations and (6) local surface water availability. The results of the combined study suggest that the Reliability Factor be increased to **15%** to account for the combined, plausible uncertainties in both demand and supply. A **15% Reliability Factor** is applied in this analysis.

The RAND study is currently being finalized and is expected to be published in a peer reviewed journal in Summer 2021.

5.2 Water Supply Reliability

5.2.1 Imported Water Supply

Imported water supply reliability is discussed in detail in **Section 3.2**. According to the DWR 2019 Delivery Capability Report, Valley District expects their SWP Table A allocation to vary depending on the type of year, as shown in **Table 5-1**. For single dry years, Valley District anticipates taking delivery of 10,000 AF of carryover water stored from previous years to supplement Table A deliveries. Valley District prioritizes direct deliveries to surface water treatment plants when supplies are limited and coordinates with the requesting agencies to allocate available supplies if full delivery requests cannot be met. As described in **Section 3.2**, Valley District has invested in the Sites Reservoir, which is anticipated to be complete by 2040 and will provide additional imported water supplies during single and multiple dry years.

Table 5-1. Valley District Anticipated SWP Supplies

STATE WATER PROJECT SUPPLIES	2025	2030	2035	2040	2045
NORMAL YEAR (1922-2003)					
% of Table A Amount Available	58%	58%	58%	52%	52%
Anticipated Table A Deliveries (AFY)	59,508	59,508	59,508	53,352	53,352
Storage from Sites Reservoir	-	-	-	12,100	12,100
Total Normal Year SWP Supply	59,508	59,508	59,508	65,452	65,452
SINGLE DRY YEAR (2014 AND 2021)					
% of Table A Amount Available	5%	5%	5%	5%	5%
Anticipated Table A Deliveries (AFY)	5,130	5,130	5,130	5,130	5,130
Anticipated Carryover Water	10,000	10,000	10,000	10,000	10,000
Storage from Sites Reservoir	-	-	-	30,400	30,400
Total Single Dry Year SWP Supply	15,130	15,130	15,130	45,530	45,530
MULTIPLE DRY YEAR (1987-1992)					
% of Table A Amount Available	26%	26%	26%	22%	22%
Anticipated Table A Deliveries (AFY)	26,676	26,676	26,676	22,572	22,572
Storage from Sites Reservoir	-	-	-	30,400	30,400
Total Multiple Dry Year Supply	26,676	26,676	26,676	52,972	52,972
30-YEAR DROUGHT (1922-1951)					
% of Table A Amount Available	53%	53%	53%	48%	48%
Anticipated Table A Deliveries (AFY)	54,378	54,378	54,378	49,248	49,248
Storage from Sites Reservoir	-	-	-	12,100	12,100
Total 30-Year Drought Supply	54,378	54,378	54,378	61,348	61,348
WET YEAR (1983)					
% of Table A Amount Available	97%	97%	97%	97%	97%
Anticipated Table A Deliveries (AFY)	99,522	99,522	99,522	96,444	96,444

FWC and RPU can also receive imported water from IEUA and Western, who are both member agencies of Metropolitan. Metropolitan's 2020 UWMP projects that they will be able to meet all member agency demands under all hydrologic conditions due to significant storage. Therefore, this analysis assumes that imported water deliveries to FWC and RPU will remain constants under all scenarios. See the Metropolitan 2020 UWMP for more information. For the purposes of this Plan, supplies provided to YVWD by SGPWA are included under Other Supplies, as some supplies may come from sources other than SWP; see SGPWA 2020 UWMP for more information on supplies.

5.2.2 Local Water Supply

During multi-year and single-year droughts, total SWP supplies, and local surface water supplies are reduced so the Region is more reliant upon groundwater.

Although local and imported surface water supplies are highly dependent on local and statewide hydrology, the Region benefits from more than 12 million acre-feet of available groundwater storage that can be used to store water when supplies are plentiful and then be pumped during extended droughts. By maximizing deliveries of SWP water in wet years when those supplies are available, and supplementing that with other local supplies like stormwater capture and recycled water, the Region can accrue sufficient storage to enable a high level of water supply reliability, even during a 30-year drought.

In May 2020, Geoscience completed a study on behalf of Valley District and Western entitled Usable Groundwater in Storage Estimation for the San Bernardino, Rialto-Colton, Riverside, and Arlington Groundwater Basins – Summary Report. The goal of this study was to determine the usable amount of groundwater storage that is available to get through prolonged drought and identify any impacts associated with declining storage levels, which may include the need to deepen some wells. Figure 5-1, Figure 5-2, and Figure 5-3 depict the usable storage and groundwater in storage as of 2019 in the SBB, Rialto-Colton and Yucaipa Basins.

As shown for the SBB, the total water in storage as of 2020 was over 4,800,000 AF. During the period from 1972-2019, Valley District recharged a total of 789,000 AF of SWP water into the SBB, which has been a significant contribution to maintain storage levels. In the year 2017 alone, Valley District recharged over 78,000 AF of imported water into the SBB.

Annual change in storage evaluations prepared by Valley District and SBVWCD show that the SBB experiences significant increases in storage during wet years such as 2005, 2011 and 2019, as shown in Table 5-2.

Table 5-2. SBB Storage Increases in Wet Years

YEAR	INCREASE IN GROUNDWATER IN STORAGE (AF)
2005	223,178
2011	158,805
2019	160,552

Source: Valley District Change in Storage Analysis

In addition to existing recharge programs, Valley District, SBVWCD, Western, SBMWD and RPU are currently developing the Active Recharge Project, a collection of basins throughout the SBB that will capture and recharge additional stormwater. For the River HCP, Geoscience used the Integrated SAR Model to assess the potential hydrologic response of the Upper Santa Ana River Groundwater Basin to the Covered Activities with hydrologic effects, including streamflow diversions, recharge basins (new basins and modifications), effluent reductions, and new

discharge locations to determine the effects on wetland and riparian habitat, groundwater levels, and streamflow. For the Active Recharge Project, Geoscience used the Integrated SAR Model to project annual increases in stormwater capture for each of the individual basins included in the Active Recharge Project over a 25-year simulation period representing 2020 – 2045. The Geoscience model results were evaluated for this Plan to estimate the volume of projected stormwater capture for the Active Recharge Project under the different scenarios evaluated in this Plan. Valley District provided the list of projects and estimated implementation years. Table 5-3 shows the results of the analysis and the year type it was applied to in this Plan.

The % of Average Yield values determined in this analysis, shown in Table 5-3, were applied to the average yield estimates for the Enhanced Recharge and Riverside North Aquifer Storage and Recovery projects to estimate yield for those projects in each year type.

Storing local surface water and imported SWP water in the local groundwater basins in wet years for later use during dry periods will continue to be one of the foundational water management strategies in the Region. As a result of this strategy and the demonstrated success, the available supply from the local groundwater basins in this analysis is not reduced in dry and multiple dry years, or in a 30-year drought.

Table 5-3. Active Recharge Project Projected Yield (AFY)

CONDITION (YEAR TYPE)	PROJECTED YIELD (AFY)					
	2025[1]	2030[2]	2035[3]	2040[4]	2045[5]	% OF AVERAGE YIELD
Average yield over 25-year model period (used for Normal Year scenario)	9,747	10,690	17,705	27,168	27,168	100%
Minimum annual yield over 25-year model period (used for Single Dry Year scenario)	2,644	2,644	4,028	5,010	5,010	21%
Lowest 5 consecutive year yield during model period (Used for 5-Year Drought and 30-Year Drought scenario)	4,992	5,163	8,363	10,779	10,779	43%
Maximum annual yield over 25-year model period (Used for Single Wet Year scenario)	30,380	33,893	56,027	99,872	99,872	346%

1. 2025 includes projected yield from Devil Creek, Waterman Basins, East Twin Creek, Plunge Creek and Oak Creek
2. Projected yield from previous projects plus Mill Creek
3. Projected yield from previous projects plus City Creek
4. Projected yield from previous projects plus Cajon Creek, Lytle Creek, Cajon-Vulcan 1, Vulcan 2 and Lytle-Cajon In Channel

Figure 5-1.San Bernardino Basin Storage as of 2020 (AF)

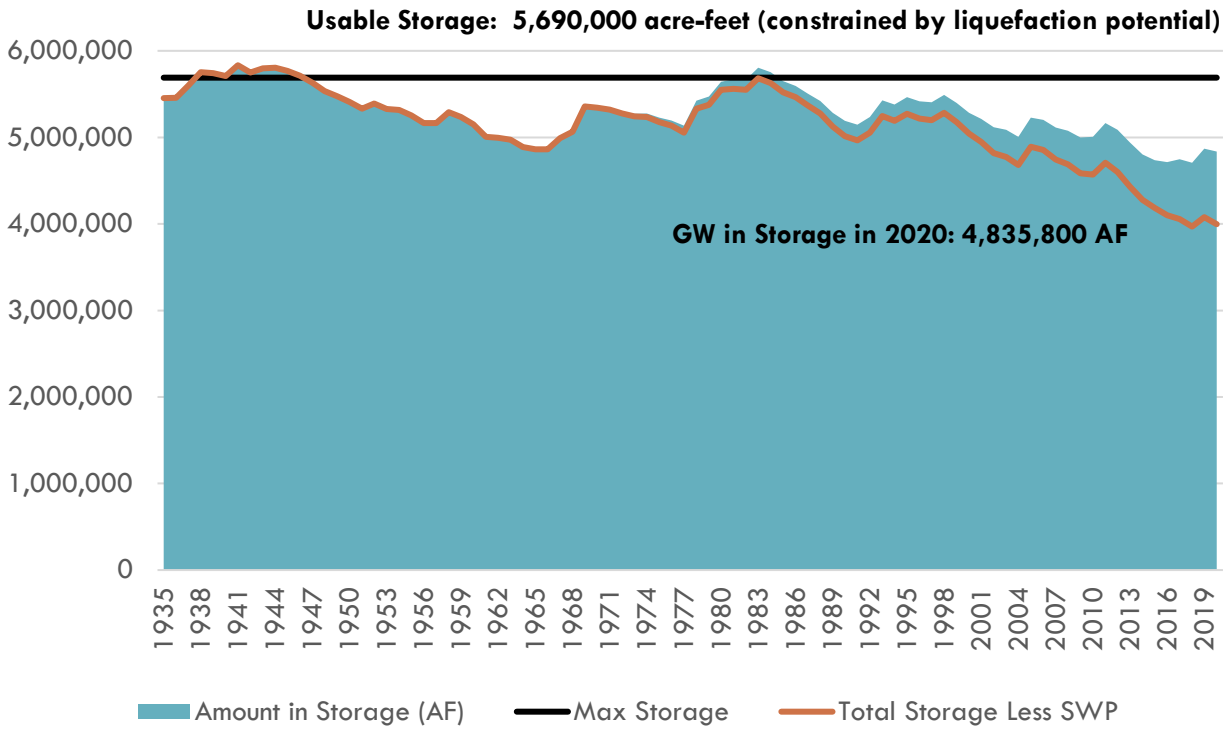


Figure 5-2. Rialto-Colton Basin Storage as of 2020 (AF)

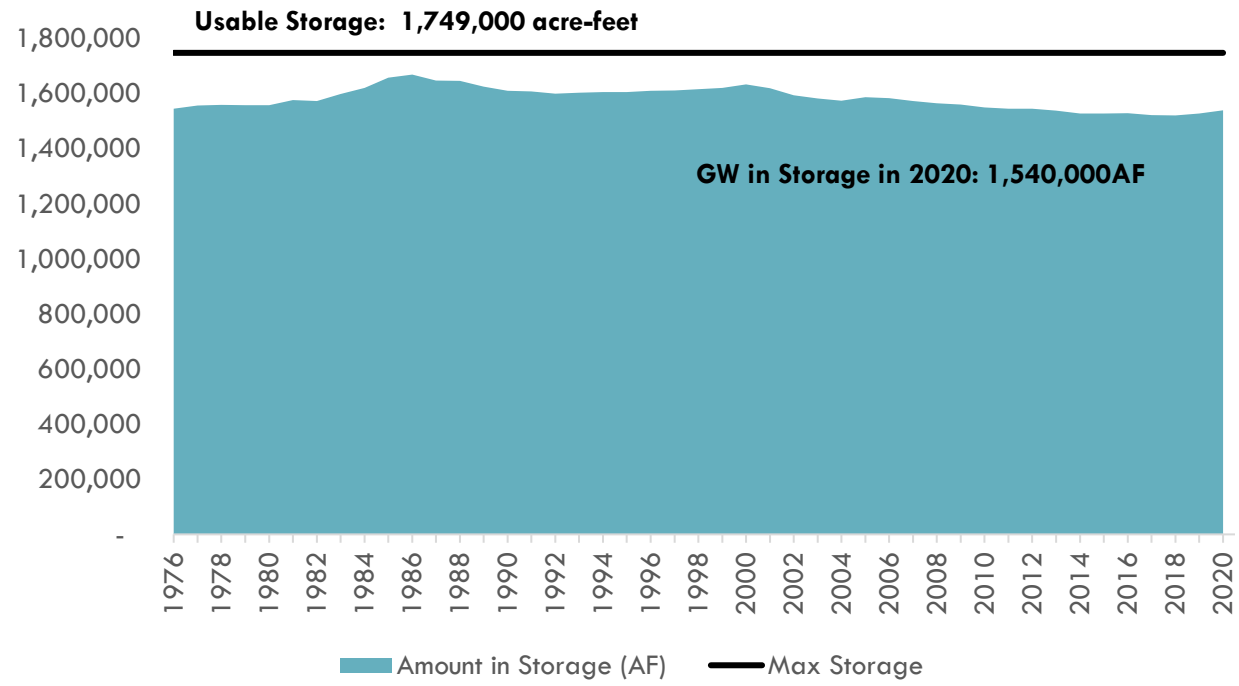
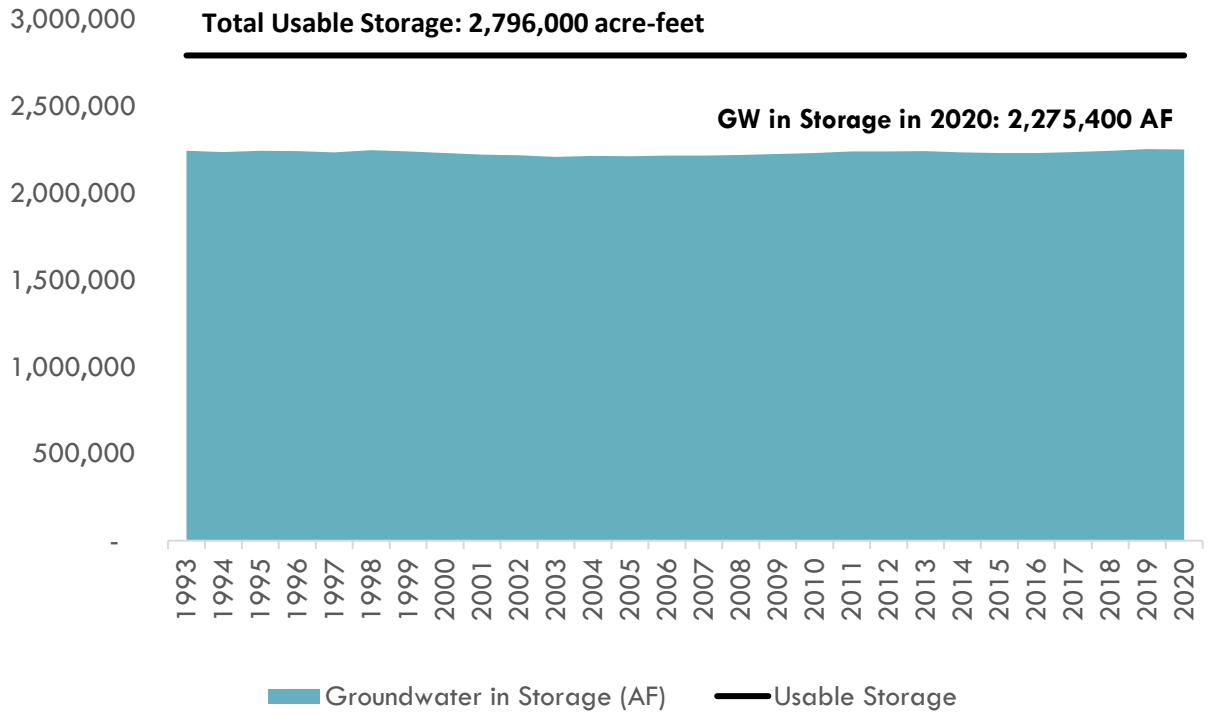


Figure 5-3. Yucaipa Basin Storage as of 2020 (AF)



5.3 Summary of Regional Supplies and Demands

5.3.1 Normal Year

In a normal year, SWP and local surface water supplies are used at retail agency treatment plants and any unused SWP supply is available to be recharged. Some non-potable demands in the region are met with recycled water and additional recycled water is recharged into the SBB. The remaining demands are met from local groundwater sources. **Table 5-4** and **Figure 5-4** provide a comparison of regional water supplies and demands for a normal year and demonstrate that adequate regional supplies are anticipated for years 2025 to 2045 under normal/average conditions. In a normal year, there is a surplus of supply, which results in accumulated storage in local groundwater basins for use in dry years.

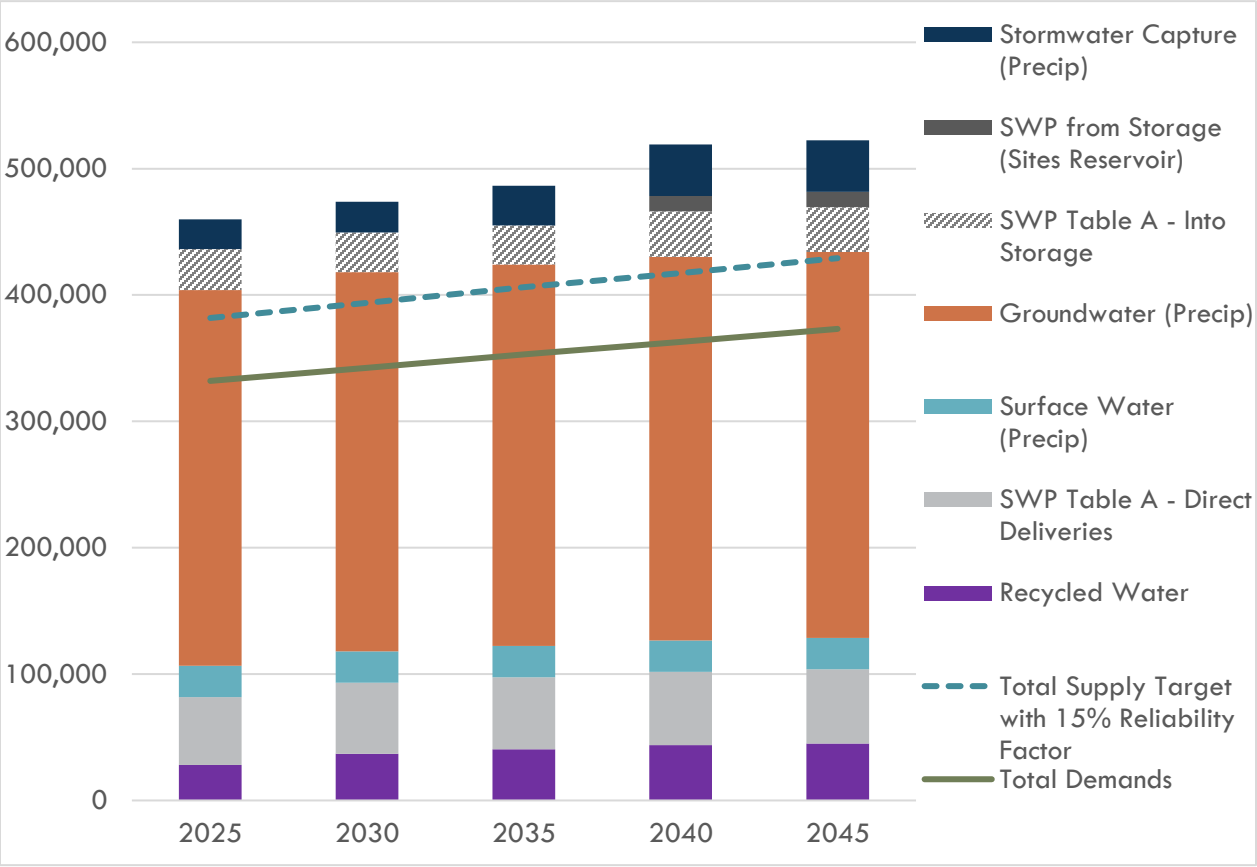
Table 5-4. Regional Water Budget Summary for a Normal Year (AFY)

SOURCE	2025	2030	2035	2040	2045
SURFACE WATER[1] (PRECIP)					
SBB Surface Water	24,615	24,615	24,615	24,615	24,615
Oak Creek Surface Water	250	250	250	250	250
SUBTOTAL	**24,865**	**24,865**	**24,865**	**24,865**	**24,865**
STORMWATER CAPTURE (PRECIP)[2]					
Enhanced Recharge	7,643	7,643	7,643	7,643	7,643
Active Recharge[1]	9,747	10,690	17,705	27,168	27,168
Riverside North Aquifer Storage and Recovery	6,000	6,000	6,000	6,000	6,000
SUBTOTAL	**23,390**	**24,333**	**31,348**	**40,811**	**40,811**
GROUNDWATER (PRECIP)					
SBB Groundwater[3]	207,485	207,485	207,485	207,485	207,485
Return Flows from Extractions above safe yield[4]	2,688	3,056	3,426	3,797	3,952
Rialto-Colton Groundwater[5]	15,567	15,567	15,567	15,567	15,567
Riverside North Groundwater[6]	30,100	30,100	30,100	30,100	30,100
Yucaipa Groundwater[7]	9,600	9,600	9,600	9,600	9,600
Other Supplies[8]	31,843	34,211	35,634	36,963	38,689
SUBTOTAL	**297,283**	**300,020**	**301,812**	**303,512**	**305,394**
RECYCLED WATER[9]					
Direct Use	10,415	18,730	19,575	20,220	20,865
Groundwater Recharge	17,571	18,110	20,912	23,692	24,239
SUBTOTAL	**27,986**	**36,840**	**40,487**	**43,912**	**45,104**

SOURCE	2025	2030	2035	2040	2045
SWP WATER					
DIRECT DELIVERIES					
Direct Deliveries – SBVMWD[10]	20,608	21,709	22,202	22,788	23,484
Big Bear Municipal Water District/Big Bear Lake[11]	6,500	6,500	6,500	6,500	6,500
Return Flow Direct Deliveries – SBVMWD[12]	9,759	10,155	10,333	10,544	10,794
Direct Deliveries – Other[13]	17,000	18,000	18,000	18,000	18,000
SUBTOTAL DIRECT DELIVERIES	**53,867**	**56,365**	**57,035**	**57,832**	**58,779**
STORAGE					
SWP into Storage – SBVMWD[14]	32,400	31,299	30,806	36,164	35,468
SWP from Storage (Sites Reservoir)15	0	0	0	12,100	12,100
SUBTOTAL STORAGE	**32,400**	**31,299**	**30,806**	**48,264**	**47,568**
SUBTOTAL SWP WATER	**86,267**	**87,663**	**87,841**	**106,096**	**106,346**
SUMMARY					
TOTAL SUPPLIES	**459,791**	**473,721**	**486,352**	**519,195**	**522,520**
TOTAL DEMANDS	**332,022**	**342,353**	**353,105**	**362,873**	**373,177**
TOTAL SUPPLY TARGET WITH 15% RELIABILITY FACTOR[16]	**381,825**	**393,706**	**406,070**	**417,304**	**429,154**
SURPLUS (DEFECIT) SUPPLY ABOVE TOTAL SUPPLY TARGET	**77,965**	**80,015**	**80,282**	**101,891**	**93,366**

1. Planned surface water use from retail agency 2020 UWMPs
2. Projected yield for planned projects, see Section 5.2.2 and Table 5-3
3. SBB total safe yield less the volume planned to be diverted for surface water use (shown under Surface Water section in this table)
4. Total of return flows from production over safe yield, included in Table 4-2, Table 4-3, Table 4-4, and Table 4-5
5. Total Estimated safe yield for Rialto-Colton basin (See Table 3-10)
6. Total Estimated safe yield for Riverside North basin (See Section 3.3.3)
7. Estimated safe yield of Yucaipa basin
8. Total of Other Supplies from Table 4-6.
9. From Table 4-8
10. From Table 4-7
11. From Table 4-7
12. Total of return flows from SWP direct deliveries, included in Table 4-2, Table 4-3, Table 4-4, and Table 4-5
13. SWP supplies from IEUA and Western, from Table 4-7.
14. Valley District SWP supplies from Table 5-1 less direct deliveries and in-lieu deliveries in this table
15. Valley District long term average deliveries from Sites Reservoir from Table 3 6.
16. Total Demands increased by 15% to account for plausible uncertainties in both demand and supply projections. See Section 5.1.

Figure 5-4. Regional Water Budget Summary for a Normal Year (AFY)



5.3.2 Single Wet Year

Table 5-4 and **Figure** 5-5 provide a comparison of supplies and demands for a single wet year. This demonstrates that a greater supply surplus is anticipated in wet years, which presents an opportunity to store this excess supply for use in dry years. Recently, wet years have occurred in 2005, 2011 and 2019 locally.

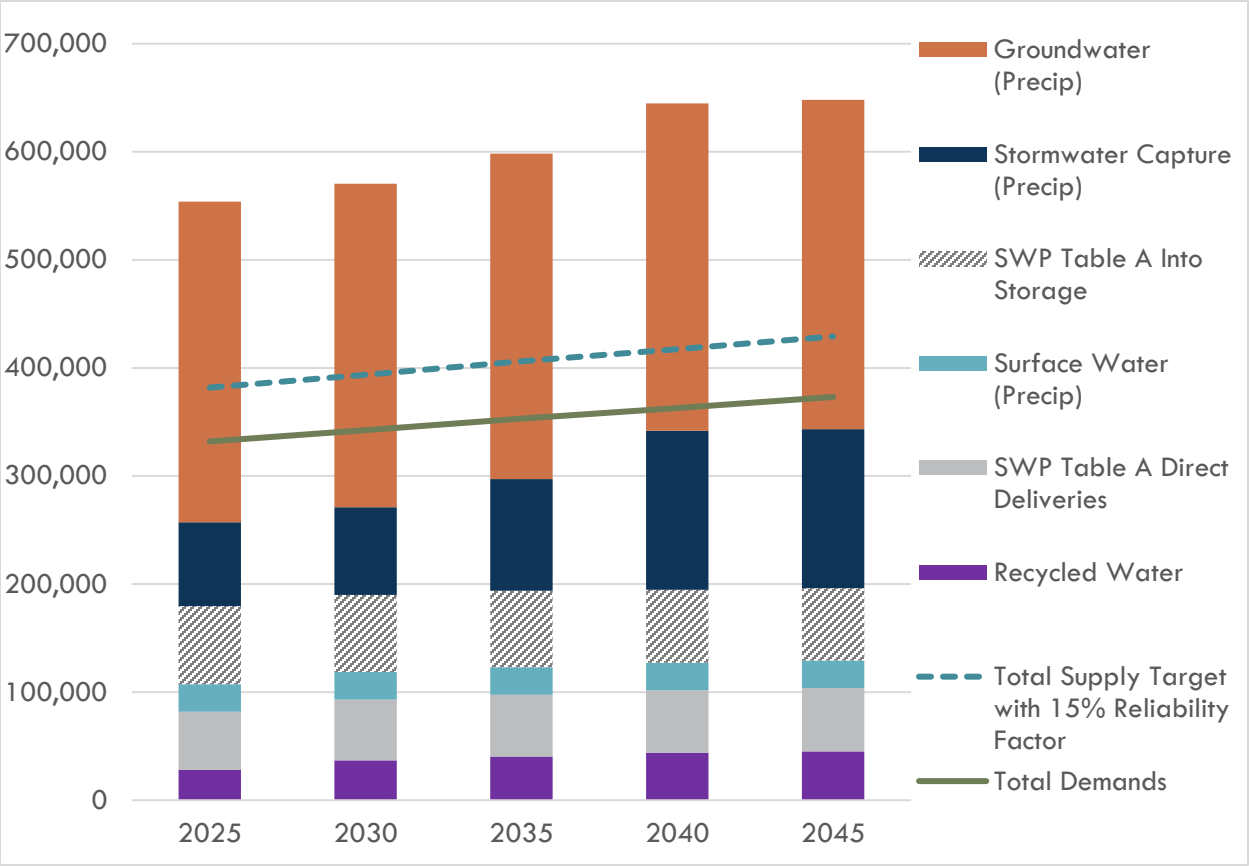
Table 5-5. Regional Water Budget Summary for a Wet Year (AFY)

SOURCE	2025	2030	2035	2040	2045
SURFACE WATER (PRECIP)[1]					
SBB Surface Water	25,259	25,259	25,259	25,259	25,259
Oak Creek Surface Water	250	250	250	250	250
SUBTOTAL	**25,509**	**25,509**	**25,509**	**25,509**	**25,509**
STORMWATER CAPTURE (PRECIP)[2]					
Enhanced Recharge	26,451	26,451	26,451	26,451	26,451
Active Recharge	30,380	33,893	56,027	99,872	99,872
Riverside North Aquifer Storage and Recovery	20,765	20,765	20,765	20,765	20,765
SUBTOTAL	**77,596**	**81,109**	**103,242**	**147,087**	**147,087**
GROUNDWATER (PRECIP)					
SBB Groundwater[3]	206,841	206,841	206,841	206,841	206,841
Return Flows from Extractions above safe yield[4]	2,688	3,056	3,426	3,797	3,952
Rialto-Colton Groundwater[5]	15,567	15,567	15,567	15,567	15,567
Riverside North Groundwater[6]	30,100	30,100	30,100	30,100	30,100
Yucaipa Groundwater[7]	9,600	9,600	9,600	9,600	9,600
Other Supplies[8]	31,843	34,211	35,634	36,963	38,689
SUBTOTAL	**296,639**	**299,376**	**301,168**	**302,868**	**304,750**
RECYCLED WATER[9]					
Direct Use	10,415	18,730	19,575	20,220	20,865
Groundwater Recharge	17,571	18,110	20,912	23,692	24,239
SUBTOTAL	**27,986**	**36,840**	**40,487**	**43,912**	**45,104**
SWP WATER					
DIRECT DELIVERIES					
Direct Deliveries – SBVMWD[10]	20,608	21,709	22,202	22,788	23,484
Big Bear Municipal Water District/Big Bear Lake[11]	6,500	6,500	6,500	6,500	6,500
Return Flow Direct Deliveries – SBVMWD[12]	9,759	10,155	10,333	10,544	10,794
Direct Deliveries – Other[13]	17,000	18,000	18,000	18,000	18,000

SOURCE	2025	2030	2035	2040	2045
SUBTOTAL DIRECT DELIVERIES	**53,867**	**56,365**	**57,035**	**57,832**	**58,779**
STORAGE					
SWP into Storage – SBVMWD[14]	72,414	71,313	70,820	67,156	66,460
SUB-TOTAL STORAGE	**72,414**	**71,313**	**70,820**	**67,156**	**66,460**
SUB-TOTAL SWP WATER	**126,281**	**127,677**	**127,855**	**124,988**	**125,238**
SUMMARY					
TOTAL SUPPLIES	**554,010**	**570,510**	**598,261**	**644,363**	**647,688**
TOTAL DEMANDS	**332,022**	**342,353**	**353,105**	**362,873**	**373,177**
TOTAL SUPPLY TARGET WITH 15% RELIABILITY FACTOR[15]	**381,825**	**393,706**	**406,070**	**417,304**	**429,154**
SURPLUS SUPPLY ABOVE TOTAL SUPPLY TARGET	**172,185**	**176,805**	**192,190**	**227,059**	**218,534**

1. Planned surface water use from retail agency 2020 UWMPs
2. Projected yield for planned projects, see Section 5.2.2 and Table 5-3
3. SBB total safe yield less the volume planned to be diverted for surface water use (shown under Surface Water section in this table)
4. Total of return flows from production over safe yield, included in Table 4-2, Table 4-3, Table 4-4, and Table 4-5
5. Total Estimated safe yield for Rialto-Colton basin (See Table 3-10)
6. Total Estimated safe yield for Riverside North basin (See Section 3.3.3)
7. Estimated safe yield of Yucaipa basin
8. Total of Other Supplies from Table 4-6.
9. From Table 4-8
10. From Table 4-7
11. From Table 4-7
12. Total of return flows from SWP direct deliveries, included in Table 4-2, Table 4-3, Table 4-4, and Table 4-5
13. SWP supplies from IEUA and Western, from Table 4-7.
14. Valley District SWP supplies from Table 5-1 less direct deliveries and in-lieu deliveries in this table
15. Total Demands increased by 15% to account for plausible uncertainties in both demand and supply projections. See Section 5.1.

Figure 5-5. Regional Water Budget Summary for a Wet Year (AFY)



5.3.3 Single Dry Year

In a single dry year, SWP supplies, and local surface water supplies are reduced so the groundwater use increases, relying on water stored in normal and wet years. Demands are assumed to increase by 10% due to increased outdoor water use. **Table 5-6** and **Figure 5-6** provide a comparison of regional water supplies and demands for a single dry year.

As shown, regional supplies are sufficient to meet projected demands; some water may need to be withdrawn from storage if there is variability in supplies or demands, as reflected by the Total Supply Target with 15% Reliability Factor.

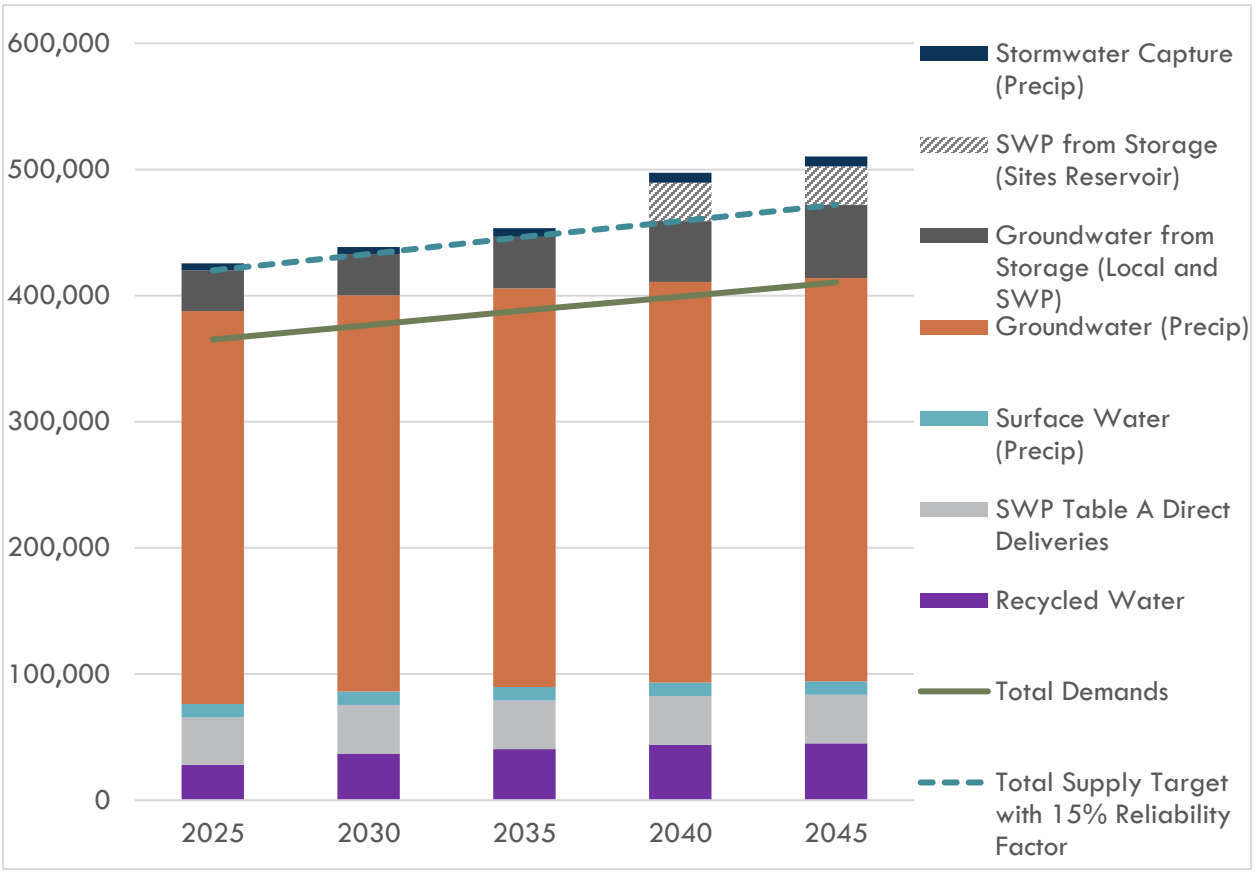
Table 5-6. Regional Water Budget Summary for a Single Dry Year (AFY)

SOURCE	2025	2030	2035	2040	2045
SURFACE WATER (PRECIP)[1]					
SBB Surface Water	10,425	10,425	10,425	10,425	10,425
Oak Creek Surface Water	250	250	250	250	250
SUBTOTAL	**10,675**	**10,675**	**10,675**	**10,675**	**10,675**
STORMWATER CAPTURE (PRECIP)[2]					
Enhanced Recharge	1,598	1,598	1,598	1,598	1,598
Active Recharge	2,644	2,644	4,028	5,010	5,010
Riverside North Aquifer Storage and Recovery	1,255	1,255	1,255	1,255	1,255
SUBTOTAL	**5,497**	**5,497**	**6,881**	**7,863**	**7,863**
GROUNDWATER (PRECIP)					
SBB Groundwater[3]	221,675	221,675	221,675	221,675	221,675
Return Flows from Extractions above safe yield[4]	2,688	3,056	3,426	3,797	3,952
Rialto-Colton Groundwater[5]	15,567	15,567	15,567	15,567	15,567
Riverside North Groundwater[6]	30,100	30,100	30,100	30,100	30,100
Yucaipa Groundwater[7]	9,600	9,600	9,600	9,600	9,600
Other Supplies[8]	31,843	34,211	35,634	36,963	38,689
SUBTOTAL	**311,473**	**314,210**	**316,002**	**317,702**	**319,584**
RECYCLED WATER[9]					
Direct Use	10,415	18,730	19,575	20,220	20,865
Groundwater Recharge	17,571	18,110	20,912	23,692	24,239
SUBTOTAL	**27,986**	**36,840**	**40,487**	**43,912**	**45,104**
SWP WATER					

SOURCE	2025	2030	2035	2040	2045
DIRECT DELIVERIES					
Direct Deliveries – SBVMWD[10]	15,130	15,130	15,130	15,130	15,130
Big Bear Municipal Water District/Big Bear Lake (met with groundwater)[11]	0	0	0	0	0
Return Flow Direct Deliveries – SBVMWD[12]	*5,447*	*5,447*	*5,447*	*5,447*	*5,447*
Direct Deliveries – Other[13]	17,000	18,000	18,000	18,000	18,000
SUBTOTAL DIRECT DELIVERIES	**37,577**	**38,577**	**38,577**	**38,577**	**38,577**
STORAGE					
Groundwater from Storage (Local and SWP)[14]	32,298	32,775	40,937	48,169	58,130
SWP from Storage (Sites Reservoir)[15]	0	0	0	30,400	30,400
SUBTOTAL STORAGE	**32,298**	**32,775**	**40,937**	**78,569**	**88,530**
SUBTOTAL SWP WATER	**69,874**	**71,352**	**79,514**	**117,146**	**127,107**
SUMMARY					
TOTAL SUPPLIES	**425,505**	**438,573**	**453,558**	**497,297**	**510,332**
TOTAL DEMANDS	**365,224**	**376,588**	**388,415**	**399,160**	**410,495**
TOTAL SUPPLY TARGET WITH 15% RELIABILITY FACTOR[16]	**420,008**	**433,076**	**446,677**	**459,034**	**472,069**
SURPLUS SUPPLY ABOVE TOTAL SUPPLY TARGET	**5,497**	**5,497**	**6,881**	**38,263**	**38,263**

1. Planned surface water use from retail agency 2020 UWMPs
2. Projected yield for planned projects, see Section 5.2.2 and Table 5-3
3. SBB total safe yield less the volume planned to be diverted for surface water use (shown under Surface Water section in this table)
4. Total of return flows from production over safe yield, included in Table 4-2, Table 4-3, Table 4-4, and Table 4-5
5. Total Estimated safe yield for Rialto-Colton basin (See Table 3-10)
6. Total Estimated safe yield for Riverside North basin (See Section 3.3.3)
7. Estimated safe yield of Yucaipa basin
8. Total of Other Supplies from Table 4-6.
9. From Table 4-8
10. From Table 4-7. In dry years when Valley District SWP supplies are limited, the region prioritizes direct deliveries requests for surface water treatment plants and the retail agencies pump stored groundwater to meet any remaining water demands.
11. From Table 4-7. Valley District can meet Bear Valley Mutual in-lieu needs with stored groundwater in dry years
12. Total of return flows from SWP direct deliveries, included in Table 4-2, Table 4-3, Table 4-4, and Table 4-5
13. SWP supplies from IEUA and Western, from Table 4-7. Metropolitan's 2020 UWMP projects that all demands will be met under all hydrologic conditions, therefore, water deliveries to FWC and RPU remain constants under all scenarios
14. In dry years, the Region uses local groundwater that was stored in wet years. For the purposes of this Plan, this value is calculated as the Total Supply Target with 15% Reliability Factor less available supplies (excluding stormwater capture and SWP Storage from Sites Reservoir to be conservative).
15. Valley District dry year deliveries from Sites Reservoir from Table 3-6.
16. Total Demands increased by 15% to account for plausible uncertainties in both demand and supply projections. See Section 5.1.

Figure 5-6. Regional Water Budget Summary for a Single Dry Year (AFY)



5.3.4 5-Year Drought

For a 5-year drought, SWP and local surface water supplies are reduced, but average supplies are higher than a single dry year because some years in the 5-year period have greater precipitation than others. Demands are assumed to increase by 10% due to increased outdoor water use. Although demands may reduce in the later years of the drought due to increased conservation measures, a 10% increase is assumed for the entire period to be conservative. **Table 5-7** and **Figure 5-6** provide a comparison of regional water supplies and demands for a 5-year drought.

As shown, regional supplies are sufficient to meet projected demands; some water may need to be withdrawn from storage if there is variability in supplies or demands, as reflected by the Total Supply Target with 15% Reliability Factor.

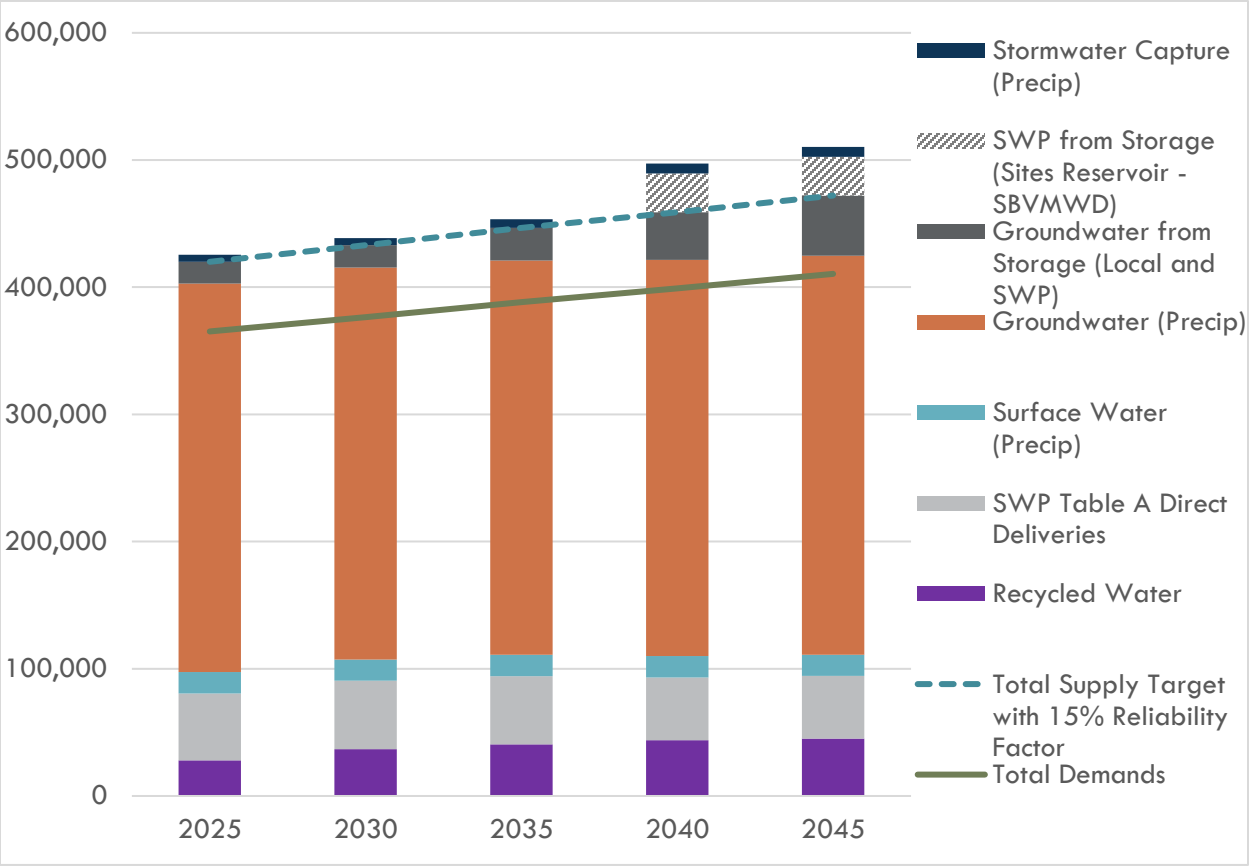
Table 5-7. Regional Water Budget Summary for a 5-Year Drought (AFY)

SOURCE	2025	2030	2035	2040	2045
SURFACE WATER (PRECIP)[1]					
SBB Surface Water	16,455	16,455	16,455	16,455	16,455
Oak Creek Surface Water	250	250	250	250	250
SUBTOTAL	**16,705**	**16,705**	**16,705**	**16,705**	**16,705**
STORMWATER CAPTURE (PRECIP)[2]					
Enhanced Recharge	3,312	3,312	3,312	3,312	3,312
Active Recharge	4,992	5,163	8,363	10,779	10,779
Riverside North Aquifer Storage and Recovery	2,600	2,600	2,600	2,600	2,600
SUBTOTAL	**10,905**	**11,076**	**14,276**	**16,692**	**16,692**
GROUNDWATER (PRECIP)					
SBB Groundwater[3]	215,645	215,645	215,645	215,645	215,645
Return Flows from Extractions above safe yield[4]	2,688	3,056	3,426	3,797	3,952
Rialto-Colton Groundwater[5]	15,567	15,567	15,567	15,567	15,567
Riverside North Groundwater[6]	30,100	30,100	30,100	30,100	30,100
Yucaipa Groundwater[7]	9,600	9,600	9,600	9,600	9,600
Other Supplies[8]	31,843	34,211	35,634	36,963	38,689
SUBTOTAL	**305,443**	**308,180**	**309,972**	**311,672**	**313,554**
RECYCLED WATER[9]					
Direct Use	10,415	18,730	19,575	20,220	20,865
Groundwater Recharge	17,571	18,110	20,912	23,692	24,239
SUBTOTAL	**27,986**	**36,840**	**40,487**	**43,912**	**45,104**
SWP WATER					

SOURCE	2025	2030	2035	2040	2045
DIRECT DELIVERIES					
Direct Deliveries – SBVMWD[10]	20,608	21,709	22,202	22,788	23,008
Big Bear Municipal Water District/Big Bear Lake (portion met with groundwater)[11]	6,068	4,967	4,474	0	0
Return Flow Direct Deliveries – SBVMWD[12]	9,455	9,455	9,455	8,283	8,283
Direct Deliveries – Other[13]	17,000	18,000	18,000	18,000	18,000
SUBTOTAL DIRECT DELIVERIES	**52,720**	**53,720**	**53,720**	**49,291**	**49,291**
STORAGE					
Groundwater from Storage (Local and SWP)[14]	16,595	17,072	25,235	38,048	48,009
SWP from Storage (Sites Reservoir)[15]	0	0	0	30,400	30,400
SUBTOTAL STORAGE	**16,595**	**17,072**	**25,235**	**68,448**	**78,409**
SUBTOTAL SWP WATER	**69,874**	**71,352**	**79,514**	**117,146**	**127,107**
SUMMARY					
TOTAL SUPPLIES	**430,913**	**444,152**	**460,953**	**506,126**	**519,161**
TOTAL DEMANDS	**365,224**	**376,588**	**388,415**	**399,160**	**410,495**
TOTAL SUPPLY TARGET WITH 15% RELIABILITY FACTOR[16]	**420,008**	**433,076**	**446,677**	**459,034**	**472,069**
SURPLUS SUPPLY ABOVE TOTAL SUPPLY TARGET	**10,905**	**11,076**	**14,276**	**47,092**	**47,092**

1. Planned surface water use from retail agency 2020 UWMPs
2. Projected yield for planned projects, see Section 5.2.2 and Table 5 3
3. SBB total safe yield less the volume planned to be diverted for surface water use (shown under Surface Water section in this table)
4. Total of return flows from production over safe yield, included in Table 4 2, Table 4 3, Table 4 4, and Table 4 5
5. Total Estimated safe yield for Rialto-Colton basin (See Table 3-10)
6. Total Estimated safe yield for Riverside North basin (See Section 3.3.3)
7. Estimated safe yield of Yucaipa basin
8. Total of Other Supplies from Table 4 6.
9. From Table 4 8
10. From Table 4 7. In dry years when Valley District SWP supplies are limited, the region prioritizes direct deliveries requests for surface water treatment plants and the retail agencies pump stored groundwater to meet any remaining water demands.
11. From Table 4 7. Valley District can meet Bear Valley Mutual in-lieu needs with stored groundwater in dry years
12. Total of return flows from SWP direct deliveries, included in Table 4 2, Table 4 3, Table 4 4, and Table 4 5
13. SWP supplies from IEUA and Western, from Table 4 7. Metropolitan's 2020 UWMP projects that all demands will be met under all hydrologic conditions, therefore, water deliveries to FWC and RPU remain constants under all scenarios
14. In dry years, the Region uses local groundwater that was stored in wet years. For the purposes of this Plan, this value is calculated as the Total Supply Target with 15% Reliability Factor less available supplies (excluding stormwater capture and SWP Storage from Sites Reservoir to be conservative).
15. Valley District dry year deliveries from Sites Reservoir from Table 3 6.
16. Total Demands increased by 15% to account for plausible uncertainties in both demand and supply projections. See Section 5.1.

Figure 5-7. Regional Water Budget Summary for a 5-Year Drought (AFY)



5.3.5 30-Year Drought

In a 30-year drought, SWP supplies, and local surface water supplies are lower on average, but based on historic hydrology and DWR estimates of future SWP availability, it is anticipated that there will be periodic wet years within the 30-year drought period, as occurred in 2005, 2011 and 2019 locally. The average expected SWP availability during a 30-year drought is not substantially less than a normal year and provides opportunities to recharge excess supplies. As a result of the Region's strategy and demonstrated ability to capture excess supply in these wet years for storage, it is anticipated that the region will have sufficient supplies to last during a 30-year drought.

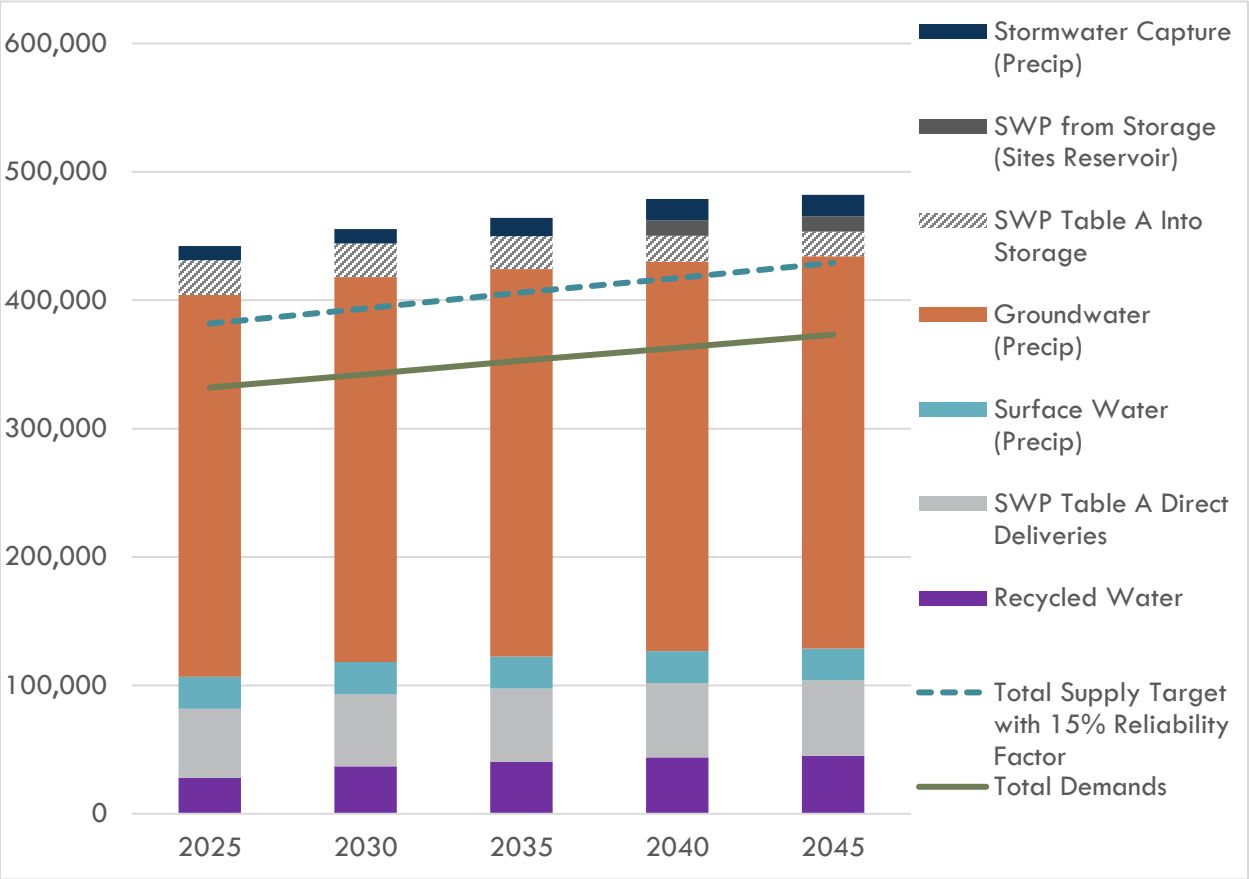
Table 5-8. Regional Water Budget Summary for a 30-Year Drought (AFY)

SOURCE	2025	2030	2035	2040	2045
SURFACE WATER (PRECIP)[1]					
SBB Surface Water	24,615	24,615	24,615	24,615	24,615
Oak Creek Surface Water	250	250	250	250	250
SUBTOTAL	**24,865**	**24,865**	**24,865**	**24,865**	**24,865**
STORMWATER CAPTURE (PRECIP)[2]					
Enhanced Recharge	3,312	3,312	3,312	3,312	3,312
Active Recharge	4,992	5,163	8,363	10,779	10,779
Riverside North Aquifer Storage and Recovery	2,600	2,600	2,600	2,600	2,600
SUBTOTAL	**10,905**	**11,076**	**14,276**	**16,692**	**16,692**
GROUNDWATER (PRECIP)					
SBB Groundwater[3]	207,485	207,485	207,485	207,485	207,485
Return Flows from Extractions above safe yield[4]	2,688	3,056	3,426	3,797	3,952
Rialto-Colton Groundwater[5]	15,567	15,567	15,567	15,567	15,567
Riverside North Groundwater[6]	30,100	30,100	30,100	30,100	30,100
Yucaipa Groundwater[7]	9,600	9,600	9,600	9,600	9,600
Other Supplies[8]	31,843	34,211	35,634	36,963	38,689
SUBTOTAL	**297,283**	**300,020**	**301,812**	**303,512**	**305,394**
RECYCLED WATER[9]					
Direct Use	10,415	18,730	19,575	20,220	20,865
Groundwater Recharge	17,571	18,110	20,912	23,692	24,239
SUBTOTAL	**27,986**	**36,840**	**40,487**	**43,912**	**45,104**

SOURCE	2025	2030	2035	2040	2045
SWP WATER					
DIRECT DELIVERIES					
Direct Deliveries – SBVMWD[10]	20,608	21,709	22,202	22,788	23,484
Big Bear Municipal Water District/Big Bear Lake (portion met with groundwater)[11]	6,500	6,500	6,500	6,500	6,500
Return Flow Direct Deliveries – SBVMWD[12]	9,759	10,155	10,333	10,544	10,794
Direct Deliveries – Other[13]	17,000	18,000	18,000	18,000	18,000
SUBTOTAL DIRECT DELIVERIES	**53,867**	**56,365**	**57,035**	**57,832**	**58,779**
STORAGE					
SWP into Storage – SBVMWD[14]	27,270	26,169	25,676	19,960	19,264
SWP from Storage (Sites Reservoir)[15]	0	0	0	12,100	12,100
SUBTOTAL STORAGE	**27,270**	**26,169**	**25,676**	**32,060**	**31,364**
SUB-TOTAL SWP WATER	**81,137**	**82,533**	**82,711**	**89,892**	**90,142**
SUMMARY					
TOTAL SUPPLIES	**442,176**	**455,334**	**464,150**	**478,872**	**482,197**
TOTAL DEMANDS	**332,022**	**342,353**	**353,105**	**362,873**	**373,177**
TOTAL SUPPLY TARGET WITH 15% RELIABILITY FACTOR[16]	**381,825**	**393,706**	**406,070**	**417,304**	**429,154**
SURPLUS SUPPLY ABOVE TOTAL SUPPLY TARGET	**60,350**	**61,628**	**58,080**	**61,568**	**53,043**

1. Planned surface water use from retail agency 2020 UWMPs
2. Projected yield for planned projects, see Section 5.2.2 and Table 5-3
3. SBB total safe yield less the volume planned to be diverted for surface water use (shown under Surface Water section in this table)
4. Total of return flows from production over safe yield, included in Table 4-2, Table 4-3, Table 4-4, and Table 4-5
5. Total Estimated safe yield for Rialto-Colton basin (See Table 3-10)
6. Total Estimated safe yield for Riverside North basin (See Section 3.3.3)
7. Estimated safe yield of Yucaipa basin
8. Total of Other Supplies from Table 4-6.
9. From Table 4-8
10. From Table 4-7
11. From Table 4-7
12. Total of return flows from SWP direct deliveries, included in Table 4-2, Table 4-3, Table 4-4, and Table 4-5
13. SWP supplies from IEUA and Western, from Table 4-7.
14. Valley District SWP supplies from Table 5-1 less direct deliveries and in-lieu deliveries in this table
15. Valley District long term average deliveries from Sites Reservoir from Table 3-6.
16. Total Demands increased by 15% to account for plausible uncertainties in both demand and supply projections. See Section 5.1.

Figure 5-8. Region Wide Supply and Demand Comparison for a 30-Year Drought



PART 1: REGIONAL CONTEXT

6 Water Management Goals, Objectives, and Strategies

The primary purpose of the IRUWMP is to provide a roadmap for the management of water resources to ensure long-term, reliable water supply availability for the Region.

The first step in developing this roadmap is the formulation of broad water management goals and more specific water management objectives that can help achieve those goals. The goals and objectives described in this chapter shape the desired outcomes of implementation of the IRUWMP.

2015 Report Cards

The Region has made great strides in meeting its objectives through the implementation of projects and programs since development of the 2015 IRWM Plan. Many of these projects and programs are ongoing, but all activities support the achievement of the objectives established in the Region's 2007 IRWM Plan. Progress made in the last 5 years demonstrates that the 2015 IRWM Plan is working as intended and should continue to be updated and adapted as goals and objectives change. Specific efforts made by the Region towards each goal and objective listed in the 2015 IRWM Plan are summarized in the following 2015 Report Cards.

IN THIS SECTION

- Progress Since 2015
- Updated Goals and Objectives for 2020
- Water Management Strategies to Achieve Objectives

GOAL #1
IMPROVE WATER SUPPLY RELIABILITY

OBJECTIVES	PROGRESS	COMPLETED PROJECTS/PROGRAMS
1a: Reduce demand 20% by 2020		• All retailers met 2020 targets by 2015
1b: Increase utilization of local supplies by 23,000 AFY		• Enhanced Recharge Project has increased the amount of stormwater recharged • YVWD's Wilson Creek Basin's recycled water recharge project has increased the amount of recycled water recharged
1c: Increase storage by 10,000 AF		• Enhanced Recharge 1B has increased the amount diverted from the SAR Diversion. • Approximately 78,000 AF of SWP water was recharged in 2019 which also increased groundwater storage. • SBVMWD plans to increase groundwater storage in the SBBby 64,000 AF under SARCCUP, though the program has not yet received approval by local water agencies.
1d: Prepare for disasters by implementing 2 new interties between water agencies		• Five new interties between water systems were constructed (between City of Colton and City of Rialto, City of Redlands and Western Heights Water District, City of Redlands and City of Loma Linda, BBLDWP and Big Bear City Community Services District, SBMWD and Devore Water Company) • SBMWD completed seismic upgrades for four steel reservoirs (College, Cajon, Ridgeline, and Terrace No. 2 Reservoirs) with an approximate total volume of 8.8 MG in 2020

CONTINUED ON NEXT PAGE...

= Objective met

= Objective partially met

= Objective not met

GOAL #1

IMPROVE WATER SUPPLY RELIABILITY

OBJECTIVES	PROGRESS	COMPLETED PROJECTS/PROGRAMS
1e: Monitor and adaptively manage climate change impacts by implementing 3 projects that reduce energy demands		**Energy Reduction:** • East Valley, Yucaipa Valley, Big Bear Lake DWP are implementing smart meter retrofits to help reduce water waste and the associated energy use • Agencies have implemented projects to improve energy efficiency within the system such as through pump replacement, pipe replacement, and other projects to increase efficiency and reduce water leaks **Energy Generation:** • East Valley installed a Hydroelectric facility at Plant 134 in 2017. • WVWD installed a Hydroelectric facility at the Roemer treatment plant in 2018. • BBLDWP installed solar panels to power their Division Well Field. • Valley District and the City of San Bernardino are installing a hydroelectric facility at the Waterman Basin.
1f: Ensure equivalent water supply services for DACs		• The majority of the SBVMWD is classified as a DAC under DWR definition. Retailers continue to support ongoing water service and support services to DACs.

EXAMPLE PROJECT

YVWD WILSON CREEK BASINS WATER RECHARGE PROJECT

YVWD implemented the Wilson Creek Basins Water Recharge Project to recharge the Yucaipa subbasin with highly treated recycled water from the Wochholz Regional Water Recycling Facility and increase recharge of SWP water. The project connected to existing recycled water pipelines to recharge approximately 1,250 AFY of recycled water and increase SWP recharge from 560 AFY to 3,750 AFY. Through implementation of this project, YVWD continues efforts towards resolving regional water supply challenges in a cost effective and environmentally responsible manner.

GOAL #2

BALANCE FLOOD MANAGEMENT AND INCREASE STORMWATER RECHARGE

OBJECTIVES	PROGRESS	COMPLETED PROJECTS/PROGRAMS
2a: Utilize 500 acres of flood control retention/detention basins that are not currently used for recharge		• SBVWCD implemented the Plunge Creek Water Recharge and Habitat Improvement Project, which is 5.9 acres, to manage flows from water transmission canals • Two MOUs currently underway between SBVWCD and SBCFCD, and between SBVMWD and SBCFCD (expected early 2021)
2b: Reduce FEMA reported flood area		• Data is not currently available to show whether this objective has been met.
2c: Ensure equivalent implementation of flood projects in DAC areas and implement at least 1 flood control project in a DAC area		• The San Bernardino County Flood Control District completed 17 projects to improve flood control basins, flood control channels and flood walls/levees, some of which benefit DAC areas adjacent to channels

= Objective met

= Objective partially met

= Objective not met

EXAMPLE PROJECT

SBVWCD PLUNGE CREEK WATER RECHARGE AND HABITAT IMPROVEMENT PROJECT

In August 2020, the SBVWCD completed the Plunge Creek Water Recharge and Habitat Improvement Project that returns a 2.5-mile stretch of Plunge Creek, south of Greenspot Road and east of Orange Street, back to its historic braided-streambed after decades of rerouting the creek's water flow created a swifter, narrower streambed. The project, completed with funds from the Safe Drinking Water, Water Quality and Supply, Flood Control and Coastal Protection Bond Act of 2006 (Proposition 84), improved alluvial habitat, created 3.25 of new wetlands, improves transmission of surface water through the channel, and recharges stormwater.

GOAL #3
IMPROVE WATER QUALITY

OBJECTIVES	PROGRESS	COMPLETED PROJECTS/PROGRAMS
3a: Ensure no violations of drinking water quality standards		• East Valley is in the process of implementing treatment upgrades at Plant 134 to address a TTHM violation in 2017
3b: Improve surface and groundwater quality by treating 3,000 AFY of water supply		• The City of San Bernardino, WVWD and the City of Colton are using ion-exchange treatment to remove perchlorate from their groundwater sources.
3c: Manage total dissolved solids and nitrogen in groundwater		• The region has just begun work on a Salt and Nutrient Management Plan for the Upper Santa Ana River Basins.
3d: Ensure equivalent water quality services for DACs		• The water served to DACs through a municipal water district must meet or exceed drinking water standards set forth by the Division of Drinking Water. • Water providers offer numerous programs for low-income households.

= Objective met = Objective partially met = Objective not met

EXAMPLE PROJECT

WEST VALLEY WATER DISTRICT PERCHLORATE TREATMENT

WVWD constructed a specialized water treatment plant that attacks and breaks apart perchlorate and also removes nitrate. The highly innovative system, called a fluidized bed reactor (FBR) works by pulling oxygen out of the perchlorate anion, rendering it harmless. The FBR water treatment facility allows customers access to water previously unavailable due to contamination. WVWD also constructed a second treatment facility using a similar technology called a fixed bed reactor (FXB), also to remove perchlorate.

GOAL #4
IMPROVE HABITAT AND OPEN SPACE

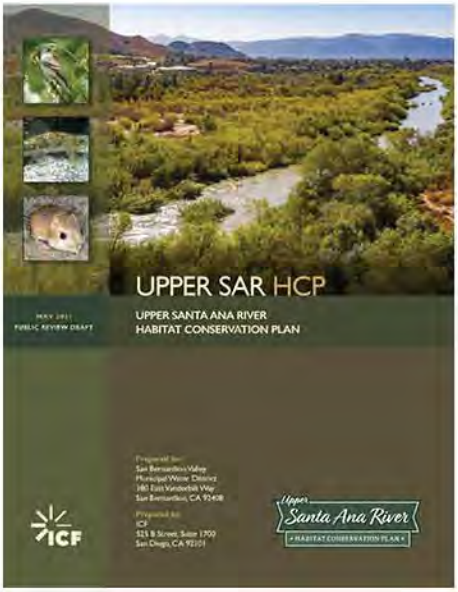
OBJECTIVES	PROGRESS	COMPLETED PROJECTS/PROGRAMS
4a: Improve habitat and open space by 1,200 acres		• SBVWD implemented the Plunge Creek Water Recharge and Habitat Improvement Project • Upper Santa Ana River Habitat Conservation Plan includes a total of 1,400 acres of preserve • SBMWD implemented RIX Expansion Wells Project in 2018 to provide a supplemental water source to the Santa Ana River for protection of fish and habitat
4b: Identify "multi-use" opportunities to increase recreation and public access and identify at least 1 multi-use project		• City of Big Bear Lake Department of Water and Power implemented a xeriscape demonstration garden for the local community • City of Redlands and City of Highland updated their General Plans reclassifying the Wash as open space

= Objective met

= Objective partially met

= Objective not met

EXAMPLE PROJECT



UPPER SANTA ANA RIVER HCP

The Upper Santa Ana River Habitat Conservation Plan (HCP), in Public Review Draft as of May 2021, is a regional, comprehensive program that would provide a framework to protect, enhance, and restore the habitat for Covered Species while streamlining permitting for Covered Activities. Within this framework, the Upper SAR HCP would achieve conservation goals and objectives and comply with the Federal Endangered Species Act while streamlining planning and permitting for anticipated water resource management projects needed to serve the water resource needs of the public. The HCP will achieve the conservation goals and objectives through the establishment of the HCP Preserve System and implementation of conservation actions.

6.2 Regional Needs Identification

A key element of the IRWM planning process is the development of water management objectives that will help address the needs of the Region, while also speaking to the water management strategies outlined in the California Water Plan and the Integrated Regional Water Management Grant Program Guidelines. The needs of the Region must first be identified, then goals and objectives are developed to address those needs.

The current issues and needs of the Region were updated through a combination of workshops with the Region's stakeholders, a review of progress in meeting the 2015 objectives, and planning document review. Below is a summary of the issues and needs that were identified.

6.2.1 Diversify Supply Portfolio

Imported water plays an important role in the Region's water supply portfolio, but is subject to reliability issues due to vulnerabilities such as:

- Susceptibility to interruption during catastrophic conditions
- Periods of statewide drought
- Environmental protection goals and mandates in the Delta
- Climate change
- Imported water quality
- Imported water cost increases

State and federal regulations have limited the SWP's ability to pump and convey water from the Delta to southern California. In addition to environmental challenges, aging Delta levees are not expected to withstand the impacts of catastrophic earthquakes, floods and rising sea levels. Diversifying water supplies will improve overall water supply reliability and reduce pressures from population and demand increases.

Valley District is concerned that the Delta Stewardship Council's approach toward assessing "reduced reliance" on the Delta focuses on the quantity of SWP water being exported rather than the goal of the original legislation which was to diversify the overall water portfolio by investing "…in water use efficiency, water recycling, advanced water technologies, local and regional water supply projects, and improved regional coordination of local and regional water supply efforts." Valley District and the local retail agencies have invested and will continue to invest in all of the strategies included in the legislation and Valley District is also planning to fully utilize its $1 billion investment in the SWP by importing all of its contracted SWP supplies.

6.2.2 Improved Groundwater Management

Precipitation stored as groundwater is a major source of water supply in the Region. Valley District and Western recently completed a study (Usable Groundwater in Storage Estimation for the San Bernardino, Rialto-Colton, Riverside, and Arlington Groundwater Basins, Geoscience

2020) to determine the usable amount of groundwater storage that is available to get through prolonged drought and identify any impacts associated with declining storage levels. The study also showed that the basins have available capacity to store additional water in wet years. At times, parts of the Region can experience high groundwater levels that must be managed to reduce the risk of liquefaction. Additionally, preserving and improving water quality in the groundwater basins is important to maintaining safe drinking water quality. Groundwater management can be improved to promote recharge, manage liquefaction risk, and protect water quality.

The following three groundwater management needs were established for the Region:

- **Maximize Conjunctive Use:** The BTAC has developed Conjunctive Use Guidelines for the SBBSBB that are intended to optimize the storage potential in this basin. Conjunctive use potential should also be evaluated for the other basins in the Region. The use of groundwater models in conjunction with available supplies can help maximize storage of water during wet years across all basins in the Region.
- **Reduce the Risk of Liquefaction:** A significant portion of the SBB—generally, the downtown and southern portions of the City of San Bernardino—is an area of historically high groundwater. Groundwater levels in this area have been artesian in the past. When high groundwater is combined with the thick layer of sand in the aquifer it can cause liquefaction in an earthquake. The BTAC produces a report each year that evaluates the risk of liquefaction in the SBB and establishes a recharge threshold for the year.
- **Protect Groundwater Quality:** There are some contamination plumes within the Region. Most of these plumes resulted from historic military and industrial operations in the Region. Most of these plumes have been remediated and the remainder are in the process of being remediated.

In addition to contamination plumes from historic activities, stormwater from urban areas can also carry contaminants. As stormwater capture projects are implemented, groundwater quality impacts will need to be a consideration.

6.2.3 Protection of Water Quality

Groundwater quality in the Upper SAR watershed is generally good, though there are a number of contamination plumes in the upper watershed that are in the process of remediation, as discussed in Chapter 3. Water quality impacts in the Region are largely due to the presence of the defense industry and agriculture. In the past, the defense industry routinely dumped solvents onto the ground which soaked into the groundwater. Agriculture resulted in an accumulation of salts that are now in the unsaturated soils overlying groundwater basins (now defined in the Basin Plan as groundwater management zones). These salts will degrade groundwater quality over time.

Currently, the primary groundwater quality concerns in the Region include TDS, nitrogen, PCE, TCE, and perchlorate. Additionally, contaminants of emerging concern (CECs), such as Per- and polyfluoroalkyl substances (PFAS) are a concern as future regulations of CECs may require additional treatment. Finally, as discussed in Chapter 3, thirteen water bodies in the Region are on the State's 303(d) list for impairments that include pathogens, nutrients, metals, sediment, and/or PCBs. Implementing projects that protect and improve water quality in the Region is important to protecting drinking water quality as well as protecting water quality in downstream areas.

6.2.4 Flood Management with Recharge Benefits

The management of storm waters that flow through the San Bernardino Valley has been an ongoing challenge since the SBCFCD was created in 1939. Multiple flooding events, some with the loss of life, have occurred in the intervening years. One of the primary purposes of the SBCFCD is to manage flood waters and natural stream flow for the protection of residents, public and private properties, and the utilities that are vital for the communities. A stronger understanding of the area's most in need of flood improvements was identified by stakeholders in the region and will help to better define project needs and reduce flood risk.

The SAR Wash was historically a natural floodplain and alluvial fan that provided a place to convey frequent devastating flood waters and to deposit sediment. The alluvial deposit provided excellent conditions for percolating surface water to the groundwater basin.

The United States Geological Survey estimates that most of the recharge of rainfall occurs in the bottoms of the creeks, rivers, and unlined channels.

Protecting open space areas for flood protection is critical. Retaining stormwater for recharge, a secondary mission of SBCFCD, is also needed to help meet future water supply needs. The Region has identified several flood control basins to be used for recharge of water when they are not needed for flood control.

6.2.5 Habitat and Open Space Preservation

The Region contains extraordinary natural resources, including the San Bernardino National Forest in its headwaters, and unique habitat types, endangered or threatened species in the San Bernardino Valley. Recently completed habitat conservation plans identify targets for preservation of wetland and riparian habitat in the Santa Ana River and tributaries.

> The Region desires to be proactive in working with Federal and State agencies to improve habitat, preserve open space, and increase recreational areas while maximizing the protection, enhancement and beneficial use of the Region's water resources.

6.2.6 Disaster Preparedness

The Region is in a seismically active area of Southern California. Four major fault zones are found in the Region, including the San Jacinto Fault, the Chino-Corona segment of the Elsinore Fault, the Cucamonga Fault, and the San Andreas Fault. Numerous other minor faults associated with these larger fault structures may also present substantial hazards.

While not the only cause for a catastrophic water supply interruption, the postulated magnitude 8.0 earthquake on the San Andreas Fault is one of the most likely disasters that could occur in the Region. The effects of a large magnitude earthquake on water supply were estimated based on post-earthquake surveys, earthquake planning reports included in purveyor's UWMPs, and available reports prepared by State and federal agencies. Other catastrophic interruptions caused by regional power failure, terrorist attack, or other man-made or natural catastrophic event could cause similar conditions and issues to water supply systems in the Region.

A conceptual level analysis (Vulnerability to Catastrophic Interruption of Water Supply and Disaster Preparedness, included in Part 3, Appendix E) has been performed to assess possible impacts due to seismic activity, including the following:

- An earthquake literature search of major earthquake events and what has been learned from such events
- Evaluation of catastrophic interruption of regional facilities
- Vulnerabilities of the Region's water supply system to SWP supply interruption
- Vulnerability of local purveyors' systems to an earthquake
- Summary of Findings and Recommendations
- Water Shortage contingency planning

As additional data and information becomes available, a more detailed analysis should be conducted to determine needs related to disaster preparedness. In addition, the region's water providers have prepared Water Shortage Contingency Plans (WSCPs) as part of their UWMPs and have their own Emergency Response Plans. For the UWMP Agencies within this Plan,

their WSCPs are summarized in the respective agency chapters in **Part 2** and attached in **Part 4**. The Emergency Response Plans include sensitive information, so they are not provided to the public.

6.2.7 Sustainability

The Region recognizes the need to make water management decisions that ensure resources are maintained for future generations. This includes incorporating economic, social, land use, environmental sustainability into water resource management decisions. DACs and SDACs are often more vulnerable to water supply, flood, and water quality issues. The Region has made ensuring equivalent services to DACs and SDACs a priority and intends to maintain these services through the planning horizon of the IRUWMP.

6.2.8 Climate Change Resilience

The BTAC previously conducted a vulnerability assessment using the Vulnerability Assessment Checklist available in DWR's 2011 Climate Change Handbook for Regional Planning to identify the potential impacts to the Region's water resources due to climate change.

A list of primary concerns identified using the Vulnerability Assessment Checklist that should be addressed to protect the Region from potential climate change impacts includes:

- Reliance on imported water
- Processes that require cooling water
- Climate sensitive agriculture
- Wildfires that affect water quality
- Threatened beneficial uses of water bodies

Based on the concerns above, the following vulnerabilities were identified for the Region. The vulnerabilities were listed in rank order by the BTAC subcommittee updating the Plan. In all cases, actions identified in the IRWM address vulnerabilities.

Uncertainty around the Sacramento-San Joaquin Bay Delta make imported supplies less reliable.

Increasingly stringent environmental regulations and changing runoff patterns in Northern California are projected to continue to reduce the reliability of imported supplies. However, the proposed Sites Reservoir Project and Delta Conveyance Project are expected to restore nearly all of the supply that has been lost due to environmental regulation.

The Region's ability to capture additional stormwater and store it in the large underlying groundwater basins will also help diversify the region's supplemental water portfolio and increase reliability. The Region is also able to optimize its imported water by importing more

water in wet years, when it is available, and storing it in the large underlying groundwater basins which will also help offset vulnerabilities.

Existing groundwater capture facilities may not have the capacity or operational ability to capture less frequent, but more intense storm events.

As much of the Region's water supply ultimately relies on precipitation, either as rain or snow in the local mountains, the ability to capture more intense storm flows is crucial. As these flows are often intense and of short duration, further development of additional facilities to capture and recharge the tail end of an intense storm would increase water supply for the Region. Plans for these facilities are discussed elsewhere in the Plan. Additionally, through a partnership between SBVWCD and Valley District, capacity to recharge water released from the Seven Oaks Dam will be increased. As the dam serves to attenuate flood flows, this project is well suited to increase the Region's capacity to recharge water.

More frequent drought periods will result in more frequent and intense wildfires. Water quality and the ability to capture storm flows will be reduced.

Wildfires are already a concern in the Region and have historically caused water quality and flood control issues. Should climate change increase drought periods and result in more frequent and intense wildfires, water quality and flood control will be further impacted.

Increased surface water temperatures will degrade water quality and negatively impact aquatic life, especially in mountain areas.

High gradient stream systems located in the mountainous areas support several species that exist in a narrow geographic range limited by altitude. Some of the more sensitive species, such as the mountain yellow-legged frog, are listed by the U.S. Fish and Wildlife Service and active restoration and recovery programs are underway. Increases in surface water temperature will negatively impact aquatic life and may eliminate sensitive species habitats altogether.

Uncertainty related to managing intense winter storms to protect downstream life and property will make holding water in the flood system for recharge more difficult.

As seasonal storms become less frequent and more intense, flood water capture for recharge may become more complex. Most efforts are focused on "scalping" the tail of a storm flow which is how the current flood control system is operated. The high-volume flows move downstream and the tailing, less intense flows can be collected by rubber dams or increased detention volume.

Increased temperatures would result in increased water demand for landscape irrigation.

As days with highs over 95 degrees increase in frequency, absent any intervention, landscape irrigation demands could increase. Recent programs by local water retailers, including a popular public-private partnership called Water Saving Garden Friendly, have provided education and resources for homeowners and businesses to reduce irrigation demand using drought tolerant plants in landscaping. A recent partnership with California State University resulted in a drought tolerant demonstration garden where the public can see and better understand the benefits of drought tolerant landscaping. Additionally, like in most parts of California, numerous incentive programs are underway to increase water use efficiency by the homeowner, especially outdoor use. These programs will need to be continued or even expanded to counteract increasing temperatures in the future.

Decreased runoff and subsurface flows from the mountain front areas as the result of more frequent and severe droughts.

As drought conditions become more frequent, it becomes more important to capture storm flows when they are available. Further development of recharge facilities within the Region and imports of water during wet years for underground storage allows the Region to store water for use during periods of drought. The Bunker Hill Subbasin is a valuable resource, and the cooperative management of the basin has created the potential to store more water in wet years.

As summarized above, most of the Region's vulnerabilities are addressed by work already occurring in the upper watershed. More active stormwater capture, investment in the Sites Reservoir Project and Delta Conveyance Project and continued recharge of imported water in wet years, when it is plentiful, will help prepare the Region for changed climatic conditions.

6.3 Water Management Goals and Objectives

Using the needs of the IRWM Region described in the previous section, the Region confirmed the 4 goals from the 2015 IRWM Plan and established a new goal relating to climate change.

This Plan establishes following five goals:

1. Improve Water Supply Reliability
2. Balance Flood Management and Increase Stormwater Recharge
3. Improve Water Quality
4. Improve Habitat and Open Space
5. Address Climate Change through Adaptation and Mitigation

The Region established measurable objectives for each of the five goals. The resulting 16 objectives consider the State's planning guidance in the 2016 Integrated Regional Water Management Grant Program, as well as the priorities and opportunities unique to the IRWM Region. These objectives are described in the sections that follow.

6.3.1 Goals and Objectives Development

Water management goals are the broad statements that drive water management planning in the Region. Water management objectives are the more specific and measurable ways of achieving these goals. The objectives in this Plan are tailored to the Region's needs and priorities as well as the priorities of the State. Water management strategies are the methods the Region plans to use to achieve its objectives. These strategies are described in detail later in this chapter.

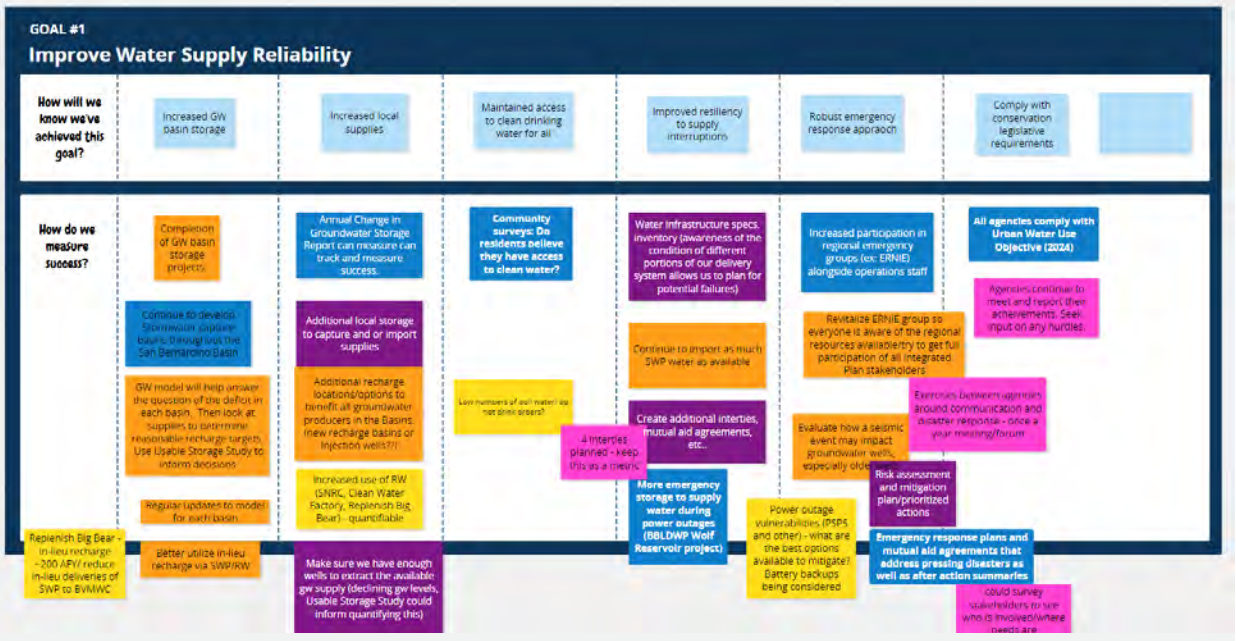
Figure 6-1. Hierarchy of Goals, Objectives, and Strategies

6.3.1.1 Objectives Development Process

The BTAC is responsible for preparing and updating the IRUWMP, including reviewing and refining the objectives to ensure they remain relevant to current needs of the IRWM Region. The objectives for the 2020 IRUWMP were developed based on a combination of current water resources-related needs, progress in meeting the 2015 IRWM Plan objectives, and current Statewide planning, policies, and regulations. The water resources management entities in the Region will strive to complete projects and programs that meet these objectives over the next five years.

Information regarding regional needs and progress in meeting the 2015 IRWM Plan objectives was solicited from stakeholders at a workshop held on November 16, 2020 and via email. Proposed changes to the Region's objectives were developed and provided to stakeholders via email and reviewed at a workshop held on February 22, 2021.

Part 3 Appendix F contains a matrix of how feedback received at the February 2021 workshop was incorporated into Chapter 6 of this Plan. The 2020 IRUWMP objectives were then refined to reflect stakeholder comments and are described in **Section 6.3**.



Stakeholders participated in a series of interactive virtual workshops where they broke into small groups to provide input on needs, goals and objectives using a virtual whiteboard and sticky notes.

IRWM Region Goals and Objectives for the Next 5 Years

GOAL #1
IMPROVE WATER SUPPLY RELIABILITY

1a: Comply with conservation legislation requirements (AB1668 and SB606)

1b: Increase utilization of local supplies by 20,000 AFY

1c: Implement the Santa Ana River Conservation and Conjunctive Use Program (SARCCUP) to increase storage in the SBB by 64,000 AF

1d: Improve system resiliency and the ability to respond to emergency supply interruptions by increasing back-up facilities, increasing interties, adding redundant power sources and treatment facilities

1e: Continue to ensure equitable access to clean drinking water for all communities

1f: Complete groundwater management plans for the San Bernardino, Rialto-Colton and Yucaipa Basins

GOAL #2
BALANCE FLOOD MANAGEMENT AND INCREASE STORMWATER RECHARGE

2a: Complete necessary agreements to use flood control retention/detention basins for recharge in the San Bernardino, Rialto-Colton and Yucaipa Basins when not needed for flood control

2b: Implement 20 acres of integrated flood projects that also provide multiple benefits, where possible

2c: Continue to ensure equivalent implementation of flood projects in DAC areas and implement at least 1 flood control project in a DAC area

2d: Identify 4 urban stormwater capture projects to increase recharge and improve surface water quality

GOAL #3
IMPROVE WATER QUALITY

3a: Ensure no violations of drinking water quality standards

3b: Proactively address new constituents of concern as MCLs are developed

3c: Manage total dissolved solids and nitrogen in groundwater

GOAL #4
IMPROVE HABITAT AND OPEN SPACE

4a: Preserve or improve habitat by conserving or restoring 150 acres of riparian, wetland and permanent water areas by implementing projects in the Wash HCP and River HCP.

4b: Identify "multi-use" opportunities to increase recreation and public access and identify 4 multi-use projects

GOAL #5
ADDRESS CLIMATE CHANGE THROUGH ADAPTATION AND MITIGATION

5a: Implement local supply and flood control projects to help offset the impacts of climate change

5b: Implement 4 projects to reduce or offset energy consumption or reduce GHG emissions associated with water and wastewater systems

5c: Complete the SBVMWD Climate Adaptation and Resilience Plan (CARP)

6.3.2 Goal #1: Improve Water Supply Reliability

Water supply reliability can generally be improved by reducing demand and/or by increasing supply. Demand reduction is required by two California State Legislature policy bills passed in 2018 (Senate Bill (SB) 606 and Assembly Bill (AB) 1668). Water supply for the Region can be developed by increasing use of local supplies such as recycled water, groundwater, and stormwater.

True reliability occurs when there is a redundancy, or "reliability factor", in supplies that allows the Region to adapt to changing conditions. For example, developing additional stormwater capture may overcome a deficit in the amount of precipitation assumed into the future. The reliability factor will help the Region adapt to unknowns such as future precipitation amounts, future imported water availability, climate change impacts, changes in demand patterns and other unknowns.

RAND Corporation studied the plausible uncertainty in both supplies and demands in the region based upon climate change and other factors and determined that a 15% reliability factor will help overcome the plausible uncertainties. RAND also developed a methodology for calculating the reliability factor that can be used to evaluate the reliability factor during each planning cycle.

Several objectives were identified to improve water supply reliability in the Region. These include managing demands, increasing local supplies, increasing overall water storage, preparing for potential disasters, managing climate change impacts, and ensuring DACs receive equivalent services.

Additionally, continued work on the proposed Sites Reservoir Project and Delta Conveyance Project are expected to restore nearly all of the supply that has been lost due to environmental regulation.

6.3.2.1 Objective 1a: Comply with conservation legislation requirements (AB1668 and SB606)

Water conservation programs in the Region have grown over the past several years in response to both drought and conservation legislation such as SBX7-7. In 2018, the State Legislature passed SB 606 and AB 1668 in response to Governor Brown's Executive Order B-37-16. These two bills establish a new foundation for long-term improvements in water conservation and drought planning to adapt to climate change and the resulting and more intense droughts in California. To accomplish this, the bills provide "complementary authorities and requirements that affect water conservation and drought planning for urban water suppliers, agricultural water suppliers, and small water suppliers and rural communities." (DWR and SWRCB, 2018)

This conservation legislation will require that retail water suppliers meet numerical water use efficiency standards for indoor and outdoor residential use, and commercial/industrial/institutional (CII) outdoor landscaping. While the only numeric standard that is available is residential indoor use (set at 55 gpcd before January 1, 2030 and 50 gpcd

after January 1, 2030), the remaining standards have not yet been set by the State. It is expected that urban retail water suppliers will begin submitting annual reports on urban water use objectives and actual use in November 2023. Annual urban water use reporting is discussed further in Section 4.6.2.

Metrics:

- Volume of water used in each supplier's service area (to be defined by water use objectives to be set by the State)

6.3.2.2 Objective 1b: Increase stormwater capture and recycled water use by 20,000 AFY

Increasing the use of stormwater and recycled water to meet demand helps the Region develop a more diverse water supply portfolio that adds resiliency against interruptions in imported water deliveries. In addition, increasing local supply use will help to reduce dependence on the Delta.

Metrics:

- Volume of stormwater to be captured by new or expanded recharge basins
- Volume of recycled water used through new non-potable uses or for new recharge projects

6.3.2.3 Objective 1c: Implement the Santa Ana River Conservation and Conjunctive Use Program (SARCCUP) to increase storage in the SBB by 64,000 AF

Storing water, primarily in groundwater basins, in wet years for later use during dry periods (conjunctive use) is a foundational strategy to help improve water supply reliability.
Valley District, Western and other agencies in the Santa Ana Watershed are implementing SARCCUP, a cooperative program with Metropolitan to store imported water during wet years for use during dry years. The initial phase is expected to increase storage in the SBB by 64,000 AF.
In addition, through the Valley District Cooperative Recharge Program, retail agencies in the Valley District service area store imported water during wet years so that it is available in dry years. The area will need to increase recharge over time to help offset increasing demands and other uncertainties. The preferred storage location is in local groundwater basins to reduce evaporative losses and transportation costs, though storage can also occur in upstream locations or the Central Valley.

Metrics:

- Volume of water recharged under SARCCUP

6.3.2.4 Objective 1d: Improve system resiliency and the ability to respond to emergency supply interruptions

Improving the Region's water system resilience against disasters such as earthquakes and other catastrophic events that could cause damage to water supply systems is an important priority for the Region's water suppliers. Earthquakes can displace pipelines, interrupt power supply to pump stations and treatment facilities, and cause water service outages of local and SWP water. While increasing storage can provide reserves if there is an interruption of SWP water, facilities must be capable of delivering the water to customers. Projects such as back-up facilities and interties can be used during an emergency to supply water from water systems that are not damaged. Adding redundant power sources and treatment facilities will ensure that clean, safe water is delivered to customers during emergencies. Finally, agreements for mutual aid and participation in regional emergency preparation exercises (such as the Great Shakeout) can help agencies to prepare for, respond to and recover from local and regional disasters. Programs such as the Emergency Response Network of the Inland Empire (ERNIE) are currently in place and several agencies in the Upper Santa Ana River Watershed are members.

Metrics:

- Number of new interties constructed
- Number of back-up facilities constructed
- Number of emergency power sources installed
- Number of redundant treatment systems implemented
- Volume of new emergency storage constructed
- Number of mutual aid agreements in place
- Number of emergency preparedness exercises participated in by agencies

6.3.2.5 Objective 1e: Continue to ensure equitable access to clean drinking water for all communities

Supporting water supply projects that benefit DACs and SDACs is an important aspect in maintaining water supply reliability. The Region strives to maintain equitable water supply services for DACs and SDACs and will continue to do so in the future.

Metrics:

- Number of households participating in low-income support programs provided by retailers

6.3.2.6 Objective 1f: Complete Groundwater Management Plans for the San Bernardino, Rialto-Colton, and Yucaipa Basins

The Region's groundwater basins serve as a valuable water supply source to meet water demands as well as a local location to store water for use in droughts or emergencies. Agencies

are planning to develop groundwater management plans for the San Bernardino, Rialto-Colton, and Yucaipa Basins to ensure the sustainable use of the basins into the future.

Metrics:

- Groundwater management plans completed

6.3.3 Goal #2: Balance Flood Management and Increase Stormwater Recharge

While conveying flood water safely through the Region is of critical importance, detaining runoff for recharge is also desirable. This goal represents the Region's need to balance the use of flood control basins and channels to reduce flood risk while using of these same flood control facilities to enhance stormwater capture and recharge.

6.3.3.1 Objective 2a: Complete necessary agreements to use flood control retention/detention basins for recharge in the San Bernardino, Rialto-Colton and Yucaipa Basins when not needed for flood control.

The Region's water agencies desire to continue to wisely utilize the natural streams and local groundwater for the benefit of all the residents. Using flood control basins to capture stormwater for recharge will increase groundwater supplies. The Region is actively pursuing these types of projects. For example, Valley District and SBCFCD are developing an agreement to allow continued use of flood control basins for recharge that will support implementation of this objective.

Metrics:

- Number of MOUs implemented to use flood control retention/detention basins for recharge

6.3.3.2 Objective 2b: Implement 20 acres of integrated flood projects that also provide multiple benefits, where possible

Preserving flood plains will reduce the risk of flood waters damaging municipal and private property. The Region recognizes the importance of preserving flood plains to decrease flood risk, but also that these areas may provide multiple benefits such as increased open space and habitat, particularly in "park poor" areas.

Metrics:

- Acres of new integrated flood projects constructed

6.3.3.3 Objective 2c: Continue to ensure equivalent implementation of flood projects in DAC areas by implementing at least one flood control project in a DAC area

The Region recognizes the importance of supporting flood management projects in DACs and will continue to ensure equivalent implementation of flood projects in DAC areas. As a first step,

it will be necessary to conduct a mapping exercise to identify areas that currently experience flooding issues to prioritize projects that most effectively reduce flood risk and determine whether DAC areas will benefit.

Metrics:

- Development of a map of areas experiencing flooding issues
- Number of flood control projects implemented in DAC areas

6.3.3.4 Objective 2d: Identify 4 urban stormwater capture projects to increase recharge and improve surface water quality

While large, centralized stormwater recharge and flood management projects can provide significant benefits, smaller, urban stormwater capture projects can provide multiple benefits. Urban areas have historically increased the impervious surfaces in municipalities, which reduces the ability to recharge groundwater basins and increases the pollutant loads reaching receiving waters. Capturing stormwater in urban areas for either recharge or direct use can increase groundwater recharge and improve surface water quality, as well as provide additional benefits such as increased open space, reduced localized flooding, increased habitat, and many other benefits.

Metrics:

- Number of urban stormwater capture projects implemented

6.3.4 Goal #3: Improve Water Quality

Improving water quality in the Region is critical for ensuring safe and sustainable surface and groundwater, human health and preserving aquatic species.

6.3.4.1 Objective 3a: Ensure no violations of drinking water quality standards

The retail water agencies in the Region must comply with water quality regulations. These regulations require routine sampling of water supplies to ensure compliance. Overall water quality is reported to customers in annual consumer confidence reports. The Region is not recommending any additional water quality monitoring requirements beyond what is already required by state and federal regulations.

Metrics:

- Number of drinking water quality standard violations reported in Consumer Confidence Reports and/or to the SWRCB
- Number of boil water or ”do not drink” orders

6.3.4.2 Objective 3b: Proactively address new constituents of concern as MCLs are developed

Local groundwater is an important water supply source for the Region. Maintaining and improving the water quality of supplies ensures safe water for human health and aquatic life. Several contaminant plumes are present throughout the Region, and include the Newmark-Muscoy, Redlands-Crafton, Santa Fe, former Norton Air Force Base, Rialto-Colton Subbasin, and No-Man's Land plumes. Cleanup of the Newmark-Muscoy and former Norton Air Force Base Plumes is progressing under the EPA Superfund Program. While these plumes are known and managed, there may be future groundwater quality contamination issues due to new MCLs under development by the US EPA and the SWRCB. By tracking MCLs currently under development, such as PFAS/PFOA and Chromium-6, pumpers can proactively address the new constituents of concern to ensure uninterrupted use of groundwater.

Metrics:

- Volume of groundwater treated to address contaminant plumes
- Pounds of contaminants removed from groundwater through treatment

6.3.4.3 Objective 3c: Complete Salt and Nutrient Management Plan for the Region.

Long-term historic land use practices have caused the accumulation of salts and nitrates in the soils overlying the groundwater basins in the Region, resulting in TDS and nitrate contamination in the basins. The construction and operation of groundwater desalters to extract and treat poor-quality groundwater has been and continues to be an essential component of salt and nutrient management in the Santa Ana watershed. Such projects will be increasingly important in the USARW to protect local water supplies and provide supplemental, reliable sources of potable supplies. In addition, Valley District is planning to develop a Salt and Nutrient Management Plan for the area to improve management of TDS and nitrate.

Metrics:

- Progress made in developing a Salt and Nutrient Management Plan

6.3.5 Goal #4: Improve Habitat and Open Space

Improving habitat and open space areas has multiple benefits for the Region including improving water supply, water quality, flood management, ecological resources, and recreational opportunities. The Region recognizes the potential to improve water resources management by protecting and improving open space areas.

6.3.5.1 Objective 4a: Preserve or improve habitat by conserving or restoring 150 acres of riparian, wetland, and permanent water areas by implementing projects in the River HCP and Wash HACP

Habitat and open space provide multiple benefits including ecological protection and stewardship; creation of recreational opportunities; protection of water source and quality through promotion of natural recharge, attenuation of runoff and reduction of erosion; and improvement of quality of life. Restoration projects can also protect threatened and endangered species. Restoring and improving habitat through integrated water resources projects and programs will help the Region to maintain and improve habitat benefits. Based on the Upper Santa Ana River HCP and the Upper Santa River Wash HCP, over the next five years, approximately 150 acres of riparian, wetland and permanent water habitat will be conserved.

The San Bernardino National Forest is home to extraordinary natural resources that Region strives to protect and enhance for the benefit of the environment and communities.

Metrics:

- Acres of riparian, wetland and permanent water areas preserved or improved

6.3.5.2 Objective 4b: Identify "multi-use" opportunities to increase recreation and public access and identify 4 multi-use projects

The Region recognizes the need to balance between growth of urban areas and the environment to maintain a viable habitat for native plant and wildlife species, and to maintain a high quality of life for watershed residents and visitors. An effective way to establish this balance is the development of open space corridors that allow for multiple species habitat, wetlands, storm flow capture for aquifer recharge, water quality improvements, as well as passive and active recreational facilities and open spaces.

Metrics:

- Acres of multi-use projects implemented

6.3.6 Goal #5: Address Climate Change through Adaptation and Mitigation

6.3.6.1 5a: Implement local supply and flood control projects to help offset the impacts of climate change

Climate change may have wide-ranging impacts on the Region's water resources. Generally, there is great uncertainty in the magnitude, timing, and location of precipitation and runoff changes associated with climate change. However, it is generally agreed that climate change could change runoff patterns. There is also a great level of uncertainty in the reduction, if any, in water supply due to climate change for Southern California and for the Upper SAR watershed in particular. Various strategies planned for implementation in the Region may also help to address potential climate change impacts. For example, potential reductions in imported supply reliability due to climate change can be addressed by increasing use of local supplies. The Region will continue to adaptively manage its water resources while implementing "no regret" strategies that will provide benefits under both current climate conditions while also addressing climate change impacts.

Metrics:

- Projects implemented that address or manage climate change impacts

6.3.6.2 5b: Implement 4 projects to reduce or offset energy consumption or reduce GHG emissions associated with water and wastewater systems

In addition to adapting to the effects of climate change, the Region recognizes the need to mitigate against future climate change by reducing or offsetting the energy consumption or GHG emissions associated with water and wastewater systems. The region recognizes that during hot periods when water is in high demand, the electricity system is also experiencing peak demand. Projects such as solar panels, microgrids, hydroelectric power and improving energy efficiency of facilities can help to reduce the energy consumption of water facilities. This mitigation objective is consistent with the California Air Resources Board AB 32 Scoping Plan which aims to reduce GHG emissions in the State to 1990 levels by 2020. Project proponents are encouraged to consider the strategies adopted by CARB in its AB 32 Scoping Plan when developing projects to identify potential "no regret" strategies.

Metrics:

- Number of projects implemented that reduce or offset non-renewable energy use or GHG emissions associated with water or wastewater systems
- Decrease in the energy intensity of water supplies in kWh/AF

6.3.6.3 5c: Complete the SBVMWD Climate Adaptation and Resilience Plan (CARP)

SBVMWD is planning to develop the CARP to serve as a comprehensive policy and strategy document for addressing the undesirable impacts of climate change on SBVMWD and will identify targeted policies, programs and projects that will both mitigate SBVMWD's contribution to GHGs and increase SBVMWD's adaptive capacity.

Metrics:

- Completion of the CARP

6.3.7 Prioritization of Objectives

Given that this Plan is intended to be a truly integrated plan, the Region elected not to prioritize the objectives with the understanding that each objective is equally important relative to the others. The Region may prioritize objectives as funding opportunities become available to align projects with the goals of each funding program.

6.4 Water Resource Management Strategies

This section considers the water resource management strategies the Region can use to meet the goals and objectives discussed in Section 6.3.

6.4.1 Consideration of Strategies

The Region considered several strategies for implementing the goals and objectives described above. The IRUWMP largely uses the Resource Management Strategies (RMS) described in the California Water Plan (CWP) but considers additional strategies that are relevant to the Region. To be consistent with the CWP, the Region adopted the terminology used in the 2016 CWP Update1. The RMS included in the IRUWMP are those that have synergies with the Region's goals and objectives. Additional water management strategies specific to the Region were developed by stakeholders for the 2007 IRWM Plan and reviewed during the BTAC Workshop on Objectives and Strategies held on September 16, 2014. These additional water management strategies are still relevant to the Region and have been preserved in this Plan update.

The following RMS were not considered feasible or applicable for implementation in the Region:

[1] The 2018 CWP did not provide further updates to the RMS.

- **Precipitation Enhancement:** The Santa Ana Watershed Project Authority is planning a pilot study of cloud seeding. Depending upon the outcome of that study, the region may choose to consider this water resource management strategy sometime in the future.
- **Surface Storage – CALFED/State:** The Seven Oaks Dam was built primarily for flood control but could be used for seasonal storage, if authorized. Valley District, on behalf of the region, is working to get seasonal storage authorized for the dam. Should that occur, the region will work together to best utilize that asset to enhance water supply reliability.
- **Develop Desalination:** The region is located inland, and therefore would not benefit directly from ocean desalination. The region may consider a regional project that provides in-lieu exchange of supplies for desalinated water if it became available in the future.
- **Other Strategies (crop idling for water transfer, dew vaporization/atmospheric pressure desalination, fog collection, irrigated land retirement, rainfed agriculture, snow fences, and waterbag transport/storage technology):** Many of these RMS are either infeasible or use relatively new and unproven technologies; therefore, they would not be favored unless all other strategies presented in this chapter have been exhausted. Specific characteristics of the Region that make several of these strategies impractical include low amounts of rain, fog, and agriculture.

In many instances, regional strategies can address multiple planning objectives and goals. For example, protection of recharge areas could help meet the objectives to increase storage, reduce flood risk, improve water quality, and restore and improve habitat and open space. The remainder of this section describes the strategies selected for inclusion in the Plan, shown in **Table 6-1**, as well as the integration of these strategies. These strategies are grouped by general topic, but often can provide additional benefits.

Table 6-1: Water Resource Management Strategies

STRATEGIES	GOALS				
	IMPROVE WATER SUPPLY RELIABILITY	BALANCE FLOOD MANAGEMENT AND INCREASE STORMWATER RECHARGE	IMPROVE WATER QUALITY	IMPROVE HABITAT AND OPEN SPACE	ADDRESS CLIMATE CHANGE THROUGH ADAPTATION AND MITIGATION
REDUCE WATER DEMAND					
Implement Urban Water Use Efficiency*	✓				✓
Implement Agricultural Water Use Efficiency *	✓				✓
INCREASE WATER SUPPLY					
Increase Recharge	✓	✓			✓
Increase Surface Water and Groundwater Storage Inside and Outside the Region*	✓				✓
Optimize Wet Year Storage and Dry Year Pumping (Conjunctive Management & Groundwater)*	✓				✓
Increase Recycled Water Use*	✓				✓
Increase Stormwater Capture	✓	✓	✓		✓
Support Bay Delta Conservation Project	✓				✓
IMPROVE OPERATIONAL EFFICIENCY AND TRANSFERS					
Operate Existing Facilities to Increase Recharge		✓			✓
Implement System Reoperation*	✓				✓
Improve Supply Conveyance – Delta*	✓				✓
Improve Supply Conveyance – Regional/ Local*	✓				✓
Identify Water Transfer Opportunities*	✓				✓
IMPROVE WATER QUALITY					
Match Water Quality to Use*			✓		
Improve Drinking Water Treatment and Distribution*			✓		
Implement Pollution Prevention Measures*			✓		
Manage Salt and Salinity*	✓		✓		
Manage Sediment*			✓	✓	
Manage Urban Runoff*			✓		
Remediate Groundwater Contamination Plumes*			✓		

*Table continues on the next page

STRATEGIES	GOALS				
	IMPROVE WATER SUPPLY RELIABILITY	BALANCE FLOOD MANAGEMENT AND INCREASE STORMWATER RECHARGE	IMPROVE WATER QUALITY	IMPROVE HABITAT AND OPEN SPACE	ADDRESS CLIMATE CHANGE THROUGH ADAPTATION AND MITIGATION
IMPROVE FLOOD MANAGEMENT					
Manage Flood Risk*		✓			
PRACTICE RESOURCES STEWARDSHIP					
Continue Basin Management in Local Groundwater Basins	✓				✓
Develop Watershed Management Projects and Programs*			✓	✓	✓
Identify Corridors for Species				✓	
Restore Ecosystems*		✓		✓	✓
Protect Recharge Areas*	✓	✓	✓	✓	
Implement Agricultural Lands Stewardship*		✓			
Continue Forest Management and Hazardous Fuels Reduction*		✓	✓	✓	✓
Coordinate Land Use Planning and Management with Water Resources Management*		✓	✓	✓	
Incorporate Environmental Opportunities and Constraints into the Design Process for Facilities				✓	
Incorporate Opportunities to Improve Habitat and Increase Recreation and Public Access During the Facilities Design Process				✓	
Participate in the SAWPA Basin Management Task Force			✓		
PEOPLE AND WATER					
Provide Economic Incentives*	✓	✓	✓	✓	
Support the Bay-Delta Conservation Plan	✓		✓		
Increase Outreach and Engagement*	✓		✓	✓	✓
Maintain and Improve Water-Dependent Recreation*				✓	
Consider Water and Culture*	✓		✓	✓	

* CWP RMS

6.4.2 Description of Water Management Strategies

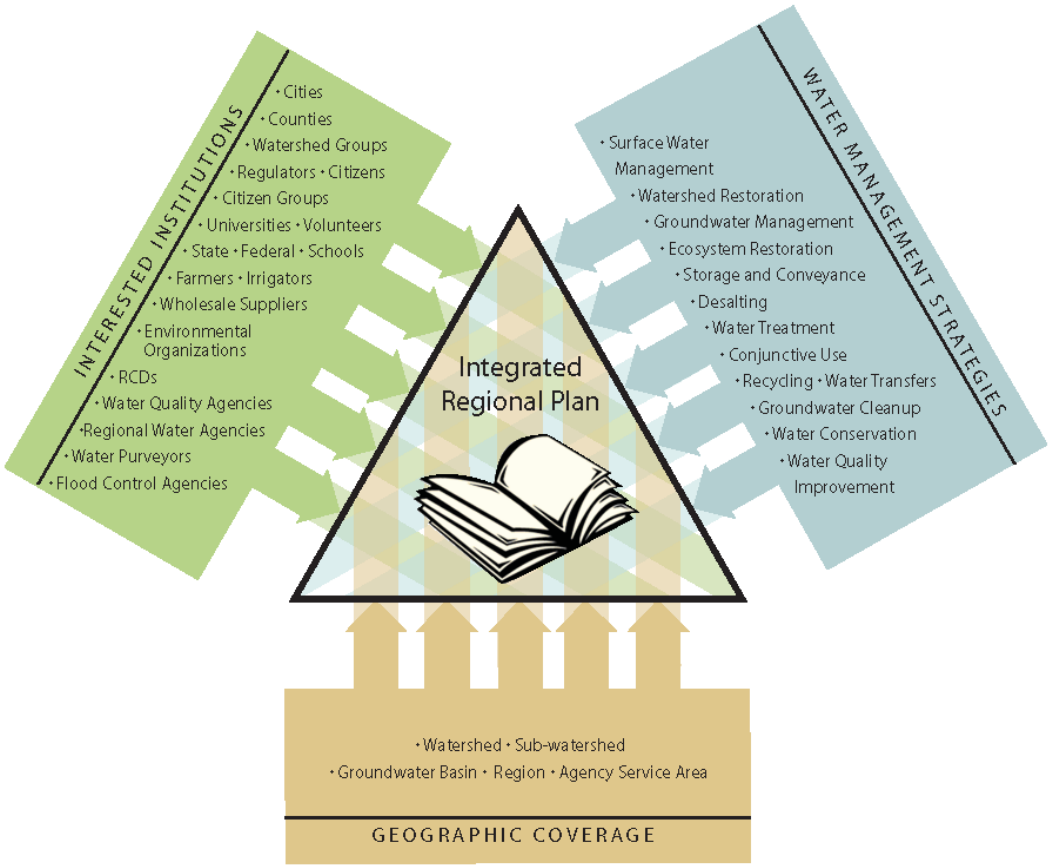
The water management strategies selected for inclusion in the IRUWMP are described in detail in **Part 3 Appendix I**.

6.4.3 Integration of Water Management Strategies

Integrated planning encourages broad investigation of the interrelated strategies and implementation of projects that provide multiple benefits. Integrated regional water management planning brings various water interests, stakeholders, and institutions together to plan for future management and use of resources in a large geographic area (**Figure 6-2**). The BTAC recognized from the beginning of the planning process that management of groundwater resources, surface supplies, stormwater, and imported water are inseparable and intrinsically interrelated. It is also recognized that water quality plays a critical role in management of groundwater basins and groundwater conjunctive use implementation.

As described throughout this Section, several strategies can provide multiple benefits to the Region. In addition, interrelated water management strategies can be incorporated into planning and project implementation so that they work together in an integrated fashion. Some examples of such integrated planning are discussed below.

Figure 6-2: Integrated Planning



6.4.3.1 Integration of Local Surface Water and Groundwater Resources Strategies

Groundwater provides most of the water supply to the Region and groundwater basins are used for water storage to augment the highly variable local surface water supplies during dry periods. To maintain water supply reliability in the Region, surface water and groundwater resources must be integrated and optimized. When surface water is available it should be used for recharge as well as direct use. In addition, the Region should work to capture and recharge more surface water in any given year. These goals can be achieved through integration of surface water and groundwater strategies.

6.4.3.2 Integration of Stormwater Management, Flood Management, Water Supply Reliability, and Surface and Groundwater Quality

Although stormwater can cause flooding, with proper management it could provide a source of water supply to the Region. Improvement in the management of stormwater can help the region achieve multiple objectives while integrating multiple strategies. Generally speaking, stormwater is captured and conveyed to detention basins to reduce peak flood flows and reduce flood damage. However, these detention basins can also be designed to settle the suspended sediment and pollutants out of the water, increase groundwater recharge, and possibly provide wildlife habitat. Use of stormwater for groundwater recharge and use of flood control detention basins for groundwater recharge during the non-flood seasons are strategies that have been used within the Region and should be further enhanced to improve water supply reliability and groundwater quality.

The San Bernardino County Santa Ana River Watershed Stormwater Resource Plan (SWRP), prepared in 2018, is a regional, watershed-based plan for management and improvement of stormwater resources within the Santa Ana River Watershed portion of San Bernardino County. The SWRP was prepared in line with guidance set forth by the SWRCB and has been reviewed and approved by SWRCB staff. The SWRP largely covers the same area covered by this IRUWMP, and relevant information has been incorporated into this IRUWMP.

The SWRP is included as Part 3 Appendix D.

Figure 6-3. Integration of Flood and Stormwater Managements Strategies

6.4.3.3 Integration of Water Supply and Reliability and Water Quality Strategies

Contamination plumes present a challenge and constraint for management and use of groundwater resources in the Region. An integrated approach has been taken to clean the plumes, which will eventually remove them as a constraint and improve water supply reliability for water users. Wherever possible, cleanup projects should seek to speed the cleanup of a contamination plume by pumping and treating water from key locations in the plume. This type of strategy can expedite the clean-up process.

6.4.3.4 Integration of Imported Water and Local Water Supplies and Strategies

The Region has a significant public investment in, and is dependent upon, imported water to meet its water needs into the future. However, the SWP can be unreliable. To improve the reliability of SWP water supply, the Region should take delivery of its entire Table A amount each year and store any "leftover" amount that is not used directly by the local water agencies. The water could be stored within local groundwater basins or in a "water bank." By storing as much SWP water as possible during "wet" years, the Region will have that water available during drought periods.

6.5 Consistency with Statewide Objectives

As mentioned throughout this IRUWMP, the planning process has been developed and implemented taking into consideration DWR's IRWM 2019 Guidelines. The Region's objectives are consistent with the Statewide Priorities laid out in the Guidelines, as shown in

Table 6-2.

Table 6-2: Comparison between Plan Objectives and Statewide Priorities

	STATEWIDE PRIORITIES[1]								
OBJECTIVES	MAKE CONSERVATION A CALIFORNIA WAY OF LIFE	INCREASE REGIONAL SELF-RELIANCE AND INTEGRATED WATER MANAGEMENT	ACHIEVE THE CO-EQUAL GOALS FOR THE DELTA	PROTECT AND RESTORE IMPORTANT ECOSYSTEMS	MANAGE AND PREPARE FOR DRY PERIODS	EXPAND STORAGE CAPACITY AND IMPROVE GROUNDWATER MGMT	PROVIDE SAFE WATER FOR ALL COMMUNITIES	INCREASE FLOOD PROTECTION	INCREASE OPERATIONAL AND REGULATORY EFFICIENCY
1a. Comply with conservation legislative requirements (AB 1668 and SB 606)	●	●			●				
1b: Increase utilization of local supplies by 20,000 AFY		●	●		●	●		○	
1c: Implement the Santa Ana River Conservation and Conjunctive Use Program (SARCCUP) to increase storage in the SBB by 64,000 AF		●			●	●			○
1d: Improve system resiliency and the ability to respond to emergency supply interruptions by increasing back-up facilities, increasing interties, adding redundant power sources and treatment facilities.		●			●	○	○		
1e: Continue to ensure equitable access to clean drinking water for all communities		●			●		●		
1f: Complete groundwater management plans for the San Bernardino, Rialto-Colton, and Yucaipa Basins		○	○		○	○	○		
2a: Implement 4 MOUs to use flood control retention/detention basins for recharge when not needed for flood control		●	○		●	●		●	
2b: Implement 20 acres of integrated flood projects that also provide multiple benefits, where possible				○	○	○		●	
2c: Continue to ensure equivalent implementation of flood projects in DAC areas and implement at least 1 flood control project in a DAC area							○	●	
2d: Identify 4 urban stormwater capture projects to increase recharge and improve surface water quality		●			●	○		●	
3a: Ensure no violations of drinking water quality standards							●		
3b: Proactively address new constituents of concern as MCLs are developed				○	○	●	●		
3c: Manage total dissolved solids and nitrogen in groundwater					○	●			
4a: Preserve or improve habitat by conserving or restoring 150 acres of riparian, wetland, and permanent water areas.				●				○	
4b: Identify "multi-use" opportunities to increase recreation and public access and identify 4 multi-use projects.				●				○	
5a. Implement local supply and flood control projects to help offset the impacts of climate change	○	●	○	○	●	●		○	
5b. Implement 4 projects to reduce or offset energy consumption or reduce GHG emissions associated with water and wastewater systems.	○		○						
5c. Complete the SBVMWD Climate Adaptation and Resilience Plan		○	○	○	○			○	

● Plan objective directly supports the listed Priority ○ Plan objective indirectly supports the listed Priority

1. Identify Sustainable and Integrated Financing Opportunities was removed because this Statewide Priority is directed towards State agencies and the legislature.

PART 1: REGIONAL CONTEXT

7 Projects

This chapter describes the projects that have been identified to help meet the Region's objectives and the process that will be used to evaluate new projects once the Plan has been adopted.

IN THIS SECTION

- New Project Submittal
- Prioritization and Screening Process

Many projects have been proposed by project sponsors in the Region to implement the water management strategies identified in this Plan to help achieve goals and objectives formulated during the planning process. Most of these projects are integrated and serve multiple strategies. Together, these projects help develop a regional system that would integrate the use of groundwater, SWP water, flood and stormwater, and local surface water to meet the Region's goals and objectives.

A "snapshot" of the project list at the time of this Plan update is presented in **Part 3 Appendix G**. Valley District maintains the project list on behalf of the BTAC and will post the latest version to the Valley District website for public viewing.

7.1 Existing Project List Review

For this Plan update, the existing project list was reviewed by the stakeholders and minor changes to some projects were made to update the name, contact person or estimated cost. Some projects that are no longer being pursued were removed from the list.

The existing project list included some projects that were previously placed on this list as a placeholder and were unranked. These projects were associated with the Upper SAR HCP and are still important to the Region so they were kept on the list as placeholders and will be updated and ranked once the projects are further developed. Any other projects on the existing list that were not updated or deleted by the

The existing project list was reviewed and updated to reflect minor changes. All existing projects were carried forward unless removed by the project proponent.

7.2 New Project Submittal

A Call for Projects was also conducted to solicit new or updated projects for inclusion in the Plan. The project submittal form is included in **Part 3 Appendix G**. The project submittal process is an ongoing process that allows for updating projects and including new projects at any time.

7.3 Project Screening and Scoring Process

The BTAC Project Review Subcommittee (Subcommittee) is currently responsible for project screening and prioritization. Water agencies within the area that are not part of the BTAC are also encouraged to participate in development of the project list. The BTAC Subcommittee meets as needed to screen and prioritize any new project submittals based upon the IRUWMP screening and prioritization criteria (**Table 7-1**). At regular meetings of the BTAC members of the full BTAC review the list of projects and provide additional input and collectively decide the Region's priorities for the construction of regional facilities.

To facilitate this task, a two-step prioritization and ranking process was developed. The first step is shown in **Figure 7-2** and consists of a review of the projects to ensure that each project has a sponsor, has stakeholder support, and meets the planning objectives. The projects that do not pass the first step will not be eligible for inclusion on the project list. Project sponsors should self-perform this screening prior to submitting a project. The second step is to prioritize the projects that pass the first step. This is accomplished by scoring the projects using the criteria outlined in **Figure 7-2**. It is important to note that project ranking is a "snapshot in time" and that project rankings will adjust as the projects are further developed.

After being scored, projects are prioritized in order of score. The 2015 IRWM Plan included a third process to rank the projects into categories; however, the stakeholders decided to eliminate that step and allow the project scores alone to indicate priority.

Highly scored projects generally meet many of the following criteria, which will result in a higher score based on the criteria shown in **Table 7-1**.

A detailed list of projects and the corresponding ranking scores available at the time this Plan was finalized are provided in **Appendix J**.

Figure 7-1: Project Submittal and Review Process

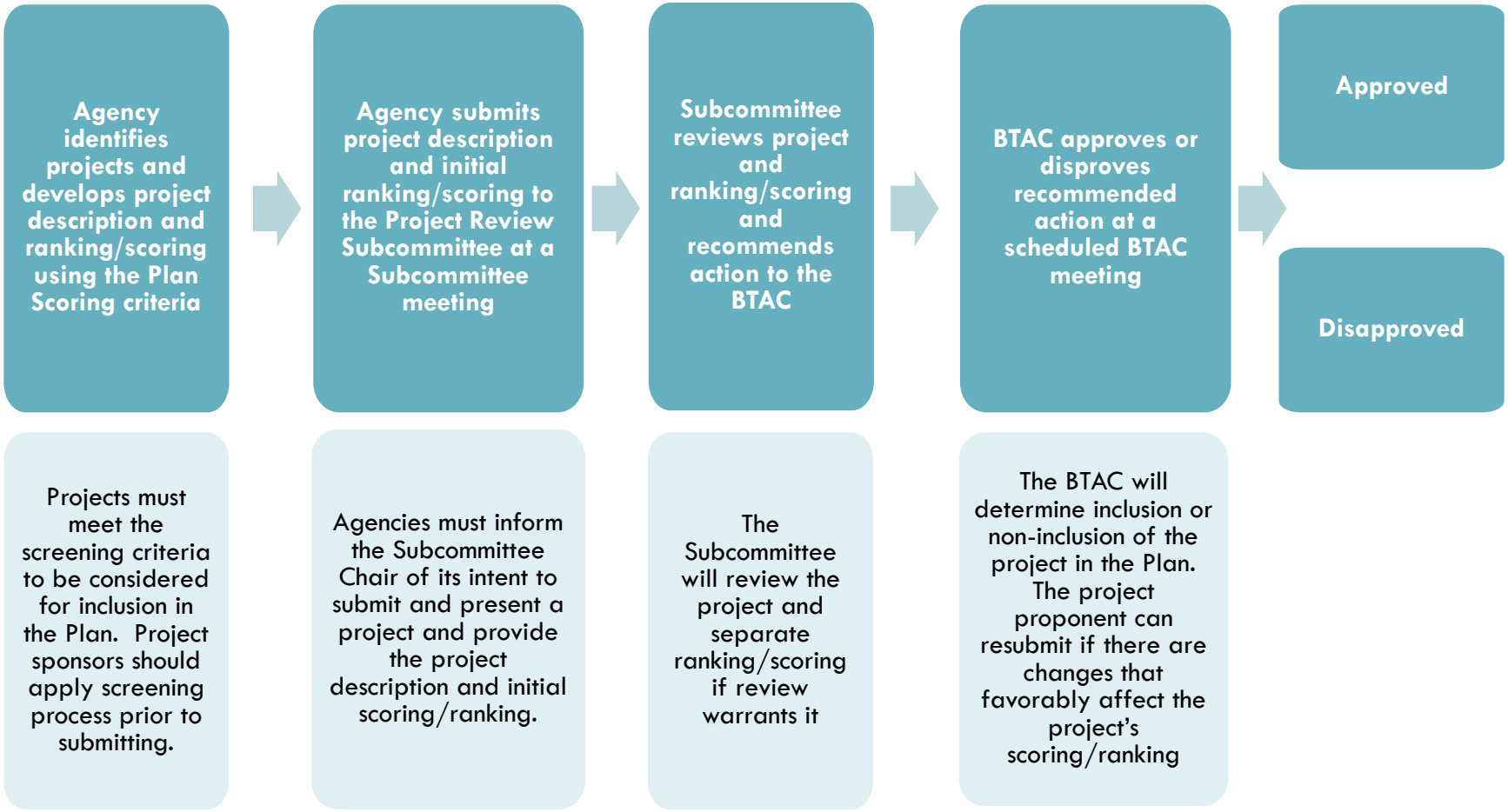


Figure 7-2: Project Screening Process

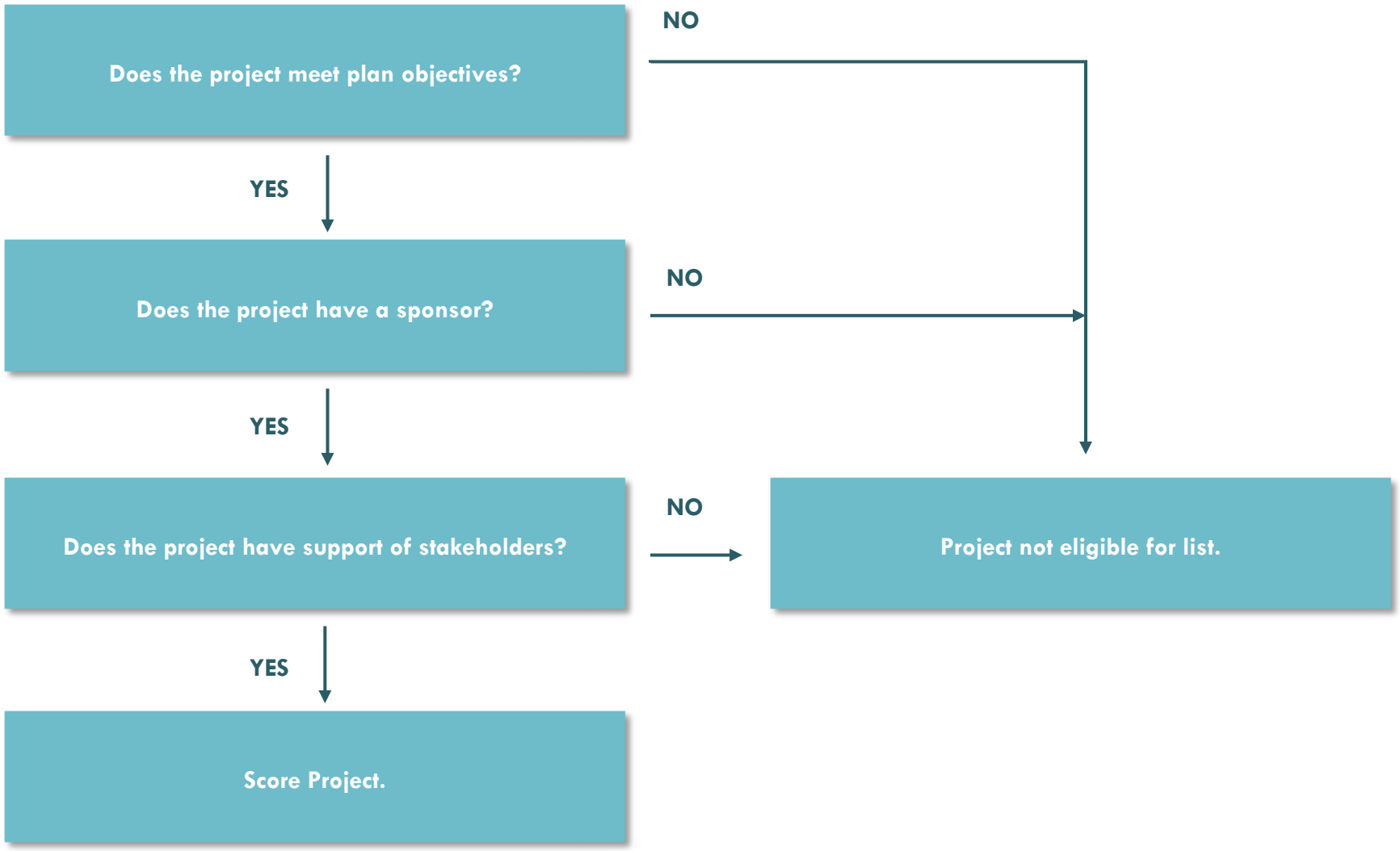


Table 7-1: Project Scoring Criteria

	CRITERIA	SCORING
PROJECT EFFECTIVENESS	1 – Meet Plan Objectives	+1 for one objective +2 for each additional objective (up to four additional objectives)
	2 – Supports Integration and Multiple Water Resource Management Strategies	+1 for single strategy +5 if integrated (the projects has multiple benefits) +8 if integrated and supports multiple strategies
	3 – Technical Feasibility of the Project	+1 if knowledge of location and of the water system is demonstrated, or +4 if knowledge of location, of the water system, and the material, methods, or processes proposed to be employed in the project is demonstrated based on the project description. +6 if plans or reports have been prepared that demonstrate project feasibility.
	4 – Regionality/Multiple Agencies	+0 project that only serves single agency +3 project that combines the projects of up to three agencies +5 project that combines projects from more than three agencies
PROJECT COMMITMENT	5 – Project Status	+1 limited information +3 completed feasibility or pre-design documents +5 environmental and feasibility and detailed scope of work and budget completed
	6 – Project Costs and Financing	+0 no funds +2 10% funding +3 50% funding +5 90% or more funding

OTHER CRITICAL PROJECT CONSIDERATIONS

7 – Economic Feasibility	+1 limited information +3 completed feasibility and cost benefit analysis +5 strong tie to water quality and water supply benefits and other benefits and costs
8 – Has Project Proponent Adopted or Plan to Adopt the Latest Updated Plan	+0 No +3 Yes
9 – Consideration of Environmental Justice Concerns (Tribes/DACs)	+2 demonstrates specific benefits to critical DAC water issues, or +2 demonstrates specific benefits to critical Native American tribal communities, or +2 demonstrates consideration of Environmental Justice concerns. A total of +6 if project addresses all three.
10 – Adapting to the Effects of Climate Change	+0 increases energy usage +2 no increase in energy usage +4 reduces energy usage
11 – Reducing Greenhouse Gas (GHG) Emissions	+0 no reduction in GHG emissions +2 consideration of options for carbon sequestration +4 demonstration of significant reduction in GHG emissions through a GHG emissions analysis
12 – Reduce dependence on Delta[1]	+0 no reduction in Delta water +2 demonstration of some reduction in Delta dependence +4 demonstration of significant reduction in Delta dependence

1. This criterion is required by the IRWM Guidelines. The Region's approach to meeting this criterion is to diversify the overall water portfolio by investing in water use efficiency, water recycling, advanced water technologies, local and regional water supply projects, and improved regional coordination of local and regional water supply efforts.

7.4 Coordination with SAWPA OWOW Project Submittal Process

The Project submittal process for this Plan is independent of the SAWPA OWOW Project Submittal process.

If SAWPA releases a Call for Projects related to a specific grant funding opportunity (such as the upcoming Proposition 1 IRWM Round 2 Implementation Grant), proponents will need to submit information to SAWPA that meet the requirements of the specific funding program.

PART 1: REGIONAL CONTEXT

8 Implementation, Performance and Adaptive Management

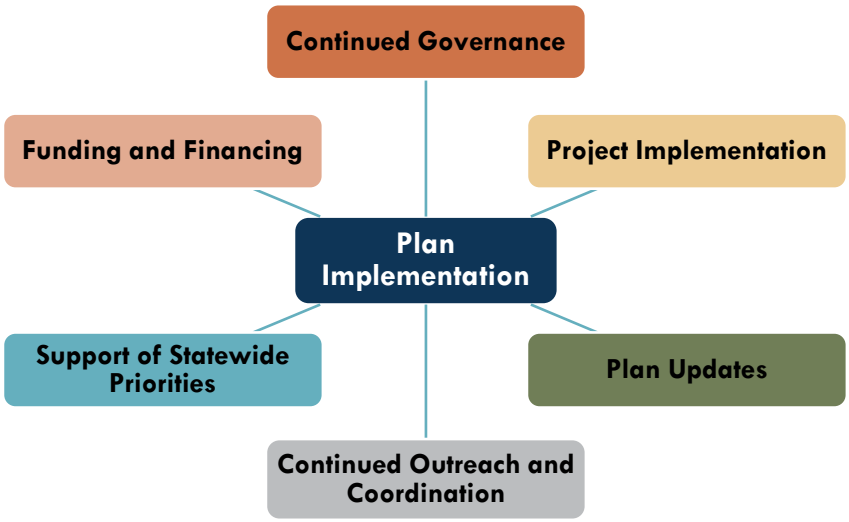
This chapter provides the roadmap for accomplishing the Region's objectives and implementing projects included in the Plan.

The BTAC has already made significant progress implementing the Plan. To date, the agencies located within the Region have been successfully implementing their strategies along with projects and are continuously monitoring progress toward their goals and objectives. The Region plans to continue within its current governance structure and in some cases improve upon Plan implementation as described in the sections below. The elements of plan implementation are shown in Figure 8-1.

IN THIS SECTION

- Governance, Outreach and Coordination
- Project Implementation
- Impacts and Benefits

Figure 8-1. Implementation Components



8.1 Continued Governance, Outreach and Coordination

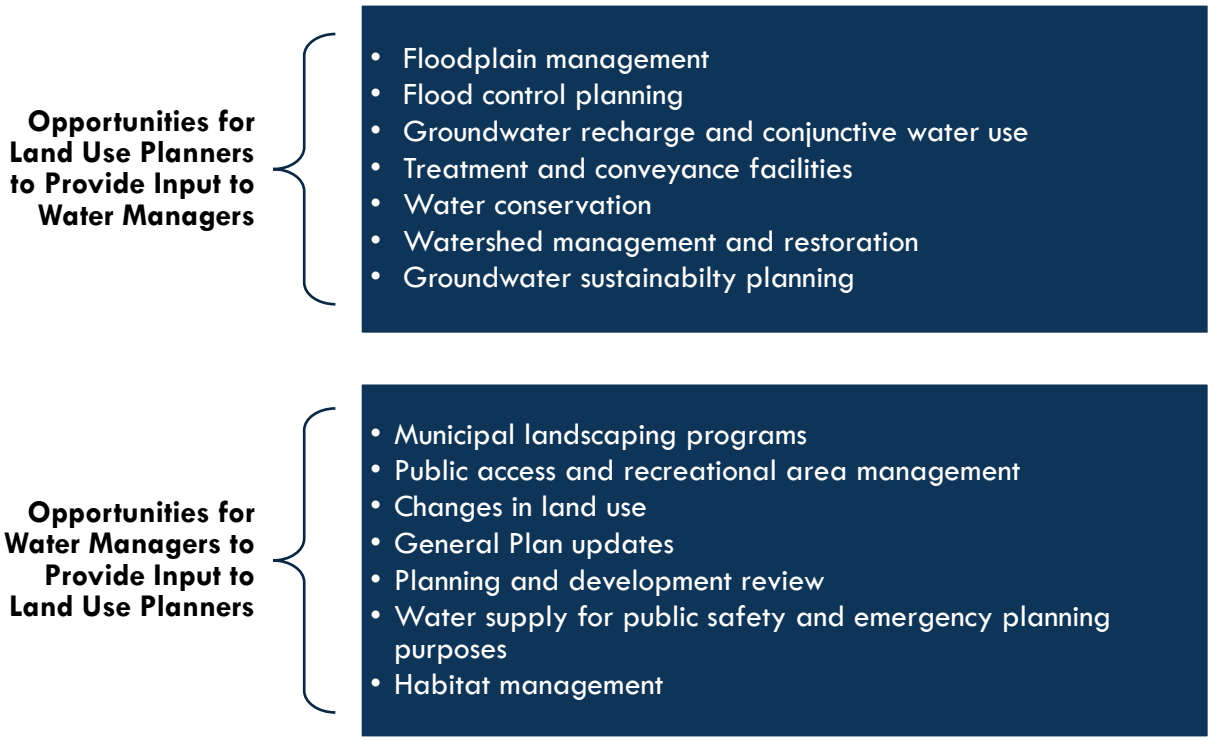
The responsibility for implementation of the Plan will continue to be guided by the BTAC agencies, all of whom participated in the planning process and prepared this update of the Plan. The implementation responsibility will continue to be shared among the BTAC agencies based upon the jurisdiction of each responsible entity. The Region will continue its current governance structure, which has proven itself to be effective since the implementation of the 2007 IRWM Plan, as well as with other regional water resources planning efforts such as management of the SBB and the Santa Ana River watershed.

Continued outreach and coordination with regional stakeholders and other planning efforts will be key to implementing this Plan. In keeping with the Region's efforts to involve stakeholders in its regional planning efforts, the Region will continue to provide the IRUWMP, an up-to-date project list, and information on BTAC meetings such as meeting announcements, agendas, and materials available on Valley District's website. Additional information may be posted as appropriate, such as Plan performance data and information on how to become involved with the BTAC. Valley District will be responsible for creating and maintaining the website, though the BTAC will contribute to provide information.

As the IRUWMP contains vetted information on the Region's environment, potential climate change impacts, water supply and demand, and water management goals and performance measures, the Plan will be used to inform other water resources planning documents such as groundwater management, flood protection, watershed management, and water quality plans. The regular collection of plan performance and monitoring data allows for the information in the Plan to be easily updated at least every five years.

The BTAC will continue to look for opportunities to coordinate with land use planning efforts and incorporate land use planning issues and strategies into water management decisions. Though agencies in the BTAC already take part in the San Bernardino Countywide Vision Project water element, there may be additional opportunities for involvement of land use planners with water resources planning, such as those opportunities shown in **Figure 8-2.** To further assess these opportunities, the Region will identify land use authorities and meet with them to discuss coordination opportunities. Once opportunities have been identified, the BTAC will work with the land use authorities to determine how to incorporate issues and strategies from land use planning into water management plans. Further coordination efforts may also include conducting regular meetings between water managers and land use planners, inviting land use planners to BTAC meetings, or even including land use planners in the BTAC.

Figure 8-2: Opportunities for Coordination Between Land Use Planning and Water Management



8.2 Project Implementation

Project implementation is the responsibility of each project sponsor. For projects funded through IRWM-related grant programs, the BTAC will work with regional agencies to coordinate, apply, receive, and distribute the grant funding for project implementation. Projects formulated for the IRWM Plan must periodically be updated and reprioritized, as new projects may be introduced for screening and prioritization. Activities necessary to update and prioritize projects will continue to be the responsibility of the BTAC Project Review Subcommittee. Project implementation responsibilities include coordination with the appropriate local, state, and federal agencies to prepare and complete necessary environmental documents and to pursue opportunities to fund the projects that are under their jurisdiction, consistent with the IRUWMP.

8.2.1 Funding and Financing

The Region plans for and secures funding and financing to implement the Plan, including ongoing integrated, regional program management activities and project development and implementation. These components have specific activities, which are shown in Figure 8-3

.

Figure 8-3: IRWM Funding and Financing Activities

8.2.2 Funding and Financing Options

While regular BTAC meetings and other integrated, regional program operations generally rely on in-kind staff time and occasional assessments, project implementation may require a wider variety of funding options. Depending on the characteristics and scope of a particular project, some activities and projects currently identified in the IRUWMP and future activities will likely be contingent on securing funding from federal, state, and/or local sources. Therefore, it is important for the BTAC, in coordination with project sponsors, to develop a financing plan that identifies funding sources and further refines priorities for project implementation. In addition, the agencies should actively engage in obtaining grant funding to assist in project implementation.

Potential funding sources include water rates; assessments, fees, and taxes; loans and grants; and bonds. Methods for collecting this funding include in-kind time provided by BTAC agencies and project sponsors, as-needed assessments, and applying for loans and grants. The following summarizes project funding approaches to date, as well as anticipated funding strategies.

Federal Funding

The federal grant funding sources are currently limited. The U.S. Bureau of Reclamation's (Reclamation) WaterSMART (Sustain and Manage America's Resources for Tomorrow) provides funding for water management programs and projects in the western United States. This grant program might help fund the implementation of actions to increase water supply through investments to modernize existing infrastructure. Reclamation also provides funding for water recycling programs in Southern California. The U.S. Environmental Protection Agency (EPA) provides funding for environmental improvement projects. In addition, funding can be directed for implementation of projects under the Plan, through the Federal Energy and Water Development Appropriations legislation.

State Grant Funding

State funding may be a significant source of funding for implementation of the Plan.

Current key State funding sources include the following:

- DWR's Proposition 1 IRWM Program, which provides funding for implementing multi-benefit projects that are included in IRWM Plans of DWR-accepted IRWM Regions (including the SAWPA Region, which the USARW Region is a part of)
- DWR's Sustainable Groundwater Management (SGM) Implementation Program, which provides funding for sustainable groundwater planning and implementation projects
- DWR's Desalination Grant Program, which provides funding to conduct research, feasibility studies, pilot projects or construction of desalination projects (both ocean and groundwater)
- SWRCB Water Recycling Funding Program, which provides funding for the planning, design, and construction of water recycling projects

Local Agency Funding

For years, local entities have been implementing cost-effective projects and programs at the local level. In the past, local funding has been used in part or in total to fund local water projects. Today, however, a major constraint in implementing many of the projects in this Plan is the lack of financial capacity and funding availability at the local level. Some of the communities in the Region are economically disadvantaged and they may not be able to finance costly projects. Bond laws generally require local agencies to share the cost of implementing their project unless the project benefits a DAC, in which case, the community could be qualified for exemption from local cost-sharing requirements.

Financing Plan

As mentioned previously, the agencies in the Region have successfully collaborated in management of their water resources for a number of years, allowing them to come together in 2005 to form the USARW IRWM Region and develop the first IRWM Plan. These efforts have been supported primarily through in-kind time from BTAC agencies and without being

dependent upon outside funding to support the IRWM program. The Region intends to continue operating its IRWM program through local support from in-kind staff time. **Table 8-1** shows the Region's funding and financing plan to achieve the IRWM Program management, project review and prioritization, project grants, project implementation, and planning needs.

Table 8-1: Financing Plan

ACTIVITY	APPROXIMATE COST OR TIME COMMITMENT	FUNDING SOURCE AND PERCENT OF COST	FUNDING SOURCE CERTAINTY/LONGEVITY
IRWM PROGRAM MANAGEMENT			
Regional Program Management • BTAC Meetings • Plan Performance • Intra-regional collaboration • Data Management • Plan Updates • BTAC Water Conservation Subcommittee • Engineering Subcommittee	700 hrs/yr[1]	**In-Kind:** 100% BTAC Agencies **Funds:** BTAC Agencies	• On-going agency staff allocations • BTAC agency operating budget
PROJECT DEVELOPMENT AND IMPLEMENTATION			
Project Review and Prioritization • Subcommittee Meetings	Approximately annually	**In-Kind:** 100% Subcommittee Agencies	• On-going agency staff allocations
Project Grants • Grant Application • Grant Management	Dependent upon specific grant program	**In-Kind:** 100% Project Sponsors **Funds:** Project sponsors	• Contingent on funding available and # of projects • Contingent on grant program success
Project Implementation	Dependent upon type and size of project	**In-Kind:** Project sponsor **Funds:** Project sponsor agencies, grants, and loans	• On-going for the life of the project • Agency funding and staff allocations • Contingent on funding available • Contingent on grant program success
Project Monitoring	Dependent upon type and size of project	**In-Kind:** Project sponsor	• On-going for the life of the project • Agency funding and staff allocations

2. These hours are approximated using the following assumptions: monthly meetings of the BTAC's 14 agencies (3 hours per meeting), development of annual plan performance reports (12 hours per year), annual project review and prioritization by the Subcommittee (12 hours per year), monthly intra-regional collaboration (2 hours per month for one representative to attend SAWPA meetings), monthly data management for Valley District (2 hours per month), Plan Updates every 5 years (800 hours, annualized to 160 hours per year)

8.3 Obstacles to Implementation

The most significant obstacle to implementation of the IRUWMP is funding of capital improvement projects. Steps that can be taken to remedy funding obstacles include obtaining grant funding and forging partnerships to fund major projects. No other insurmountable obstacles to implementation of the Plan have been identified. As described earlier, the agencies within the Region have successfully worked together in the past on the development and implementation of projects and programs to improve the water resources management within the Region. Working together, these agencies have developed successful relationships, enabling them to accomplish tasks that satisfy the varied interests within the Region. Developing these initial relationships, trust, and accountability among the participating groups is one of the biggest challenges to any regional cooperation. The stakeholders and interested parties within the Region can continue to successfully work together to implement future projects to improve the water resources management for the citizens of the Region.

8.4 Impacts and Benefits of the Plan

The Region has evaluated the impacts and benefits of implementation of the Plan, and considered all objectives, strategies and projects included as a part of the Plan. Given the integrated nature of the Plan, it is difficult to determine any specific benefits or disproportionate impacts to DACs or create environmental justice concerns. It is assumed that all projects will complete the State and/or federal environmental documentation necessary to fully analyze any project-specific impacts that may occur, including those to DACs or any environmental justice concerns.

8.4.1 IRUWMP Benefits

One of the most significant benefits of the Plan is the planning process itself. The process creates a cooperative environment among all agencies in the Region, which meet on a regular basis to discuss the water management issues and plan for meeting future water needs of the Region. The agencies worked together to develop solution-oriented programs, they forged agreements, and they work together to provide the most basic and essential service to the communities—serving water. The planning process provides a framework for evaluation and update, as needed, of regional and integrated solutions.

Full implementation of the Plan will result in multiple benefits associated with meeting the objectives identified.

Key public and overall benefits from implementation of the plan elements include the following:

- Continued commitment to a diverse water supply portfolio that includes investment in both local water supplies and imported water supplies.

- Continued commitment to 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.
- Continued commitment to water quality through effective management of groundwater resources, expediting the cleanup of contaminant plumes in the Region, and improving stormwater management.
- Continued commitment to flood protection.
- Plan to address climate change vulnerabilities including reduced GHG emissions and energy usage.
- Continued commitment to distribute and serve high quality water to disadvantaged communities.
- Continued commitment to environmental stewardship.
- Enhancement of water-dependent environmental assets.
- Continued commitment to water-related education, recreation, and public access opportunities in the Region.
- Continued commitment to understanding of the Region's water resources, including focused regional monitoring to ensure groundwater is used in a sustainable manner.
- Continued commitment to coordination of water management activities of the Region through sharing of ideas and mutually beneficial management of project opportunities.
- Continued commitment to coordinated development of water management strategies and associated projects.
- Continued commitment to preparation for a disaster.

The aforementioned benefits will be realized both within and outside of the Region as neighboring areas can benefit through inter-regional collaboration with SAWPA, as well as collaboration with agencies that overlap larger area, such as Western.

8.4.2 IRUWMP Impacts

The potential negative impacts from implementing most of the projects in the Region's Plan are anticipated to be primarily short-term facility construction impacts. It is proposed that conjunctive water management projects include a monitoring and assessment element to evaluate the impacts of project implementation. Monitoring and assessment elements will provide tools to evaluate and modify project operation to mitigate potential impacts.

8.4.3 Environmental Documentation and County Ordinance Compliance

Permitting and environmental documentation will be required for new project facilities in accordance with federal, state, and local laws and ordinances. The project-specific

environmental compliance will be performed by project sponsors on a case-by-case basis prior to project construction. Impacts and benefits of the proposed actions will be further assessed. All actions and investigations will be coordinated with local, state, and federal agencies to share information and ensure compliance with applicable laws and ordinances.

8.5 Adaptive Management

The IRUWMP represents the current state of water resources planning in the Region, based upon available information, and recognizes that water management strategies will continue to evolve in response to changing conditions over the next five years before the plan is again updated. The IRUWMP incorporates an adaptive approach that allows the Plan to stay current in light of changing conditions, such as local and regional water needs and changing regulatory requirements.

Given changing conditions, the planning process is continually evolving and developing additional data that improve the Region's understanding, which may redefine objectives and priorities to respond to these changing conditions.

The adaptive management framework is based on an iterative process of:

- Collecting information and data regarding the conditions within the Region
- Evaluating the new data to determine plan/project performance
- Formulating a plan in response to these changing conditions

Using data collected and monitored as part of IRUWMP performance tracking discussed in Section 8.5.2 the BTAC will review issues and needs and re-evaluate its objectives and strategies upon changing conditions. This process will allow the Region to proactively manage its available resources, including making investments in the planning and implementation of new projects and programs. This includes preparation of periodic updates of the IRUWMP to respond to changing conditions (including climate change and the re-evaluation of any impacts and benefits) through a continued working relationship with the BTAC, and to inform project participants and stakeholders about changes to the IRUWMP.

8.5.1 Plan Performance

To monitor that the Region is making progress towards implementing its Plan, it reviews and tracks Plan performance in two areas:

Plan Objectives

The Region tracks progress in meeting the Plan's objectives by tracking its various performance measures over time

Project Monitoring

The Region uses each project's monitoring plan to track performance of implemented projects

8.5.1.1 Plan Objectives Monitoring

The BTAC is responsible for monitoring progress in meeting IRUWMP objectives on a periodic basis and including the data as a part of the data management system described in the **Section 8.5.2.2**.

The results of monitoring are presented at BTAC meetings and are incorporated into regular IRUWMP updates to help the Region re-evaluate needs, objectives, and strategies. In addition, progress in meeting IRUWMP goals will be reported annually to the San Bernardino Valley Municipal Water District Advisory Commission on Water Policy and every year to the BTAC in a Report Card format.

The Region developed a number of performance measures that can be used to measure progress in meeting the objectives, and are shown in Table 8-2.

Table 8-2: Objectives and Performance Measures

OBJECTIVE	PERFORMANCE MEASURE
1a: Comply with conservation legislation requirements (AB1668 and SB606)	• Volume of water used per person or acre (to be defined by water use objectives to be set by the State)
1b: Increase stormwater capture and recycled water use by 20,000 AFY	• Volume of stormwater to be captured by new or expanded recharge basins • Volume of recycled water used through new non-potable uses or for new recharge projects
1c: Implement the Santa Ana River Conservation and Conjunctive Use Program (SARCCUP) to increase storage in the SBB by 64,000 AF	• Volume of water recharged to groundwater basins in wet years as reported in Groundwater Storage Reporting
1d: Improve system resiliency and the ability to respond to emergency supply interruptions	• Number of new interties constructed • Number of back-up facilities constructed • Number of emergency power sources installed • Number of redundant treatment systems implemented • Volume of new emergency storage constructed • Number of mutual aid agreements in place • Number of emergency preparedness exercises participated in by agencies
1e: Continue to ensure equitable access to clean drinking water for all communities	• Number of households participating in low-income support programs provided by retailers
1f: Complete groundwater management plans for the San Bernardino, Rialto-Colton, and Yucaipa Basins	• Groundwater management plans completed
2a: Complete necessary agreements to use flood control retention/detention basins for recharge in the San Bernardino, Rialto-Colton and Yucaipa Basins when not needed for flood control	• Number of MOUs implemented to use flood control retention/detention basins for recharge
2b: Implement 20 acres of integrated flood projects that also provide multiple benefits, where possible	• Acres of new integrated flood projects constructed
2c: Continue to ensure equivalent implementation of flood projects in DAC areas by implementing at least one flood control project in a DAC area.	• Development of a map of areas experiencing flooding issues • Number of flood control projects implemented in DAC areas
2d: Identify 4 urban stormwater capture projects to increase recharge and improve surface water quality	• Number of urban stormwater capture projects implemented
3a: Ensure no violations of drinking water quality standards	• Number of drinking water quality standard violations reported in Consumer Confidence Reports and/or to the SWRCB • Number of boil water or "do not drink" orders
3b: Proactively address new constituents of concern as MCLs are developed	• Volume of groundwater treated to address contaminant plumes • Pounds of contaminants removed from groundwater through treatment
3c: Complete a Salt and Nutrient Management Plan for the region	• Progress made in developing a Salt and Nutrient Management Plan
4a: Preserve or improve habitat by conserving or restoring 150 acres of riparian, wetland, and permanent water areas	• Acres of riparian, wetland and permanent water areas preserved or improved
4b: Identify "multi-use" opportunities to increase recreation and public access and identify 4 multi-use projects	• Acres of multi-use projects implemented
5a: Implement local supply and flood control projects to help offset the impacts of climate change	• Projects implemented that address or manage climate change impacts
5b: Implement 4 projects to reduce or offset energy consumption or reduce GHG emissions associated with water and wastewater systems	• Number of projects implemented that reduce or offset non-renewable energy use or GHG emissions associated with water or wastewater systems • Decrease in the energy intensity of water supplies in kWh/AF
5c: Complete the SBVMWD Climate Adaptation and Resilience Plan (CARP)	• Completion of the CARP

8.5.1.2 Project Monitoring

Implementation of the projects selected for inclusion in the IRUWMP will help the Region to meet its objectives. To track this information, project sponsors will be responsible for preparing a monitoring plan for their project. Information similar to that which is included in a Project Assessment and Evaluation Plan (PAEP) would be developed for projects prior to implementing the project.

The goals of a PAEP are as follows:

- To provide a framework for assessment and evaluation of project performance,
- To maximize the value of public expenditures to achieve results,
- To identify measures that can be used to monitor progress towards achieving project goals, and
- To provide information to help improve current and future projects.

The monitoring plan will be based on project-specific information, and will:

- Describe project characteristics and the project sponsor
- Demonstrate consistency with local planning documents such as the Plan
- Identify project goals and link goals with desired outcome
- Select performance indicators
- Identify expected benefits and impacts
- Determine outcome indicators (site-specific, regional, and system-wide)
- Identify/implement monitoring needed to evaluate a project's performance, including frequency, locations, and protocols/methodology
- Identify procedures to keep track of what is monitored and ensure the monitoring schedule is maintained and adequate resources (including funding) are available
- Analyze and assess data
- Evaluate overall success of the project
- Communicate the results to the BTAC

Project proponents will be responsible for providing data collected through project monitoring to the BTAC for use in tracking progress in meeting objectives.

8.5.2 Data Collection and Monitoring

The Region has a long history of collecting and monitoring data to allow effective management of its water resources. These efforts have been incorporated into the IRUWMP to support

regional data collection, integrate with other regional and statewide programs, and identify data gaps.

8.5.2.1 Data Collection and Monitoring Efforts

An extensive network of data collection and monitoring is already in place in the Region.

Currently, the following data are being collected in the Region:

Groundwater data

Groundwater monitoring is in place for measuring groundwater production, water quality, and water levels representative of the various subbasins.

Stream gage data

Stream gages in the Region are operated by either the USGS or the SBCFCD and allow for stream flow data to be collected throughout the watershed.

Drinking water quality data

Water quality data collected by water purveyors for all sources of water. These data are periodically monitored according to Title 22 and are required by the SWRCB Division of Drinking Water (DDW).

Water supply and demand data

Water supply and demand data are reported by water purveyors and will be provided in this Plan every five years as required by DWR.

Energy Use

Energy use for water supply conveyance and treatment is estimated by water purveyors in this Plan every five years as required by DWR.

General Plan land use

Information on land use is available through city and county general plans and are updated, as necessary.

Santa Ana River flow data

Santa Ana River Watermaster Reports contain information on flows and status in meeting flow requirements.

Project monitoring reports

As discussed previously, project sponsors are asked to collect monitoring data on their implemented projects and communicate the results to the BTAC.

Surface and ground water quality data

SWRCB regularly updates its Integrated Reports and 303(d) lists of quality impaired waters.

To track all of the performance measures listed in **Table 8-2**, it may be necessary to collect and monitor additional data not currently collected on a regular basis.

These data needs include:

- GHG emissions from treatment and conveyance of water resources
- information regarding changes in flood plain area
- additional stream gages to improve flows in key areas to improve stormwater capture (such as above Seven Oaks Dam)
- ongoing groundwater quality mapping to track changes in quality as treatment projects are put into place.

A monitoring plan has been developed for the Region as a component of the IRUWMP to formalize and standardize data collection procedures that focus on groundwater and surface water.

The objectives of the monitoring plan are to:

- Provide a standard methodology for the collection, storage, and reporting of hydrologic data.
- Document the collection of data needed for management of the groundwater basin to meet the requirements of various judgments. In the SBB and other adjudicated basins, the Watermaster is responsible for collection, review, and compilation of the data needed for management of the basin and for providing a level of coordination among many water users. Similarly, the Yucaipa Sustainable Groundwater Management Agency is responsible for collecting, analyzing, and reporting the data needed to sustainably manage the Yucaipa Subbasin.
- Provide the data needed for developing the “Annual Operation Plan” for management of the SBB.
- Provide standardized procedures to collect source water data that agencies use to meet requirements of the SWRCB DDW drinking water standards.

Remaining data not collected as a part of this monitoring plan is expected to come from existing databases and monitoring efforts with established procedures. The Region assumes that the agencies performing these data collection and monitoring efforts have procedures in place to ensure accuracy of the data and that appropriate quality control has been completed prior to upload to data to storage in electronic databases and spreadsheets.

Collection of project-specific monitoring will be the responsibility of the agencies implementing the project.

8.5.2.2 Data Management

Data that is collected is stored, organized, and secured in electronic databases and spreadsheets by the agency responsible for the data.

Data collected in the Region will be available to the stakeholders, DWR, and other local and state agencies. Data collected in support of state-funded water quality-related projects will be made available to the SWRCB's Surface Water Ambient Monitoring Program and Groundwater Ambient Monitoring and Assessment Program. Valley District collects and reports water level data to the California Statewide Groundwater Elevation Monitoring (CASGEM) program for the Bunker Hill, Rialto-Colton, and Yucaipa Subbasins. Groundwater data for basins affected by SGMA is also available via DWR's SGMA Portal.

Data collected each year is used in a variety of different reports, including the BTAC management plan which is completed on an annual basis. Overall progress in meeting each IRUWMP objective will be reported annually in the Report Cards and every five years as a part of regular IRUWMP updates.

8.5.3 Periodic Review and Update Process

To keep the IRUWMP current, it should be refined as necessary, but no less than every five years. These refinements will be the result of knowledge gained through implementation of the IRUWMP. The BTAC will assume responsibility for making updates to the IRUWMP. Reviews and updates will focus on analyzing new information developed since the adoption of the previous IRUWMP and the need for specific water management actions. The reviews would identify areas where the IRUWMP has been successfully implemented, as well as areas where deficiencies are apparent. Potential additional planning needs identified through the IRUWMP preparation process that may be considered as part of future updates include: a more detailed understanding of DACs, SDACs and under-represented communities within the Region; development of a climate change adaptation and resilience plan; development of an online system for the collection of project benefits data; and development of a region-specific website that exists outside of an agency's website. The BTAC will continue to coordinate the regional planning activities of the IRUWMP as needed, and coordinate with other IRWM planning efforts surrounding the Region, and with State and federal agencies.

9

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WEST VALLEY WATER DISTRICT

2020 IRUWMP - Draft

Part 2, Chapter 10

WVWD 2020 UWMP

JUNE 1, 2021

Prepared by Water Systems Consulting, Inc.

WSC

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10 RETAIL URBAN WATER MANAGEMENT PLAN
West Valley Water District

This chapter describes information specific to West Valley Water District, its supplies, demands and water use efficiency programs. The information and analysis in this chapter is supplemental to the regional information presented in Part 1 of the 2020 IRUWMP and is provided to meet West Valley Water District's reporting requirements for 2020 under the UWMP Act.

10.1 System Description

West Valley Water District (WVWD) is a County Water District, a public agency of the State of California, organized and existing under the County Water District Law (Division 12, Section 30000 of the Water Code) of the State of California.

WVWD provides domestic water service to customers throughout southwestern San Bernardino County and a small portion of northern Riverside County, as part of the greater San Bernardino-Riverside-Ontario metropolitan area. The service area, approximately 50 miles east of downtown Los Angeles, generally includes the cities of Fontana, Rialto, Colton, Jurupa Valley, Bloomington, and other unincorporated areas of San Bernardino County. WVWD's service area is divided into northern and southern sections, with the central portion in between served by the City of Rialto.

IN THIS SECTION

- System Description
- Water Use
- SBX7-7 Compliance
- Water Supply
- Water Service Reliability
- Drought Risk Assessment
- Water Shortage Contingency Plan Summary
- Demand Management Measures
- Adoption, Submittal, and Implementation

WVWD is a retail public water supplier that meets the definition of an urban water supplier with over 23,000 municipal water service connections in 2020. The District provides potable water service to nearly 90,000 residents, as well as a myriad of commercial, industrial, and institutional establishments.

The District operates a domestic water distribution system that consists of 21 groundwater wells, 25 separate storage reservoirs across eight pressure zones, for a total storage over 72 million gallons (MG), and over 375 miles of transmission and distribution pipelines.

WVWD's service area is shown in **Figure 10-1**.

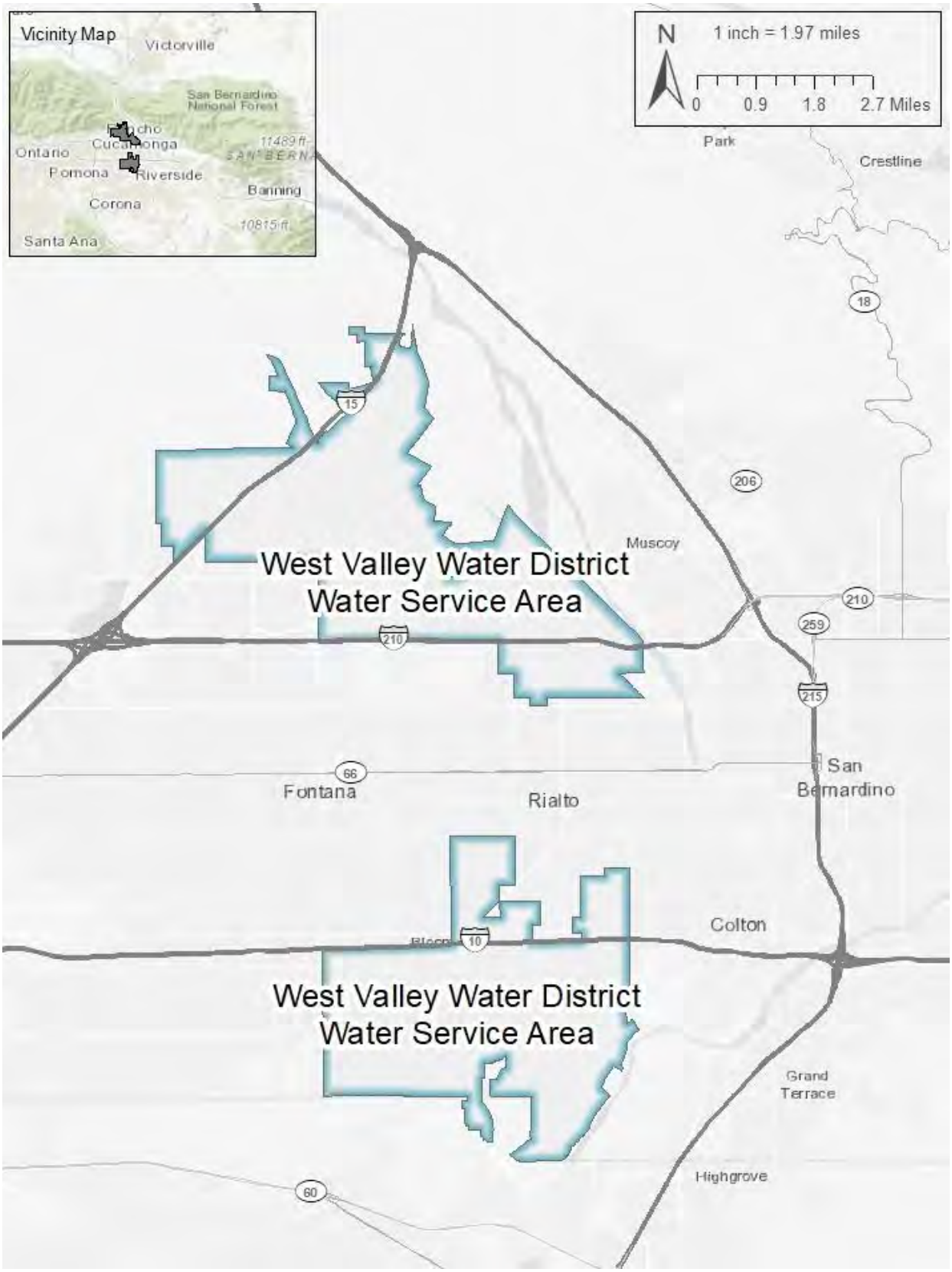


Figure 10-1: West Valley Water District Water Service Area Map

10.1.1 Population

For the purposes of consistent reporting of population estimates, the California Department of Water Resources (DWR) has developed a GIS-based tool (DWR Tool) to estimate the population within a water agency's service area using census data and number of water service connections. The DWR Tool was used to intersect the service area boundary with census data to provide population estimates for 1990, 2000, and 2010. The DWR Tool uses the number of service connections in those prior census years, where available, to calculate a persons-per-connection factor, which is then projected forward to estimate population in a given year using the number of connections in that year. The service area population for 2020 was estimated in the DWR Tool using the number of connections in 2010 and 2020.

To align with population projections in other recent planning documents, the 2020 WVWD Water Facilities Master Plan (WFMP) was used as the basis for estimating the population for future years. The WFMP projected the population in each year from 2018 to 2046, using a growth rate between 4.4% and 3.6% between 2018 and 2023, and a 1.5% growth rate after 2023. Using these assumptions from the WFMP, a uniform geometric growth rate of 2.84% was calculated for the period of 2020 and 2025. The 2.84% annual growth rate was applied to the DWR Tool 2020 population output to determine the 2025 population projection for this UWMP. The 1.5% annual growth rate was applied to the 2025 population projection to determine population projections for each 5-year period after 2025. Estimated 2020 and future year population is shown in **Table 10-1**.

WVWD prepared its WFMP population projection for years 2018-2023 based on District staff's knowledge of upcoming developments as well as land use data. Furthermore, WVWD prepared its population projection for years 2024 through 2046 based on data from the Southern California Association of Governments (SCAG) 2012 Regional Transportation Plan which, with GIS analysis, was used to determine the population growth rate of 1.5% within the WVWD service area. SCAG prepared demographic forecasts based on land use data for their region through extensive processes that emphasize input from local planners and is done in coordination with local or regional land use authorities, incorporating essential information to reflect anticipated future populations and land uses. SCAG's projections undergo extensive local review, incorporate zoning information from city and county general plans, and are supported by Environmental Impact Reports.

As a comparison, a GIS analysis performed on SCAG's population data from the 2020 Connect SoCal Plan resulted in a future growth rate of 1.4% within the WVWD service area, just slightly below the SCAG projection from the 2012 Regional Transportation Plan. WVWD opted to use a future growth rate of 1.5% in order to maintain consistency throughout planning documents and because rapid growth has been occurring in the service area.

Table 10-1: DWR 3-1R Current and Projected Population

POPULATION SERVED	2020	2025	2030	2035	2040	2045
Total	**89,101**	**102,490**	**110,410**	**118,943**	**128,136**	**138,039**

10.1.2 Land Use

Per the 2020 WFMP, 29% of land within the WVWD service area is residential, 2% is commercial, 5% is public and institutional, 20% is industrial, 2% is utilities and other rights of way, 1% is landscape irrigation, 10% is open space, and 31% is vacant and undeveloped land.

10.2 Water Use

This section describes current and projected water uses within WVWD's service area. WVWD serves potable water for municipal and industrial use, and currently does not serve recycled or other non-potable water.

10.2.1 Water Use by Sector

WVWD categorizes its water customers into ten categories for the purposes of billing: Single Family, Multi-Family, Commercial, Industrial, Institutional, Landscape Irrigation, Hydrant, Golf Course, Fire Service, and Agricultural Irrigation. Hydrant connections are not actually permanent service connections but represent the amount of individual accounts that were opened that receive water directly from fire hydrants, such as for construction water. The number of active connections in each category from 2016 to 2020 are shown in **Table 10-2**.

WVWD delivers wholesale water through an interconnection with Marygold Mutual Water Company.

Table 10-2: West Valley Water District 2016-2020 Connections by Customer Class

CUSTOMER CLASS	2016	2017	2018	2019	2020
Single Family	19,385	19,814	20,280	20,759	21,362
Multi-Family	159	159	159	158	179
Commercial	525	532	541	551	571
Industrial	70	70	70	69	67
Institutional	97	97	97	97	95
Landscape Irrigation	343	357	377	396	421
Hydrant[1]	64	73	90	99	88
Golf Course	1	1	1	-	-
Fire Service	300	311	323	343	360
Agricultural Irrigation	10	10	8	8	8
Wholesale Water	1	1	1	1	1
TOTAL	**20,890**	**21,351**	**21,856**	**22,381**	**23,063**

[1]Hydrant connections represent accounts opened temporarily to receive delivery of water from hydrants.

10.2.1.1 Past Water Use

WVWD's actual water use by customer class from 2016-2020 is shown in **Table 10-3**. WVWD's water consumption by customer class in the last five years is shown in **Figure 10-2**. Approximately 62% of WVWD's total deliveries were to residential connections.

Table 10-3: 2016-2020 Actual Water Use (AF)

CUSTOMER CLASS	2016	2017	2018	2019	2020
Single Family	9,614	10,624	11,027	10,493	12,049
Multi-Family	469	468	472	487	481
Commercial	1,395	1,544	1,659	1,618	1,689
Industrial	661	725	732	592	623
Institutional	789	954	984	830	860
Landscape Irrigation	1,383	1,642	1,740	1,664	2,161
Hydrant	169	258	586	385	272
Golf Course	-	-	-	-	-
Fire Service	1	4	4	3	5
Agricultural Irrigation	105	101	92	63	70
Water Losses	1,243	545	1,016	2,011	1,889
TOTAL	**15,830**	**16,866**	**18,311**	**18,148**	**20,098**

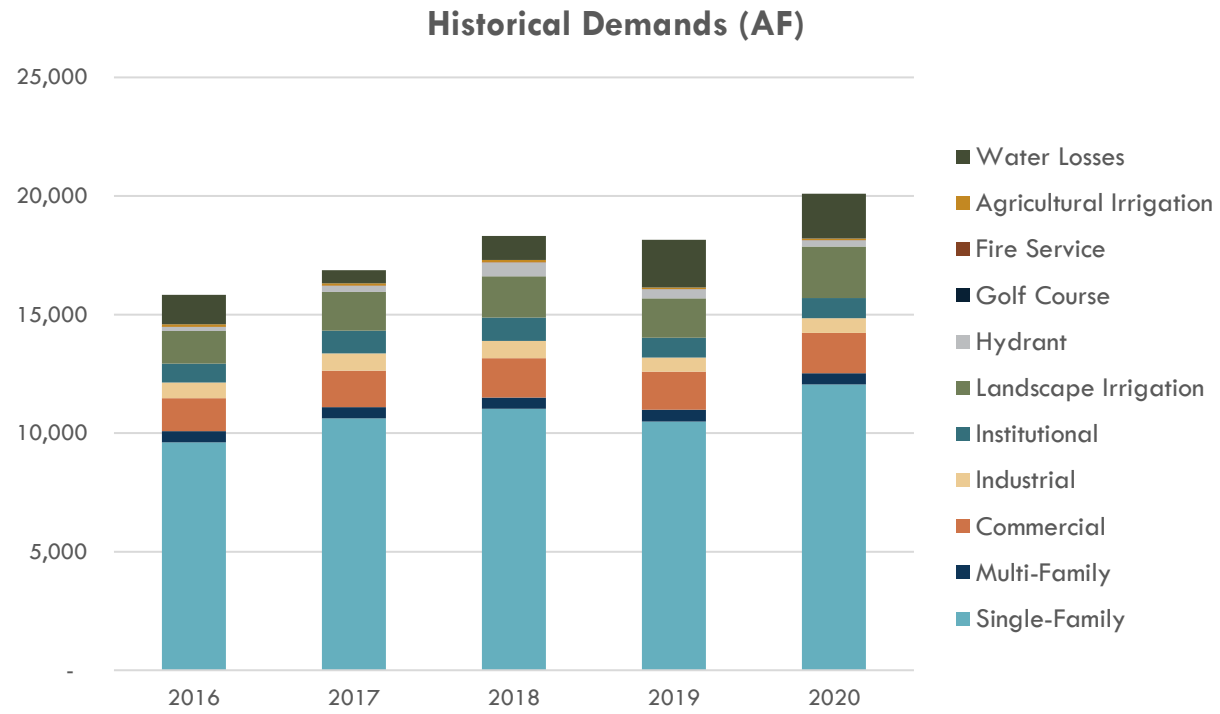


Figure 10-2: WVWD 2016-2020 Water Consumption by Customer Class (AF)

10.2.1.2 Distribution System Water Losses

Distribution system water losses are the physical potable water losses from the water system, calculated as the difference between water produced and the amount of water billed to customers plus other authorized uses of water.

Sources of water loss include:

- **Leaks from water lines.** Leakage from water pipes is a common occurrence in water systems. A significant number of leaks remain undetected over long periods of time as they are very small; however, these small leaks contribute to the overall water loss. Aging pipes typically have more leaks.
- **Water used for flushing and fire hydrant operations.**
- **Unauthorized uses or theft of water.**
- **Customer Meter Inaccuracies.** Customer meters can under-represent actual consumption in the water system.

WVWD monitors its water loss and prepares an annual AWWA Water Audit, attached in **Part 4, Appendix J-8**, to estimate the volume of water loss. The results of the water audits from 2016 to 2019 are shown in **Table 10-4**. The 2020 water loss is estimated based on the difference between production and consumption for 2020.

WVWD will complete a 2020 AWWA Water Audit by October 1, 2021 in accordance with reporting requirements to the State.

Table 10-4: DWR 4-4R 12 Month Water Loss Audit Reporting (AF)

REPORT PERIOD START DATE		
MM	YYYY	VOLUME OF WATER LOSS
1	2016	1,906
1	2017	2,176
1	2018	1,664
1	2019	1,802
1	2020	1,889 (Estimated)

In the past 5 years, WVWD's water loss has ranged from 9% - 13% of water sales. For the purposes of future water use projections, water loss is assumed to be 12% of projected water sales.

WVWD is committed to managing system water losses to reduce water waste and will endeavor to meet the future water loss performance standard that is being developed by the State Water Board. Programs to manage water loss are described in **Section 10.8.1.5**. These programs will increase the efficiency of the water distribution system by decreasing future water losses; however, water losses cannot be prevented entirely.

10.2.2 Projected Water Use

A demand forecast tool was developed to estimate future demands based on individual customer categories and connections, with the ability to forecast how future changes in indoor and outdoor water use may impact overall water use within each different customer type for current and future customers.

The tool has three steps to project demand:

1. Establish a demand factor per connection for each customer class based on historical consumption data.
2. Project the number of new connections anticipated for each customer class in each 5-year period after 2020.
3. Modify demand factors as appropriate to account for expected changes in future water use.

The demand factors for each customer class were based on connection and demand data from calendar year 2020, which was reviewed against demand factors from other years and determined to be a reasonable representation of average demands. The number of future new

connections for each customer category was estimated for each 5-year period through 2045 based on the projected population growth rate for the period determined from the WFMP.

To estimate future water use for each customer category, the demand factor is multiplied by the number of estimated new connections and added to the 2020 use of existing customers in that category. This process is applied to each customer type, then all of the category results are added to estimate the total future water use. Projected future demands by customer class as well as estimated losses are presented in **Table 10-5**, **Table 10-6**, and **Figure 10-3**.

Table 10-5: DWR 4-2R Projected Demands for Water

	PROJECTED WATER USE				
CUSTOMER CLASS	2025	2030	2035	2040	2045
Single-Family	13,859	14,791	15,722	16,653	17,584
Multi-Family	553	591	628	665	702
Commercial	1,943	2,073	2,204	2,334	2,465
Industrial	717	765	813	861	909
Institutional	989	1,056	1,122	1,189	1,255
Landscape Irrigation	2,485	2,652	2,819	2,986	3,153
Hydrant	313	334	355	376	397
Golf Course	-	-	-	-	-
Fire Service	5	6	6	7	7
Agricultural Irrigation	81	86	92	97	103
Water Losses	2,513	2,682	2,851	3,020	3,189
TOTAL	**23,459**	**25,035**	**26,611**	**28,188**	**29,764**

Table 10-6: DWR 4-3R Total Gross Water Use

-	2020	2025	2030	2035	2040	2045
Potable and Raw Water From Table 4-1R and 4-2R	20,098	23,459	25,035	26,611	28,188	29,764
Recycled Water Demand From Table 6-4R	-	-	-	-	-	-
TOTAL WATER USE	**20,098**	**23,459**	**25,035**	**26,611**	**28,188**	**29,764**

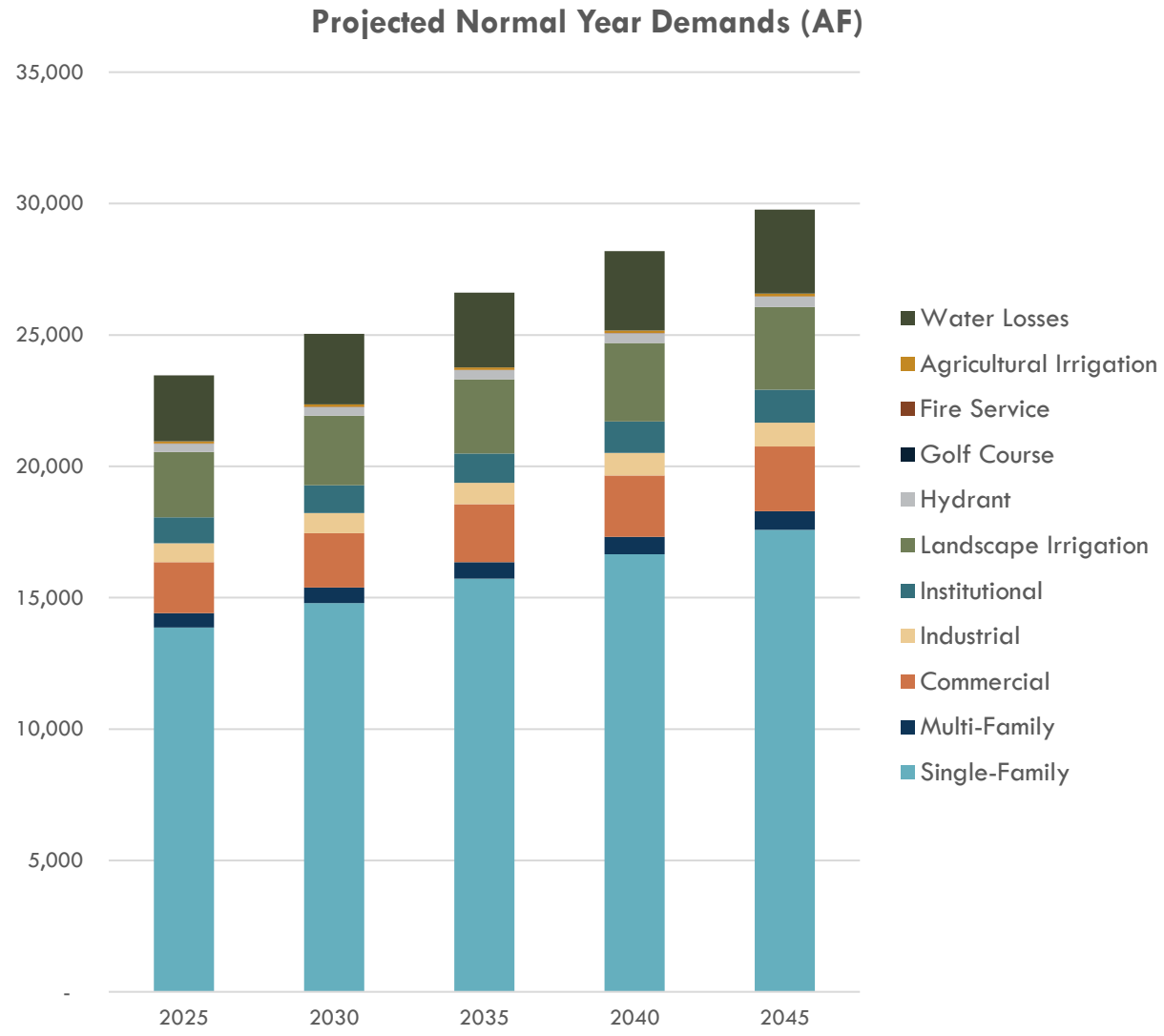


Figure 10-3: WVWD Projected Future Water Consumption by Customer Class (AF)

10.2.2.1 Estimating Future Water Savings

The demand tool used to project future water use has the capability to modify demand factors for both new and existing connections to quantify reductions in current and future customer demand that may occur as a result of active conservation programs implemented by WVWD or passive savings from more water efficient fixtures and landscapes that are required by current and future building codes and standards. WVWD may use this tool in the future to consider the impacts of changing customer water use on overall demand; however, WVWD has elected not to incorporate demand reductions from future conservation programs and passive savings from codes and standards into the demand projections at this time. In 2018, the legislature enacted SB 606 and AB 1668, which provide for implementation of a water budget-based approach to

establishing new urban water use objectives for water suppliers. The series of water use efficiency standards that will inform calculation of WVWD's new water use objective are still under development and will take effect in 2023. Once the new standards have been established, WVWD will reevaluate customer demands and identify approaches to comply with the new standard, which will be incorporated into the next UWMP prepared in 2025. WVWD is committed to promoting water use efficiency and will continue to implement a comprehensive set of programs intended to reduce customer demands and support sustainable use of regional water supplies.

10.2.3 Water Use for Lower Income Households

Senate Bill 1087 requires that water use projections in an UWMP include the projected water use for single-family and multi-family residential housing for lower income households as identified in the housing element of any city, county, or city and county in the service area of the supplier. WVWD serves portions of five jurisdictions: the City of Rialto, the City of Fontana, the City of Colton, the City of Jurupa Valley, and unincorporated San Bernardino county.

Based on SCAG's 6th cycle final regional housing needs allocation (RHNA), it is estimated that the weighted percentage estimate of very-low and low-income households in the WVWD service area is 44 percent. Therefore, it is assumed that 44 percent of future residential demands will come from very-low and low-income households. These demands have been included in the projections presented throughout this report.

10.2.4 Climate Change Considerations

A topic of growing concern for water planners and managers is climate change and the potential impacts it could have on California's future water supplies.

Recent climate change modeling for the SAR watershed suggests that a changing climate will have multiple effects on the Region. Adaptation and mitigation measures will be necessary to account for these effects. **Part 1 Chapter 2** includes an assessment of the potential impacts of climate change.

10.3 SBX7-7 Baseline and Targets

With the adoption of SBX7-7, also known as the Water Conservation Act of 2009, the State of California was required to reduce urban per capita water use by 20% by 2020. This section summarizes the past targets the WVWD developed and demonstrates that compliance by 2020 was achieved.

Water use targets were developed in terms of gallons per capita per day, or GPCD, which is calculated by dividing the total water from all customer categories by the population.

DWR has prepared standardized tables to record and document the calculations required for this section. The standardized tables for WVWD's calculations are included in **Part 4 Appendix J-7**.

10.3.1 Baseline and Target

WVWD's baseline and 2020 target was calculated in the 2015 RUWMP and has not changed for this plan. More details on the development of the baselines and target can be found in the 2015 RUWMP and **Part 4 Appendix J-7**. WVWD's calculated water use target for 2020 is 232 GPCD.

10.3.2 2020 Compliance Daily Per-Capita Water Use (GPCD)

Through the implementation of its active water conservation program, WVWD has met its Confirmed Water use Target for 2020 of 232 GPCD, as shown in **Table 10-7**. To maintain this level of water use, WVWD intends to continue its current level of outreach and programs for the foreseeable future.

Table 10-7: SBX 7-7 2020 Compliance

2020 WATER USE TARGET GPCD	ACTUAL 2020 GPCD	SUPPLIER ACHIEVED TARGETED REDUCTION IN 2020?
232	201	Yes

10.4 Water Supply

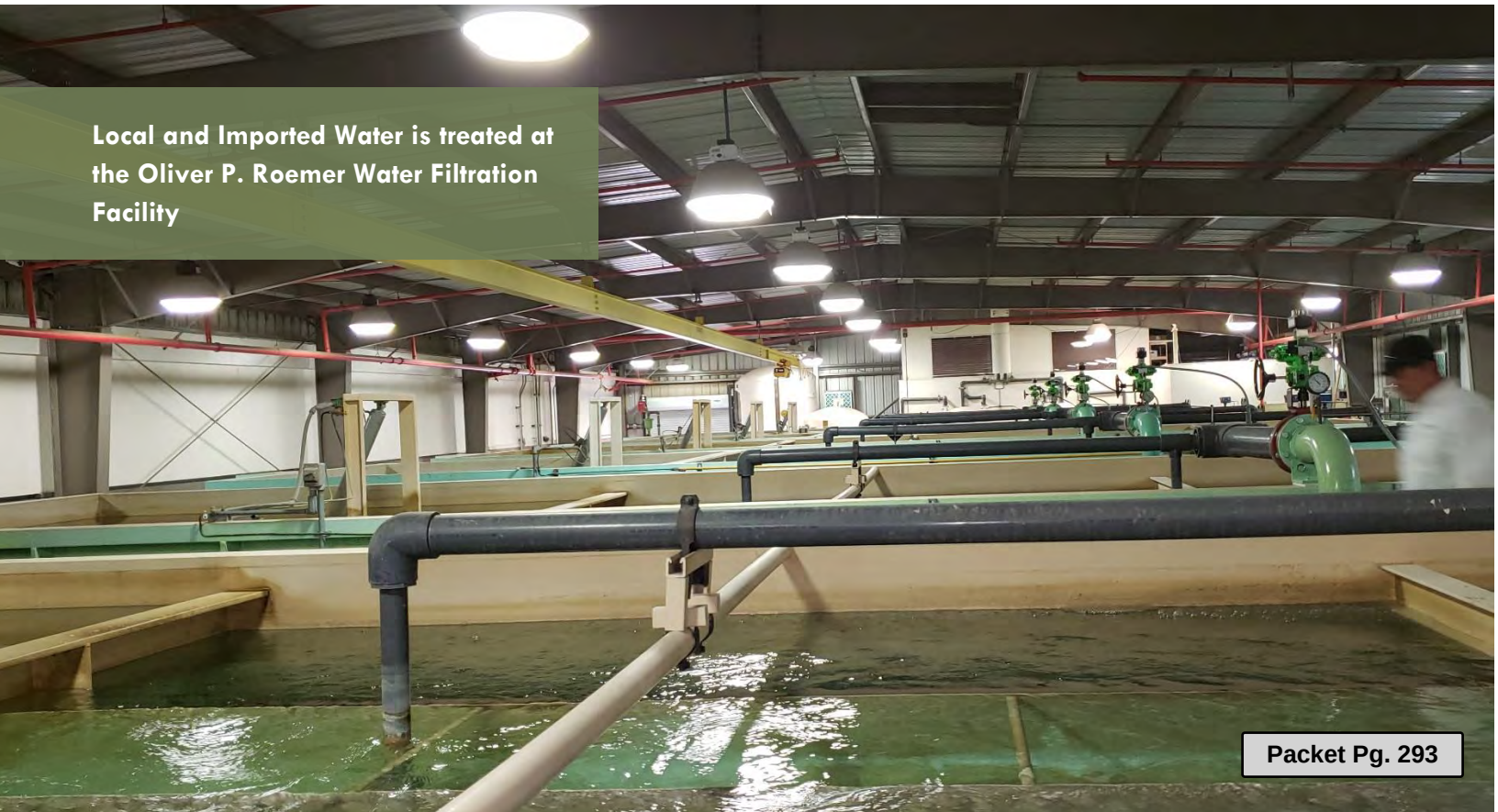
WVWD utilizes three primary sources for drinking water supply: local surface water from flows on the east side of the San Gabriel Mountains, including North Fork Lytle Creek, Middle Fork Lytle Creek, and South Fork Lytle Creek; groundwater; and imported water from the State Water Project (SWP).

More information about local surface water and groundwater basins is included in **Part 1 Chapter 3** of the 2020 IRUWMP.

10.4.1 Purchased or Imported Water

WVWD receives SWP water from Valley District through the Lytle Turnout off the San Gabriel Feeder Pipeline. Metering and transmission facilities are sized to enable WVWD to purchase and treat up to 20 million gallons per day (MGD), approximately 23,000 AFY, at final treatment plant expansion. SWP water is treated at the District's Oliver P. Roemer Water Filtration Facility (WFF) and used for potable supply, and WVWD is investigating the use of SWP water for groundwater recharge in the Lytle Creek Basin. In 2006 the WFF was expanded to increase production capacity to 14.4 MGD. In 2020, WVWD began the design of a 7.2 MGD expansion of the WFF to increase capacity to 21.6 MGD. WVWD has been utilizing SWP water through the Lytle Turnout since 1999.

WVWD does not have a specific allocation of SWP water from Valley District but expects to receive the projected volumes of SWP under most conditions. A description of this supply and its reliability is provided in **Part 1 Chapter 3 and Chapter 5**. This supply is not guaranteed so WVWD maintains 100% reliability from other sources.



Local and Imported Water is treated at the Oliver P. Roemer Water Filtration Facility

10.4.2 Groundwater

WVWD draws the majority of its water supply from its wells. WVWD can extract groundwater from five regional groundwater basins: Bunker Hill and Lytle Creek (which are both part of the San Bernardino Basin or SBB), Rialto-Colton, Riverside North, and Chino Basins. All five basins have been adjudicated and are managed for long term sustainability, as discussed further in **Part 1 Chapter 3**. WVWD's historical production for the past five years is shown in Table 10-8.

10.4.2.1 Bunker Hill and Lytle Creek (Part of SBB)

WVWD produces groundwater from the SBB, described in detail in **Part 1 Chapter 3**. Per the Western-San Bernardino Judgement, WVWD is not limited in the amount of groundwater they can produce from the SBB. Restrictions on WVWD's rights from the SBB are that the water must be used within the boundaries of Valley District.

10.4.2.1.1 Baseline Feeder

In addition to its own wells in SBB, WVWD also receives Bunker Hill Sub-basin water from the Baseline Feeder.

In 1991 WVWD entered into a joint venture agreement with Valley District, the City of Rialto and the Riverside Highland Water Company to construct the Baseline Feeder. The Baseline feeder is a 48- inch transmission main with a capacity of 60 MGD designed to transport water from the Bunker Hill basin west to the WVWD area. WVWD has a contract with Valley District for delivery of 5,000 AFY to be provided by Valley District. West Valley owns 33 percent of the pipeline from Meridian Avenue and Baseline Road to Cactus Avenue and Baseline Road. In 1991 WVWD and the City of Rialto entered into an agreement with SBVMWD to participate in the financing of reaches one and two of the pipeline. The WVWD and the City of Rialto were then obligated to purchase 5,000 AFY and 2,500 AFY respectively, at an approximate cost of $130 to 140 per acre foot for 20 years.

In 2012, the parties to the agreement entered into a Restated and Amended Agreement to jointly construct, operate, and maintain a 1.0-million-gallon reservoir and booster station to boost water from two new wells in the 9th Street and Lytle Creek Wash area into the Baseline Feeder. The reservoir is used to remove entrapped air from the well discharges.

All water delivered through the Baseline Feeder is Bunker Hill groundwater and is included in West Valley's total Bunker Hill production for the purposes of this plan.

10.4.2.2 Rialto-Colton

WVWD has groundwater extraction rights in the Rialto-Colton Basin, specifically within the boundary of the 1961 Rialto Decree, discussed in more detail in **Part 1 Chapter 3**. In any year in which the average of the elevation of the spring-high water level, measured in March, April, and May, in the three index wells is above 1002.3 feet msl, WVWD has no restrictions on yearly extractions. When the average standing water levels in the three index wells falls below 1002.3 feet msl and is above 969.7 feet msl, WVWD is restricted to total groundwater extractions of

6,104 AFY. When the average of the three index wells drops below 969.7 feet msl, ground water extractions are reduced for all parties stipulated in the decree by 1 percent per foot below the 969.7-foot level, but not to exceed 50-percent reduction.

WVWD has a total water right allocation in the Rialto Basin of 6,104 AFY, including 510 AFY that are fixed rights and 5,594 AFY that are adjustable and subject to a percent reduction each year based on groundwater levels in the index wells. Over the previous 10 years, the percent reduction has ranged from 7 percent in 2010 to 29 percent in 2020. For the purposes of this plan, WVWD and the other agencies who pump from the Rialto Basin are assuming a 30-percent reduction in adjustable rights in 2025 and a 2% gain in adjustable rights for every 5-year period thereafter based on planned recharge to increase water levels and adjustable rights.

> For 2025, WVWD's available water supply from the Rialto Basin is expected to be 4,426 AFY (510 AFY fixed plus 5,594 AFY reduced by 30 percent). By 2045, the average water supply is assumed to increase to 4,873 AFY.

As discussed further in **Part 1 Chapter 3**, WVWD participates in the Rialto Basin Groundwater Council (Rialto Basin GC), which was formed in 2021. The Rialto Basin GC will develop, adopt, and implement a sustainable groundwater management plan, which will include implementing groundwater recharge projects to restore groundwater levels.

10.4.2.3 Riverside North

WVWD also produced water from the Riverside North groundwater basin. This basin was discussed further in **Part 1 Chapter 3**.

10.4.2.4 Chino Basin

WVWD owns rights to approximately 900 AF of production in the Chino Basin. Due to water quality constraints this supply is not currently being used. In the near term, WVWD is looking at options to utilize their water rights in this basin including nitrate treatment and the delivery of this supply through interties with other agencies. By 2030, WVWD may use the supply directly.

Table 10-8: DWR 6-1R Groundwater Pumped Last Five Years (AF)

GROUNDWATER TYPE	LOCATION OR BASIN NAME	2016	2017	2018	2019	2020
Alluvial Basin	Bunker Hill (part of SBB)	5,452	5,640	5,777	4,508	5,549
Alluvial Basin	Lytle (part of SBB)	1,850	2,365	2,416	2,572	3,078
Alluvial Basin	Chino	-	-	-	-	-
Alluvial Basin	Rialto-Colton	2,123	3,923	3,353	2,779	1,420
Alluvial Basin	Riverside-Arlington	2,745	1,089	1,542	1,301	1,354
	TOTAL	**12,170**	**13,017**	**13,088**	**11,159**	**11,401**

10.4.3 Surface Water

WVWD has the right to divert and export out of the Lytle Creek Region 2,290 gpm when it is available. WVWD can also purchase an additional 1,350 gpm of Lytle Creek flows through an agreement with the City of San Bernardino (San Bernardino is not able to utilize their surface water flows), which is treated at the Oliver P. Roemer WFF. WVWD also utilizes small amounts of Lytle Creek surface water flows for groundwater recharge in the Lytle Creek Basin.

When the flows at the mouth of Lytle Creek Canyon drop below 7,182 gpm (798 miners inches), all diversion rights holders must reduce their diversions to a prorated schedule set in the 1897 decree. If WVWD is not receiving its full Lytle Creek surface water allotment, they are permitted to make up the difference by additional pumping in the Lytle Creek Region.

10.4.4 Stormwater

WVWD is participating in regional project planning efforts to capture additional stormwater for purposes of groundwater recharge to increase sustainability of the basins WVWD produces water from. These regional projects are discussed in **Part 1 Chapter 3**.

10.4.5 Wastewater and Recycled Water

The wastewater collected within different portions of the WVWD water service area is treated by the City of Rialto (City), the City of Colton, San Bernardino County, or the Inland Empire Utilities Agency. The majority of the wastewater collected in the WVWD service area goes to the City of Rialto Wastewater Treatment Plant (WWTP), which has a 12.0 MGD tertiary treatment plant capacity with a current flow of approximately 7 MGD. All of the City of Rialto's treatment plant effluent meets Title 22 for recycled water usage in restricted irrigation. A small amount of water is used for landscape irrigation and the rest is discharged into the Santa Ana River.

> It is estimated that approximately 57 percent or 4 MGD of the wastewater collected at City of Rialto WWTP was generated within WVWD's water service area in 2020.

Information about wastewater collected is presented in **Table 10-9**.

10.4.5.1 Potential, Current, and Projected Recycled Water Uses

WVWD has evaluated the feasibility of adding recycled water as a non-potable supply, but would rely on the City of Rialto or San Bernardino County to provide the recycled water from their wastewater treatment facilities.

In 2012, WVWD prepared a master plan to evaluate potential uses of recycled water within its service area. WVWD does not currently have a recycled water distribution system and is not pursuing recycled water use at this time because it is not cost effective to extend facilities from the wastewater treatment plants to the locations of potential use. However, recycled water is utilized regionally for meeting habitat needs in the Santa Ana River (see **Part 1 Chapter 3.4**).

Table 10-9: DWR 6-2R Wastewater Collected within Service Area in 2020 (AF)

WASTEWATER COLLECTION			RECIPIENT OF COLLECTED WASTEWATER			
NAME OF WASTEWATER COLLECTION AGENCY	WASTEWATER VOLUME METERED OR ESTIMATED	WASTEWATER VOLUME COLLECTED FROM UWMP SERVICE AREA IN 2020	NAME OF WASTEWATER AGENCY RECEIVING COLLECTED WASTEWATER	WASTEWATER TREATMENT PLANT NAME	WASTEWATER TREATMENT PLANT LOCATED WITHIN UWMP AREA	WWTP OPERATION CONTRACTED TO A THIRD PARTY
City of Rialto	Estimated	4,336	City of Rialto	Rialto Wastewater Treatment Plant	Yes	Yes
City of Colton	Estimated	532	City of Colton	Colton WWTP	No	No
San Bernardino County	Estimated	329	San Bernardino County	Lytle Creek North Water Reclamation Plant	No	No
Inland Empire Utilities Agency	Estimated	971	Inland Empire Utilities Agency	Recycled Plant No. 4	No	No
	TOTAL	**6,608**				

10.4.6 Water Exchanges and Transfers

WVWD is looking at options for the potential transfer of their Chino Basin water rights from agencies currently pumping Chino Basin water. WVWD does not anticipate any other regular or long-term transfers or exchanges, during the period covered by this Plan. Any transfer or exchanges would be as-needed related to an emergency.

10.4.6.1 Emergency Interties

WVWD currently has interconnections with the Cities of Rialto, Colton and San Bernardino, the Fontana Water Company, Marygold Mutual Water Company, and Valley District which can be utilized as needed for short-term supply needs. These connections are not typically used for extended periods.

10.4.6.2 Future Water Projects

To meet the future demands within the system, WVWD plans to rehabilitate existing wells, to drill new wells, and equip wells with wellhead treatment if required. These wells are planned for various groundwater basins and pressure zones within the distribution system.

Groundwater is not the only planned supply source to be utilized by WVWD to meet the anticipated future demands. WVWD is expanding the Oliver P. Roemer Water Filtration Facility by 7.2 MGD for a total capacity of 21.6 MGD to allow additional treatment of SWP water when available.

When planning future water supply sources, WVWD selects projects that will provide sufficient supply to meet peak day demands. When possible, these sources are planned by pressure zone, thereby reducing the need to lift water to a higher zone.

As development progresses and increased demands are placed on the system, WVWD will determine which projects to implement. Although WVWD may not need to utilize each source to its full potential, construction of these water supply projects gives WVWD this option should one or more sources be off line due to maintenance.

As part of the Rialto Basin GC, WVWD plans to collaborate with the other parties to implement groundwater recharge in the Rialto Basin to increase water levels. Increased water levels will result in an increase in WVWD's allowable pumping from the Rialto Basin, thereby increasing supply. The Rialto Basin GC will be developing a groundwater management plan that will identify recharge goals and projects and the potential supply increase is not yet quantified.

10.4.7 Summary of Existing and Planned Sources of Water

WVWD's water supply is comprised of local groundwater, surface water and SWP water. A similar mix of supplies is anticipated to be used in the future. The volume of water utilized from each source in 2020 is summarized in **Table 10-10** and projected supply by source is summarized in **Table 10-11**.

Table 10-10: DWR 6-8R Actual Water Supplies in 2020 (AF)

		2020		
WATER SUPPLY	ADDITIONAL DETAIL ON WATER SUPPLY	ACTUAL VOLUME	WATER QUALITY	TOTAL RIGHT OR SAFE YIELD
Groundwater (not desalinated)	Bunker Hill (part of SBB)	5,549	Drinking Water	See Note
Groundwater (not desalinated)	Lytle (part of SBB)	3,078	Drinking Water	See Note
Groundwater (not desalinated)	Rialto-Colton	1,420	Drinking Water	See Note
Groundwater (not desalinated)	Riverside-Arlington	1,354	Drinking Water	See Note
Surface water (not desalinated)	Lytle Creek	5,356	Drinking Water	
Purchased or Imported Water	State Water Project - Direct Delivery	3,342	Drinking Water	
-	**TOTAL:**	**20,098**		-

See Part 1 Chapter 3 for discussion of safe yield of regional groundwater basins.

Table 10-11: DWR 6-9R Projected Water Supplies (AF)

		PROJECTED WATER SUPPLY				
		2025	2030	2035	2040	2045
WATER SUPPLY	ADDITIONAL DETAIL ON WATER SUPPLY	REASONABLY AVAILABLE VOLUME	REASONABLY AVAILABLE VOLUME	REASONABLY AVAILABLE VOLUME	REASONABLY AVAILABLE VOLUME	REASONABLY AVAILABLE VOLUME
Groundwater (not desalinated)	Bunker Hill (part of SBB)	2,052	2,353	3,554	4,754	6,455
Groundwater (not desalinated)	Bunker Hill (part of SBB, via Baseline Feeder)	5,000	5,000	5,000	5,000	5,000
Groundwater (not desalinated)	Lytle (part of SBB)	2,900	2,900	2,900	2,900	2,900
Groundwater (not desalinated)	Rialto-Colton	4,426	4,538	4,650	4,761	4,873
Purchased or Imported Water	State Water Project - Rialto Colton Groundwater Supplemental Supply	-	-	-	-	-
Groundwater (not desalinated)	Riverside-Arlington	2,500	3,000	3,500	4,000	4,000
Groundwater (not desalinated)	Chino	-	900	900	900	900
Surface water (not desalinated)	Lytle Creek	3,100	3,100	3,100	3,100	3,100
Purchased or Imported Water	State Water Project - Direct Delivery	7,000	7,000	7,000	7,000	7,000
	TOTAL:	26,978	28,791	30,603	32,415	34,229

Supplies shown in this table are planned pumping or diversions, except supplies from San Bernardino Basin are increased to meet the Total Supply Target with 15% Reliability Factor.

Table 10-12: DWR 7-2R Normal Year Supply and Demand Comparison (AF)

-	2025	2030	2035	2040	2045
Supply Totals From Table 6-9R	26,978	28,791	30,603	32,415	34,229
Demand Totals From Table 4-3R	23,459	25,035	26,611	28,188	29,764
DIFFERENCE:	**3,519**	**3,756**	**3,993**	**4,227**	**4,464**

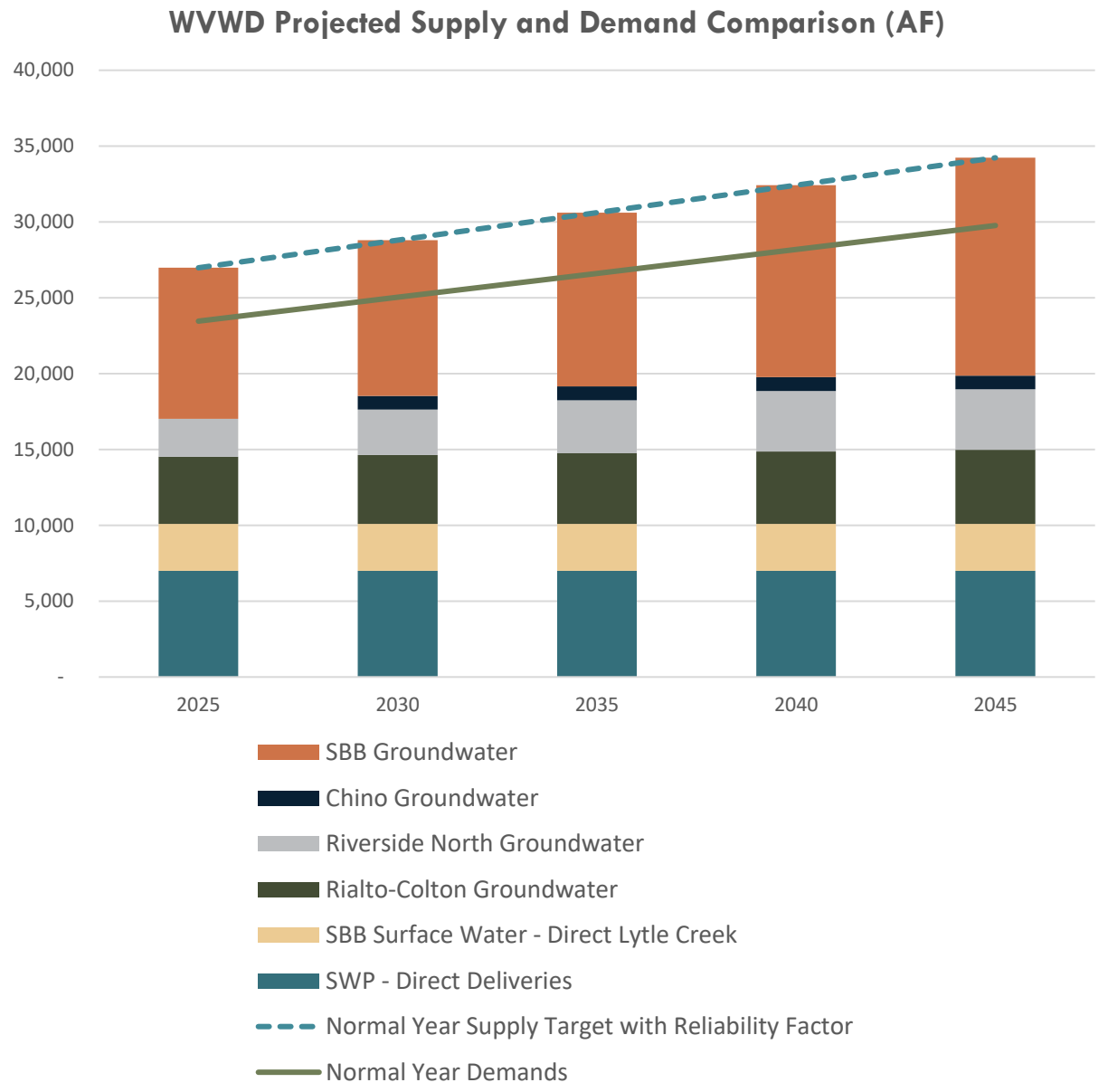


Figure 10-4. Projected Normal Year Supply and Demand Comparison (AF)

10.4.8 Energy Intensity

Reporting water energy intensity has many benefits for water utilities and their customers including:

- Identifying energy saving opportunities as energy consumption is often a large portion of the cost of delivering water.
- Calculating energy savings and greenhouse gas (GHGs) emissions reductions associated with water conservation programs.

- Potential opportunities for receiving energy efficiency funding for water conservation programs.
- Informing climate change mitigation strategies.
- Benchmarking of energy use at each water acquisition and delivery step and the ability to compare energy use among similar agencies.
- WVWD has a Hydroelectric plant that generates power from SWP water delivered and treated at the WFF. Power generated from the hydro plant is used to offset electricity used at the WFF.

In 2020, WVWD consumed 885.8 kWh of energy for water facilities per AF of water delivered.

10.5 Water Service Reliability Assessment

This section considers WVWD's water supply reliability during normal years, single dry years, and up to 5 consecutive dry water years. The supply reliability assessment discusses factors that could potentially limit the expected quantity of water available from WVWD's current source of supply through 2045.

Influent and Effluent Pump Stations at the Oliver P. Roemer Water Filtration Facility

10.5.1 Constraints on Water Sources

During times of State-wide drought conditions, the availability of SWP water may be reduced. These conditions are normally anticipated in advance to an extent, providing WVWD with the opportunity to plan for the reduced supply. During a drought period when SWP supplies are reduced, Valley District prioritizes direct deliveries to the water treatment plants, including WVWD's, but if deliveries are reduced, WVWD will shift to other local supplies.

The local groundwater and surface water supplies are influenced by annual precipitation. In extended drought conditions, the surface water supplies in the Lytle Creek region can be severely impacted. In addition, groundwater levels in the Lytle Creek Basin have been known to drop over 300 feet during extended drought periods. As a result, WVWD transitions to groundwater produced from the Bunker Hill Sub-basin when surface water and groundwater supplies from the Lytle Creek region are limited.

WVWD's pumping rights in the Rialto Basin are determined by groundwater levels. While WVWD and the Rialto Basin GC plan to recharge the basin to increase water levels, WVWD's pumping rights could be reduced if groundwater levels decline.

If WVWD's other supplies are reduced, they can shift production to the Bunker Hill or Riverside North basins if additional supply is needed.

Some of the WVWD's wells have been impacted by arsenic, perchlorate, MTBE, 1,2,3-TCP, and volatile organic carbons (VOCs). WVWD has implemented wellhead treatment as needed and continues to monitor groundwater contamination and the movement of groundwater contaminant plumes. These past and ongoing groundwater treatment projects have demonstrated that treatment is an economically viable alternative for handling arsenic, perchlorate and VOCs. Based on current conditions, water quality is not anticipated to affect WVWD supply reliability. However, water quality issues are constantly evolving. WVWD will take action to protect and treat supply when needed, but it is well recognized that water quality treatment can have significant costs. These water quality issues are further discussed at a regional level in **Part 1 Chapter 3**.

10.5.2 Year Type Characterization

In general, groundwater is less vulnerable to seasonal and climatic changes than surface water (i.e. local and imported) supplies. The Western-San Bernardino Watermaster, in collaboration with the BTAC, monitor groundwater levels and implement supplemental recharge to maintain long term sustainability of local groundwater sources. Further discussion of regional water resource management is included in **Part 1 Chapter 3**.

Per UWMP requirements, WVWD has evaluated reliability for an average year, single dry year, and a 5 consecutive dry year period. The UWMP Act defines these years as:

- **Normal Year:** this condition represents the water supplies a supplier considers available during normal conditions. This could be a single year or averaged range of years that most closely represents the average water supply available.
- **Single Dry Year:** the single dry year is recommended to be the year that represents the lowest water supply available.
- **Five-Consecutive Year Drought:** the driest five-year historical sequence for the Supplier, which may be the lowest average water supply available for five years in a row.

10.5.3 Water Service Reliability

The results of the reliability assessment are summarized in the tables below.

Under single dry and consecutive dry year conditions, the assessment assumes that demands will increase by as much as 10% due to increased outdoor water use. Although water use may decrease in the later years of a multiple year drought due to implementation of conservation measures and drought messaging, the assessment is based on a 10% increase throughout the 5-year drought to be conservative.

As described in **Part 1, Chapter 3**, the effects of a local drought are not immediately recognized since the region uses the local groundwater basins to simulate a large reservoir for long term storage. While pumping rights from the Rialto Basin and available surface water may be reduced in dry years, WVWD is able to pump additional groundwater from Bunker Hill, Lytle and Riverside North to meet total demands in dry years and participates in efforts to replenish the basins with imported and local water through regional recharge programs. WVWD's total groundwater supplies are not reduced in dry years so 2020 is considered the base year for all year types. Based on the analysis, WVWD does not anticipate any shortage due to single or consecutive dry years. Even though localized drought conditions should not affect supply, WVWD participates in several ongoing water conservation measures and regional recharge projects to optimize and enhance the use and reliability of regional water resources. WVWD also has a water shortage contingency plan to put into action as appropriate to reduce the demand during critical drought years or other supply emergencies.

A summary of the basis of water year data is presented in **Table 10-13.** The percent of average supply increases in drought years because WVWD's groundwater production will increase to meet an assumed increase in demands.

Table 10-13. DWR 7-1R Basis of Water Year Data

YEAR TYPE	BASE YEAR	AVAILABLE SUPPLY IF YEAR TYPE REPEATS AS PERCENT OFAVERAGE SUPPLY
Average Year	2020	100%
Single-Dry Year	2020	110%
Consecutive Dry Years 1st Year	2020	110%
Consecutive Dry Years 2nd Year	2020	110%
Consecutive Dry Years 3rd Year	2020	110%
Consecutive Dry Years 4th Year	2020	110%
Consecutive Dry Years 5th Year	2020	110%

The projected supply and demand during a normal year are shown in **Table 10-12**.

The projected supply and demand during a single dry year are shown in **Table 10-14**. WVWD's demands in single dry years are assumed to increase by 10% above normal year demands. The local groundwater basins WVWD produces water from have storage for use in dry years so WVWD can produce the volume of water needed to meet 100% of demands in single dry years. WVWD's supplies are 100% reliable during single dry years.

Table 10-14. DWR 7-3R Single Dry Year Supply and Demand Comparison (AF)

-	2025	2030	2035	2040	2045
Supply Totals	29,676	31,670	33,663	35,657	37,651
Demand Totals	25,805	27,539	29,273	31,006	32,740
DIFFERENCE:	**3,871**	**4,131**	**4,391**	**4,651**	**4,911**

The projected supply and demand during five consecutive dry years are shown in **Table 10-15**. WVWD's demands in multiple dry years are assumed to increase by 10% above normal year demands. The local groundwater basins WVWD produces water from have storage for use in dry years so WVWD can produce the volume of water needed to meet 100% of demands in multiple dry years. WVWD's supplies are 100% reliable during multiple dry years.

Table 10-15. DWR 7-4R Multiple Dry Years Supply and Demand Comparison

		2025	2030	2035	2040	2045
First	Supply Totals	29,676	31,670	33,663	35,657	37,651
Year	Demand Totals	25,805	27,539	29,273	31,006	32,740
	DIFFERENCE:	**3,871**	**4,131**	**4,391**	**4,651**	**4,911**
Second	Supply Totals	29,676	31,670	33,663	35,657	37,651
Year	Demand Totals	25,805	27,539	29,273	31,006	32,740
	DIFFERENCE:	**3,871**	**4,131**	**4,391**	**4,651**	**4,911**
Third	Supply Totals	29,676	31,670	33,663	35,657	37,651
Year	Demand Totals	25,805	27,539	29,273	31,006	32,740
	DIFFERENCE:	**3,871**	**4,131**	**4,391**	**4,651**	**4,911**
Fourth	Supply Totals	29,676	31,670	33,663	35,657	37,651
Year	Demand Totals	25,805	27,539	29,273	31,006	32,740
	DIFFERENCE:	**3,871**	**4,131**	**4,391**	**4,651**	**4,911**
Fifth	Supply Totals	29,676	31,670	33,663	35,657	37,651
Year	Demand Totals	25,805	27,539	29,273	31,006	32,740
	DIFFERENCE:	**3,871**	**4,131**	**4,391**	**4,651**	**4,911**

10.6 Drought Risk Assessment

The Drought Risk Assessment (DRA) is a new analysis required for the 2020 UWMP, with a focus on the five-year consecutive drought scenario beginning in 2021. Because WVWD relies on groundwater basins with significant storage, available supplies do not vary on a monthly or seasonal basis, so this analysis is conducted on an annual basis. Projected demands and supplies from 2021-2025 are shown in **Table 10-16.**

Demands for 2021 – 2025 were assumed to increase at a uniform rate between the 2020 actual use and 2025 projected use and were then increased by 10% to reflect higher anticipated demands during dry years. This DRA uses the same water supply reliability assumptions used in the Water Service Reliability Assessment described in **Section 10.5** and the 15% Reliability Factor is also applied to supplies in this DRA, therefore, this analysis shows a 15% supply surplus for WVWD. WVWD can produce additional groundwater to meet any increases in demand in dry years. As shown in **Part 1 Chapter 5**, the region as a whole has sufficient supplies to meet demands plus the 15% Reliability Factor, even in a 5-year drought. As shown in **Part 1 Chapter 5 Figure 5-1**, the SBB had over 4.8 million acre-feet in storage as of 2020 due to regional efforts to store water in wet years for use during dry years.

> Although projections in this Plan show that the regional water supplies are sufficient to meet the demands of WVWD and the Region as a whole, even during a 5-year drought (see Part 1 Chapter 5), WVWD remains committed to water conservation and to being a good steward of regional water resources to preserve supplies for the future due to the possibility of experiencing more severe droughts than anticipated in this Plan.

Table 10-16: DWR 7-5 Five-Year Drought Risk Assessment (AF)

2021	Gross Water Use	22,848
	Total Supplies	26,275
	SURPLUS	**3,427**
2022	Gross Water Use	23,587
	Total Supplies	27,125
	SURPLUS	**3,538**
2023	Gross Water Use	24,326
	Total Supplies	27,975
	SURPLUS	**3,649**
2024	Gross Water Use	25,066
	Total Supplies	28,825
	SURPLUS	**3,760**
2025	Gross Water Use	25,066
	Total Supplies	28,825
	SURPLUS	**3,760**

10.7 Water Shortage Contingency Plan

The Water Shortage Contingency Plan (WSCP), which is a strategic plan that WVWD uses to prepare for and respond to foreseeable and unforeseeable water shortages. A water shortage occurs when water supply available is insufficient to meet the normally expected customer water use at a given point in time. A shortage may occur due to a number of reasons, such as water supply quality changes, climate change, drought, regional power outage, and catastrophic events (e.g., earthquake). Additionally, the State may declare a statewide drought emergency and mandate that water suppliers reduce demands, as occurred in 2014. The WSCP serves as the operating manual that WVWD will use to prevent catastrophic service disruptions through proactive, rather than reactive, mitigation of water shortages. The WSCP provides a process for an annual water supply and demand assessment and structured steps designed to respond to actual conditions. The level of detailed planning and preparation provide accountability and predictability and will help WVWD maintain reliable supplies and reduce the impacts of any supply shortages and/or interruptions.

The WSCP was prepared in conjunction with the 2020 IRUWMP and is a standalone document that can be modified as needed. WVWD's WSCP is attached as **Part 4 Appendix J-9**.

10.8 Demand Management Measures

The Demand Management Measures (DMMs) section provides a comprehensive description of the water conservation programs that WVWD has implemented for the past five years, is currently implementing, and plans to implement in order to reduce demand. WVWD's current per-capita consumption is less than its 2020 compliance target. WVWD expects to continue to implement current conservation programs to encourage conservation and maintain per-capita consumption below the compliance target.

10.8.1 Existing Demand Management Measures

The following Section identifies the water demand management measures currently implemented or scheduled for implementation by WVWD. Water conservation programs and incentives offered by the City of Rialto will also benefit SBVMWD and WVWD. In order to effectively implement water conservation programs, WVWD collects data for customers within the WVWD Water Service area only. WVWD recognizes that demand management measures are important for the reliability of its water sources and has made a continued effort to comply with the DMMs required by the act.

10.8.1.1 Water Waste Prevention Ordinances

WVWD, through Article 24, lists use of water considered non-essential to the public health, safety and welfare and, defines what constitutes water wasting pursuant to Water Code Section 350 et seq., Water Code Section 71640 et. seq., and the common law. Article 24 was adopted on August 6, 2015 and is provided in **Part 4 Appendix J-9**.

10.8.1.2 Metering

WVWD has changed its entire meter stock to Automatic Meter Reading (AMR). This system eliminates the need for each meter to be visually read by a technician and ensures that water usage is billed correctly. The AMR system is also highly useful in identifying and addressing customer-side leaks, as well as for understanding and assessing the impacts of various conservation programs.

10.8.1.3 Conservation Pricing

WVWD is in compliance with this DMM. The volumetric portion of District's water revenue accounts for about 71 percent of total revenue. WVWD has a tiered water rate system that is always in place. WVWD charges customers increasing rates based on their water usage during a billing cycle to encourage water conservation.

WVWD completed a rate study in 2012 and implemented an Inclining Block Rate tiered rate structure starting January 1, 2013 (Tier One - 1-10 units, Tier Two - 11-50 units, Tier Three - 51+ units).

10.8.1.4 Public Education and Outreach

WVWD provides informational materials to customers through paid advertising, classes, water bills, a website, quarterly newsletters and social media. WVWD has expanded their social media outreach to include Facebook, Twitter, Instagram, Nextdoor and Linkedin. The main objectives are simply to promote water conservation, to educate and increase awareness of the importance of water use efficiency and to encourage our customers to become active members in all these activities within our communities.

WVWD will be revamping its website to include multiple pages on information for water conservation including rebates and programs that WVWD is participating in and water conservation tips for indoor and outdoor use. WVWD's conservation piece of the website is updated on a regular basis to include new ideas.

Current GIS technologies allow us to provide direct communication channels for our customers in real time to interact with the District through cloud-based solutions. These solutions are simply online forms, called GeoForms, which have the functionality of embedded e-mail communications and alert mechanisms so that when a customer submits one of these forms online through a smart device, GIS and other related departments receive real-time email containing all the details related to the online forms. Based on three different targeted water conservation efforts, three different online applications, GeoFroms, are developed in GIS for our customers. Instead of generating one big online form to include all incentives in one application, specific online forms are generated for each individual incentive. The same format is used for each online form, but each online form's content is specifically tailored for individual rebate programs.

The first application is designed mainly to report any water-related issues that cause water loss in the communities. The application provides fields to be filled in by the customers along with the incident types and severity level along with the incident locations and customer information.

These incidents could be a water leak, hit or broken hydrant, water pressure issues as well as water quality issues. This online application allows customers to submit an online form to request the District to address such issues via WVWD's website. This will then electronically trigger an alert email notification to rapidly address the issues that are reported.

WVWD continues to hold water conservation classes for students at local elementary, middle and high schools located within WVWD. The District also gives tours to local schools of the Treatment Plants and hands out conservation materials.

For the last 15 years WVWD has sponsored a Water Conservation Poster Contest with the elementary schools located in the District. On average 25 teachers participate in the contest as well as over 150 entries. The District also has conservation messages appearing directly on the customer's bill along with a graph that shows customer's current usage compared to the previous year.

For the last several years, the District has created a welcome package for all new customers including a Leak Detection Guide, the Demonstration Garden brochure and plant list, the Quarterly Newsletter, and the District's Water Conservation Calendar. Landscape Classes, Conservation Workshops, and Information booths at public events are done multiple times during the year. The District's outreach information, fliers, brochures and mailers are assembled in English and other languages.

WVWD regularly attends the regional Water Conservation Sub-Committee of the BTAC.

WVWD has partnered with other Inland Empire Water Agencies to develop a regional approach to conservation and messaging. The outreach campaign has helped implement the following:

- Collaborative communication effort with the other Inland Empire agencies participating, focused on ending water waste through outreach & education;
- Sharing information unique to the region through On-Hold messages, Mailers, Bill inserts, Lawn signs, Promotional items, Event participation, and Special outreach events;
- Using Press Conferences, Press Releases, Holding Statements, Fact Sheets, Targeted advertising, Presence on website and outreach materials, Participation in social media, and Regular live events.

10.8.1.5 Programs to Assess and Manage Distribution System Real

WVWD has policies for meter testing and replacement that were implemented in January 2011. WVWD now requires an annual testing of meters 4 inch and larger. The Meter Supervisor develops a schedule for testing that includes all meters that are 5 years or older. WVWD has a new valve maintenance crew to repair distribution system leaks. All new fire hydrants installed are equipped with internal check valves so water loss is minimized if a fire hydrant gets hit. WVWD has a full time maintenance and meter department that repairs leaks that are reported by customers or personnel, on a priority basis. The total budget for these departments for FY 2020-2021 is 3.3 million dollars. WVWD repairs approximately 30 leaks a month. The Billing Department Staff also notifies customers, using their monthly meter readings; if it looks like the consumption has increased significantly. Customer Service Staff also provides a letter of thanks to customers for reporting leaks.

10.8.1.6 Water Conservation Program Coordination and Staffing Support

WVWD's Water Conservation Program is a district wide effort. Staff from Customer Service, External Affairs, GIS, Meters, Operations, Engineering and other departments collaborate on various aspects of the program, on encouraging conservation and on ways to efficiently and wisely use our water resources.

The Board of Directors of WVWD adopted Ordinance No. 80, Amending Article No. 24 Water Conservation, of the Service Rules and Regulations. The adoption of this ordinance allowed the District to create a Stage III, A, B & C to be able to restrict the number of irrigation days allowed by Board action instead of ordinance adoption. This Ordinance also addressed the changes required by the State Water Resources Control Board on May 5, 2015.

10.8.1.7 Other Demand Management Measures

WVWD has a number of rebate programs in place to incentivize customers to upgrade to more water efficient technology. Some of WVWD's rebate programs offered are listed below:

- Residential Plumbing Retrofit Kits - package to customers that includes 2 low flow showerheads, 1 kitchen faucet aerator, and 2 bathroom faucet aerators. WVWD plans to expand these kits to include new innovative water conserving features.
- Residential ULFT/HET Rebates - Up to $100 rebate per household.
- Residential HEW Rebates - Up to $100 rebate per household.
- Residential WBIC Rebates - Up to $100 rebate per household.
- Residential HE Nozzles Rebates - Up to $4 per nozzle rebate.
- Residential Turf Replacement Rebates.
- Institutional Rebate Programs - rebate program targeted at schools within WVWD's boundaries to offer rebates on an individual basis for toilets and ET controllers for landscaping.
- CII Rebate Programs - WVWD identifies high water users and will work with each company on an individual basis to create a conservation program tailored to their particular needs.

- Disadvantaged Community (DAC) Water/Energy Grant Program - Starting 2016, remove 65,000 square feet of residential turf and replace it with drought tolerant landscaping. Annually, Water Savings of 44 gallons per square foot.

WVWD is developing two additional online applications. One which will allow customers to submit an online form to request rebates via WVWD's website and another for the turf replacement rebate program. The District offers incentives for customers who replace their high water-consuming landscaping with drought tolerant landscaping.

10.8.2 Implementation over the Past Five Years

WVWD's current per-capita consumption is less than its 2020 compliance target, largely due to the conservation programs and messaging employed by WVWD. WVWD expects to continue to implement its current conservation programs to encourage conservation and maintain per-capita consumption below the compliance target.

10.9 Adoption, Submittal and Implementation

This section describes WVWD's process for adopting, submitting, and implementing the 2020 IRUWMP and WVWD's WSCP.

10.9.1 Notice of Public Hearing

A joint notice was provided on behalf of all agencies whose 2020 UWMPs are part of the 2020 IRWUMP to all cities and counties and other stakeholders within the region that that 2020 IRUWMP is being prepared. This notice was sent at least 60 days prior to WVWD's public hearing. The recipients are identified in **Part 1 Chapter 1** and include all cities and counties within WVWD's service area. A second notice was provided to these cities and counties with the date and time of the public hearing and the location where the draft report was available for review.

WVWD provided notice to the public through its website and published announcements of the public hearing in a newspaper on two occasions before the hearing. Copies of the proof of publication are included in Part 4 Appendix J-2.

10.9.2 Public Hearing and Adoption

WVWD held a public hearing on June 17, 2021 to hear public comment and consider adopting this 2020 IRUWMP and WVWD's WSCP.

As part of the public hearing, the WVWD provided information on their baseline values, water use targets, and implementation plan required in the Water Conservation Act of 2009. The public hearing on the 2020 IRUWMP took place before the adoption of the Plan, which allowed WVWD the opportunity to modify the 2020 IRUWMP in response to any public input before adoption. After the hearing, the Plan was adopted as prepared or as modified after the hearing.

> WVWD's adoption resolution for the 2020 IRUWMP and WVWD's WSCP is included in Part 4 Appendix J-3.

10.9.3 Plan Submittal

WVWD will submit the 2020 IRUWMP and WVWD's WSCP to DWR, the State Library, and cities and counties within 30 days after adoption.

> 2020 IRUWMP submittal to DWR will be done electronically through WUEdata, an online submittal tool.

10.9.4 Public Availability

No later than 30 days after filing a copy of its Plan with DWR, WVWD will make the plan available for public review during normal business hours by placing a copy of the 2020 IRUWMP and WVWD's WSCP by posting the plans on the District's website for public viewing.

10.9.5 Amending an Adopted UWMP or Water Shortage Contingency Plan

If the adopted 2020 IRUWMP or WVWD's WSCP is amended, each of the steps for notification, public hearing, adoption, and submittal will also be followed for the amended plan.

2020 IRUWMP Part 3

Regional Supporting Information

A: Resolutions

Adoption Resolutions will be added after adoption hearings

B: Agreements

Appendix B - Agreements

1. Orange County Judgment
2. Western Judgment
3. 1961 Rialto Basin Decree
4. Rialto Basin Groundwater Council Agreement
5. Seven Oaks Accord
6. Lytle Creek Judgement
7. 1996 In-Lieu Agreement Valley District and Big Bear Municipal Water District
8. Surplus Water Sale Agreement – Valley District and SGPWA 2018
9. Four Party Implementation Agreement and Amendments
10. Agreement Between OCWD City of Riverside Concerning Water Rights
11. Cooperative Agreement to Protect Water Quality and Encourage the Conjunctive Uses of Imported Water in the Santa Ana River Basin (Exchange Plan)
12. San Bernardino Basin Groundwater Council Framework
13. MOU Between and SBCFCD and SBVWCD
14. Fully Executed Settlement Agreement and Amendments with Quick Guide (Rialto Basin Settlement agreement)
15. Agreement Relating to the Diversion of Water from the Santa Ana River System Among Western Municipal Water District of Riverside County, Valley District and City of Riverside (LF 2151)
16. Cooperative Agreement to Protect Water Quality and Encourage the Conjunctive Uses of Imported Water in the Santa Ana River Basin– January 2008 (LF2181)
17. San Bernardino Valley Municipal Water District and Crestline-Lake Arrowhead Water Agency Demonstration Project Water Exchange Agreement-November 2008 (LF 2206)
18. Understanding Agreement Regarding the Contribution to Replenishment and Deliveries– September 2009 (LF2255)
19. Permit for Diversion and Use of Water – Valley District and Western (LF 2276)
20. Agreement between Kern Delta Water District and the San Bernardino Valley Municipal Water District for a Water Management Program-October 2011 (LF 2327)
21. Agreement to Develop and Operate Enhanced Recharge Facilities between the Conservation District, Valley District and Western -October 2012 (LF 2382)
22. Agreement for the Cooperative Use of Unused Well Capacity, the Texas Grove Reservoir and the Central Feeder-April 2013 (LF 2392)
23. Agreement Regarding Additional Extractions of New Conservation Water from the San Bernardino Basin Area-July 2013 (LF 2402)
24. Planning Memorandum of Understanding between the San Bernardino County Flood Control District and the San Bernardino Valley Municipal Water District-July 2013 (LF 2404)
25. Amendment to Agreement to Form the Upper Santa Ana River Wash Land Management and Habitat Conservation Plan Task Force-September 2013 (LF 2407)
26. Coordinated Operations Agreement between the San Bernardino Municipal Water Department and San Bernardino Valley Municipal Water District -September 2013 (LF 2415)

JUDGMENT

Base Yrs - 26 yr
34/35 → 59/60

APR 17 1969

W. E. ST JOHN, County Clerk

ENTERED IN
JUDGMENT BOOK
No. 362 Page 303
Date APR 17 1969

SUPERIOR COURT FOR THE STATE OF CALIFORNIA
FOR THE COUNTY OF ORANGE

ORANGE COUNTY WATER DISTRICT,
Plaintiff,
v.
CITY OF CHINO, et al.,
Defendants.

CITY OF CHINO, et al.,
Cross-Complainants,
v.
CITY OF ANAHEIM, et al.,
Cross-Defendants.

CORONA FOOTHILL LEMON COMPANY, et al.,
Cross-Complainants,
v.
CITY OF ANAHEIM, et al.,
Cross-Defendants.

CITY OF POMONA, a municipal corporation,
Cross-Complainant,
v.
CITY OF ANAHEIM, et al.,
Cross-Defendants.

No. 117628

JUDGMENT

CITY OF RIVERSIDE, et al.,

Cross-Complainants,

v.

CITY OF ANAHEIM, et al.,

Cross-Defendants.

BEAR VALLEY MUTUAL WATER COMPANY, et al.,

Cross-Complainants,

v.

CITY OF ANAHEIM, et al.,

Cross-Defendants.

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT, a municipal water district,

Cross-Complainant,

v.

CITY OF ANAHEIM, et al.,

Cross-Defendants.

EAST SAN BERNARDINO COUNTY WATER DISTRICT, a county water district,

Cross-Complainant,

v.

CITY OF ANAHEIM, et al.,

Cross-Defendants.

CITY OF SAN BERNARDINO, a municipal corporation,

Cross-Complainant,

v.

CITY OF ANAHEIM, et al.,

Cross-Defendants.

CITY OF REDLANDS, a municipal corporation,

Cross-Complainant,

v.

CITY OF ANAHEIM, et al.,

Cross-Defendants.

CITY OF COLTON, a municipal corporation,

Cross-Complainant,

v.

CITY OF ANAHEIM, et al.,

Cross-Defendants.

SAN BERNARDINO VALLEY WATER CONSERVATION DISTRICT, a water conservation district,

Cross-Complainant,

v.

CITY OF ANAHEIM, et al.,

Cross-Defendants.

CITY OF RIALTO, a municipal corporation,

Cross-Complainant,

v.

CITY OF ANAHEIM, et al.,

Cross-Defendants.

BIG BEAR MUNICIPAL WATER DISTRICT, a municipal water district,

Cross-Complainant,

v.

CITY OF ANAHEIM, et al.,

Cross-Defendants.

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RECITALS

a. Complaint. The complaint herein was filed on October 18, 1963, seeking an adjudication of water rights against substantially all water users in the area tributary to Prado Dam in the Santa Ana River Watershed.

b. Cross-Complaints. Thirteen cross-complaints were subsequently filed in the period of February 22 to March 22, 1968, by which said adjudication of rights was extended to substantially all water users within the Santa Ana River Watershed downstream from Prado Dam.

c. Physical and Legal Complexities. The physical and legal complexities of the case as framed by the complaint and cross-complaints are unprecedented. In excess of 4,000 individual parties have been served and the water supply and water rights of an entire stream system extending over 2,000 square miles and into four counties have been brought into issue. Every type and nature of water rights known to California law, excepting only Pueblo rights, is in issue in the case. Engineering studies by the parties jointly and severally leading toward adjudication of these rights or, in the alternative, to a physical solution, have required the expenditure of over four years' time and many hundreds of thousands of dollars.

d. Need for Physical Solution. It is apparent to the parties and to the Court that development of a physical solution based upon a formula for inter-basin allocation of obligations and rights is in the best interests of all the parties and is in furtherance of the water policy of the State. For purposes of such a physical solution, it is neither necessary nor helpful to define individual rights of all claimants within the watershed. Nontributary supplemental sources of water are or will be available to the parties in quantities sufficient to assure implementation of a solution involving inter-basin allocation of the natural water

supply of the Santa Ana River system. Sufficient information and data of a general nature are known to formulate a reasonable and just allocation as between the major hydrologic sub-areas within the watershed, and such a physical solution will allow the public agencies and water users within each such major hydrologic sub-area to proceed with orderly water resource planning and development.

e. Parties. Orange County Water District, Chino Basin Municipal Water District, Western Municipal Water District of Riverside County and San Bernardino Valley Municipal Water District are public districts overlying, in the aggregate, substantially all of the major areas of water use within the watershed. Said districts have the statutory power and financial resources to implement a physical solution. Accordingly, dismissals have been entered as to all defendants and cross-defendants other than said four public districts.

f. Cooperation by Dismissed Parties. As a condition of dismissal of said defendants and cross-defendants, certain of said parties have stipulated to cooperate and support the inter-basin water quality and water management objectives of the physical solution and this Judgment.

DECREE

NOW, THEREFORE, IT IS HEREBY ORDERED, ADJUDGED AND DECREED:

1. Jurisdiction. The Court has jurisdiction of the subject matter of this action and of the parties herein.

2. Exhibits. The following exhibits are attached to this Judgment and made a part hereof.

(a) Exhibit A -- map entitled "Santa Ana River Watershed", showing boundaries and other relevant features of the area subject to this Judgment.

(b) Exhibit B -- Engineering Appendix.

3. Definitions. As used in this Judgment, the following

terms shall have the meanings herein set forth:

(a) OCWD -- Orange County Water District, appearing and acting individually and in a representative capacity for and on behalf of all riparian, overlying and other landowners, water users and inhabitants within said District pursuant to Subdivision 7 of Section 2 of the Orange County Water District Act, as amended.

(b) CBMWD -- Chino Basin Municipal Water District, appearing and acting pursuant to Section 71751 of the California Water Code.

(c) WMWD -- Western Municipal Water District of Riverside County, appearing and acting pursuant to said Section 71751.

(d) SBVMWD -- San Bernardino Valley Municipal Water District, appearing and acting pursuant to said Section 71751.

Eastern not included

(e) Upper Districts -- CBMWD, WMWD and SBVMWD.

(f) Upper Area -- The area on Exhibit A which lies upstream from Prado.

(g) Lower Area -- The area on Exhibit A which lies downstream from Prado.

(h) Prado -- Said term shall be synonomous with Prado Dam, a facility constructed and maintained by the United States Corps of Engineers, as shown on Exhibit A.

(i) Riverside Narrows -- That bedrock narrows in the Santa Ana River indicated as such on Exhibit A.

(j) Storm Flow -- That portion of the total surface flow passing a point of measurement, which originates from precipitation and runoff without having first percolated to ground water storage in the zone of saturation, calculated in accordance with procedures

referred to in Exhibit B.

(k) Base Flow -- That portion of the total surface flow passing a point of measurement, which remains after deduction of Storm Flow, and modified as follows:

(1) At Prado. Base Flow shall:

(i) include any water caused to be delivered by CBMWD or WMWD directly to OCWD, pursuant to its direction and control and not measured at the gages at Prado;

(ii) exclude any nontributary water or reclaimed sewage water purchased by OCWD and delivered into the river upstream and which subsequently passes Prado, and

(iii) exclude water salvaged from evapo-transpiration losses by OCWD on lands presently owned by it above Prado.

(2) At Riverside Narrows. Base Flow shall:

(i) include any water caused to be delivered by SBVMWD directly to CBMWD or WMWD pursuant to their direction and control, or directly to OCWD with the consent of CBMWD and WMWD and pursuant to the direction and control of OCWD, and not measured at the gage at Riverside Narrows;

(ii) exclude any nontributary water purchased by CBMWD, WMWD or OCWD and delivered into the river upstream and which subsequently passes Riverside Narrows; and

(iii) exclude any effluent discharged from the City of Riverside sewage treatment plant.

(l) TDS -- Total dissolved solids determined as set forth in Exhibit B.

(m) Water Year -- The period from October 1 to the following September 30. Where reference is made herein to "year" or "annual", such terms shall be construed as referring to Water Year, unless the context indicates otherwise.

(n) Adjusted Base Flow -- Actual Base Flow in each year adjusted for quality as provided hereinbelow. Compliance with the respective obligations under Paragraph 5 shall be measured by the Adjusted Base Flow.

4. Declaration of Rights. Substantially all of the parties to this action, whether situate in Upper Area or Lower Area have or claim rights to the use of a portion of the water supply of the Santa Ana River system. In the aggregate, water users and other entities in Lower Area have rights, as against all Upper Area claimants, to receive an average annual supply of 42,000 acre feet of Base Flow at Prado, together with the right to all Storm Flow reaching Prado Reservoir. Water users and other entities in Upper Area have rights in the aggregate, as against all Lower Area claimants, to divert, pump, extract, conserve, store and use all surface and ground water supplies originating within Upper Area without interference or restraint by Lower Area claimants, so long as Lower Area receives the water to which it is entitled under this Judgment and there is compliance with all of its provisions.

5. Physical Solution. The Court hereby declares the following physical solution to be a fair and equitable basis for satisfaction of all said rights in the aggregate between Lower Area and Upper Area. The parties are hereby ordered and directed to comply with this Physical Solution and such compliance shall constitute full and complete satisfaction of the rights declared in

Paragraph 4 hereof.

(a) General Format. In general outline, SBVMWD shall be responsible for the delivery of an average annual amount of Base Flow at Riverside Narrows. CBMWD and WMWD shall jointly be responsible for an average annual amount of Base Flow at Prado. Insofar as Lower Area claimants are concerned, Upper Area water users and other entities may engage in unlimited water conservation activities, including spreading, impounding and other methods, in the area above Prado Reservoir, so long as Lower Area receives the water to which it is entitled under the Judgment and there is compliance with all of its provisions. Lower Area water users and other entities may make full conservation use of Prado Dam and reservoir, subject only to flood control use.

(b) Obligation of SBVMWD. SBVMWD shall be responsible for an average annual Adjusted Base Flow of 15,250 acre feet at Riverside Narrows. A continuing account, as described in Exhibit B, shall be maintained of actual Base Flow at Riverside Narrows, with all adjustments thereof and any cumulative debit or credit. Each year the obligation to provide Base Flow shall be subject to the following:

(1) Minimum Annual Quantities. Without regard to any cumulative credits, or any adjustment for quality for the current Water Year under subparagraph (2) hereof, SBVMWD each year shall be responsible at Riverside Narrows for not less than 13,420 acre feet of Base Flow plus one-third of any cumulative debit; provided, however, that for any year

commencing on or after October 1, 1986, when there is no cumulative debit, or for any year prior to 1986 whenever the cumulative credit exceeds 10,000 acre feet, said minimum shall be 12,420 acre feet.

(2) Adjustment for Quality. The amount of Base Flow at Riverside Narrows received during any year shall be subject to adjustment based upon the weighted average annual TDS in such Base Flow, as follows:

If the Weighted Average TDS in Base Flow at Riverside Narrows is:	Then the Adjusted Base Flow shall be determined by the formula:
Greater than 700 ppm	$Q - \frac{11}{15,250} Q\ (TDS-700)$
600 ppm - 700 ppm	Q
Less than 600 ppm	$Q + \frac{11}{15,250} Q\ (600-TDS)$

Where: Q = Base Flow actually received.

(3) Periodic Reduction of Cumulative Debit. At least once in any ten (10) consecutive years subsequent to October 1, 1976, SBVMWD shall provide sufficient quantities of Base Flow at Riverside Narrows to discharge completely any cumulative debits. Any cumulative credits shall remain on the books of account until used to offset any subsequent debits, or until otherwise disposed of by SBVMWD.

(c) Obligation of CBMWD and WMWD. CBMWD and WMWD shall be responsible for an average annual Adjusted Base Flow of 42,000 acre feet at Prado. A continuing account, as described in Exhibit B, shall

(l) TDS -- Total dissolved solids determined as set forth in Exhibit B.

(m) Water Year -- The period from October 1 to the following September 30. Where reference is made herein to "year" or "annual", such terms shall be construed as referring to Water Year, unless the context indicates otherwise.

(n) Adjusted Base Flow -- Actual Base Flow in each year adjusted for quality as provided hereinbelow. Compliance with the respective obligations under Paragraph 5 shall be measured by the Adjusted Base Flow.

4. Declaration of Rights. Substantially all of the parties to this action, whether situate in Upper Area or Lower Area have or claim rights to the use of a portion of the water supply of the Santa Ana River system. In the aggregate, water users and other entities in Lower Area have rights, as against all Upper Area claimants, to receive an average annual supply of 42,000 acre feet of Base Flow at Prado, together with the right to all Storm Flow reaching Prado Reservoir. Water users and other entities in Upper Area have rights in the aggregate, as against all Lower Area claimants, to divert, pump, extract, conserve, store and use all surface and ground water supplies originating within Upper Area without interference or restraint by Lower Area claimants, so long as Lower Area receives the water to which it is entitled under this Judgment and there is compliance with all of its provisions.

5. Physical Solution. The Court hereby declares the following physical solution to be a fair and equitable basis for satisfaction of all said rights in the aggregate between Lower Area and Upper Area. The parties are hereby ordered and directed to comply with this Physical Solution and such compliance shall constitute full and complete satisfaction of the rights declared in

Paragraph 4 hereof.

(a) General Format. In general outline, SBVMWD shall be responsible for the delivery of an average annual amount of Base Flow at Riverside Narrows. CBMWD and WMWD shall jointly be responsible for an average annual amount of Base Flow at Prado. Insofar as Lower Area claimants are concerned, Upper Area water users and other entities may engage in unlimited water conservation activities, including spreading, impounding and other methods, in the area above Prado Reservoir, so long as Lower Area receives the water to which it is entitled under the Judgment and there is compliance with all of its provisions. Lower Area water users and other entities may make full conservation use of Prado Dam and reservoir, subject only to flood control use.

(b) Obligation of SBVMWD. SBVMWD shall be responsible for an average annual Adjusted Base Flow of 15,250 acre feet at Riverside Narrows. A continuing account, as described in Exhibit B, shall be maintained of actual Base Flow at Riverside Narrows, with all adjustments thereof and any cumulative debit or credit. Each year the obligation to provide Base Flow shall be subject to the following:

(1) Minimum Annual Quantities. Without regard to any cumulative credits, or any adjustment for quality for the current Water Year under subparagraph (2) hereof, SBVMWD each year shall be responsible at Riverside Narrows for not less than 13,420 acre feet of Base Flow plus one-third of any cumulative debit; provided, however, that for any year

commencing on or after October 1, 1986, when there is no cumulative debit, or for any year prior to 1986 whenever the cumulative credit exceeds 10,000 acre feet, said minimum shall be 12,420 acre feet.

(2) Adjustment for Quality. The amount of Base Flow at Riverside Narrows received during any year shall be subject to adjustment based upon the weighted average annual TDS in such Base Flow, as follows:

If the Weighted Average TDS in Base Flow at Riverside Narrows is:	Then the Adjusted Base Flow shall be determined by the formula:
Greater than 700 ppm	$Q - \frac{11}{15,250} Q\ (TDS-700)$
600 ppm - 700 ppm	Q
Less than 600 ppm	$Q + \frac{11}{15,250} Q\ (600-TDS)$

Where: Q = Base Flow actually received.

(3) Periodic Reduction of Cumulative Debit. At least once in any ten (10) consecutive years subsequent to October 1, 1976, SBVMWD shall provide sufficient quantities of Base Flow at Riverside Narrows to discharge completely any cumulative debits. Any cumulative credits shall remain on the books of account until used to offset any subsequent debits, or until otherwise disposed of by SBVMWD.

(c) Obligation of CBMWD and WMWD. CBMWD and WMWD shall be responsible for an average annual Adjusted Base Flow of 42,000 acre feet at Prado. A continuing account, as described in Exhibit B, shall

be maintained of actual Base Flow at Prado, with all adjustments thereof and any cumulative debit or credit. Each year the obligation to provide Base Flow shall be subject to the following:

(1) Minimum Annual Quantities. Without regard to any cumulative credits, or any adjustments for quality for the current Water Year under subparagraph (2) hereof, CBMWD and WMWD each year shall be responsible for not less than 37,000 acre feet of Base Flow at Prado, plus one-third of any cumulative debit; provided, however, that for any year commencing on or after October 1, 1986, when there is no cumulative debit, or for any year prior to 1986 whenever the cumulative credit exceeds 30,000 acre feet, said minimum shall be 34,000 acre feet.

(2) Adjustment for Quality. The amount of Base Flow at Prado received during any year shall be subject to adjustment based upon the weighted average annual TDS in Base Flow and Storm Flow at Prado as follows:

If the Weighted Average TDS in Base Flow and Storm Flow at Prado is:	Then the Adjusted Base Flow shall be determined by the formula:
Greater than 800 ppm	$Q - \frac{35}{42,000} Q\ (TDS-800)$
700 ppm - 800 ppm	Q
Less than 700 ppm	$Q + \frac{35}{42,000} Q\ (700-TDS)$

Where: Q = Base Flow actually received.

(3) Periodic Reduction of Cumulative Debit. At least once in ten (10) consecutive years subsequent to October 1, 1976, CBMWD and WMWD shall

provide sufficient quantities of Base Flow at Prado to discharge completely any cumulative debits. Any cumulative credits shall remain on the books of account until used to offset any subsequent debits, or until otherwise disposed of by CBMWD and WMWD.

(d) Inter-basin Export. Upper Districts are hereby restrained and enjoined from exporting water from Lower Area to Upper Area, directly or indirectly. OCWD is enjoined and restrained from pumping, producing and exporting or directly or indirectly causing water to flow from Upper to Lower Area, except as to salvage of evapo-transpiration losses, as follows: OCWD owns certain lands within and above Prado Reservoir on which it has or claims certain rights to salvage evapo-transpiration losses by pumping or otherwise. Pumping for said salvage purposes shall not exceed 5,000 acre feet of ground water in any water year. Only the actual net salvage, as determined by the Watermaster, shall be excluded from Base Flow.

(e) Inter-basin Acquisition of Rights. The acquisition by Upper Districts or other Upper Area entities of Lower Area water rights shall in no way affect or reduce Lower Area's entitlement; and the acquisition of Upper Area water rights by OCWD or other Lower Area entities shall be deemed to be included within the aggregate entitlement of Lower Area and shall not increase said entitlement.

(f) Effective Date. Obligations under this physical solution shall accrue from and after October 1, 1970.

6. Prior Adjudications. So long as SBVMWD is in

commencing on or after October 1, 1986, when there is no cumulative debit, or for any year prior to 1986 whenever the cumulative credit exceeds 10,000 acre feet, said minimum shall be 12,420 acre feet.

(2) Adjustment for Quality. The amount of Base Flow at Riverside Narrows received during any year shall be subject to adjustment based upon the weighted average annual TDS in such Base Flow, as follows:

If the Weighted Average TDS in Base Flow at Riverside Narrows is:	Then the Adjusted Base Flow shall be determined by the formula:
Greater than 700 ppm	$Q - \frac{11}{15,250} Q\ (TDS-700)$
600 ppm - 700 ppm	Q
Less than 600 ppm	$Q + \frac{11}{15,250} Q\ (600-TDS)$

Where: Q = Base Flow actually received.

(3) Periodic Reduction of Cumulative Debit. At least once in any ten (10) consecutive years subsequent to October 1, 1976, SBVMWD shall provide sufficient quantities of Base Flow at Riverside Narrows to discharge completely any cumulative debits. Any cumulative credits shall remain on the books of account until used to offset any subsequent debits, or until otherwise disposed of by SBVMWD.

(c) Obligation of CBMWD and WMWD. CBMWD and WMWD shall be responsible for an average annual Adjusted Base Flow of 42,000 acre feet at Prado. A continuing account, as described in Exhibit B, shall

be maintained of actual Base Flow at Prado, with all adjustments thereof and any cumulative debit or credit. Each year the obligation to provide Base Flow shall be subject to the following:

(1) Minimum Annual Quantities. Without regard to any cumulative credits, or any adjustments for quality for the current Water Year under subparagraph (2) hereof, CBMWD and WMWD each year shall be responsible for not less than 37,000 acre feet of Base Flow at Prado, plus one-third of any cumulative debit; provided, however, that for any year commencing on or after October 1, 1986, when there is no cumulative debit, or for any year prior to 1986 whenever the cumulative credit exceeds 30,000 acre feet, said minimum shall be 34,000 acre feet.

(2) Adjustment for Quality. The amount of Base Flow at Prado received during any year shall be subject to adjustment based upon the weighted average annual TDS in Base Flow and Storm Flow at Prado as follows:

If the Weighted Average TDS in Base Flow and Storm Flow at Prado is:	Then the Adjusted Base Flow shall be determined by the formula:
Greater than 800 ppm	$Q - \frac{35}{42,000} Q\ (TDS-800)$
700 ppm - 800 ppm	Q
Less than 700 ppm	$Q + \frac{35}{42,000} Q\ (700-TDS)$

Where: Q = Base Flow actually received.

(3) Periodic Reduction of Cumulative Debit. At least once in ten (10) consecutive years subsequent to October 1, 1976, CBMWD and WMWD shall

provide sufficient quantities of Base Flow at Prado to discharge completely any cumulative debits. Any cumulative credits shall remain on the books of account until used to offset any subsequent debits, or until otherwise disposed of by CBMWD and WMWD.

(d) Inter-basin Export. Upper Districts are hereby restrained and enjoined from exporting water from Lower Area to Upper Area, directly or indirectly. OCWD is enjoined and restrained from pumping, producing and exporting or directly or indirectly causing water to flow from Upper to Lower Area, except as to salvage of evapo-transpiration losses, as follows: OCWD owns certain lands within and above Prado Reservoir on which it has or claims certain rights to salvage evapo-transpiration losses by pumping or otherwise. Pumping for said salvage purposes shall not exceed 5,000 acre feet of ground water in any water year. Only the actual net salvage, as determined by the Watermaster, shall be excluded from Base Flow.

(e) Inter-basin Acquisition of Rights. The acquisition by Upper Districts or other Upper Area entities of Lower Area water rights shall in no way affect or reduce Lower Area's entitlement; and the acquisition of Upper Area water rights by OCWD or other Lower Area entities shall be deemed to be included within the aggregate entitlement of Lower Area and shall not increase said entitlement.

(f) Effective Date. Obligations under this physical solution shall accrue from and after October 1, 1970.

6. Prior Adjudications. So long as SBVMWD is in

compliance with the terms of the physical solution herein, OCWD is enjoined and restrained from enforcing the judgments listed below against SBVMWD or any entities within or partially within SBVMWD which have stipulated to accept and adopt such physical solution. So long as WMWD and CBMWD are in compliance with the terms of the physical solution, OCWD is enjoined and restrained from enforcing the judgments listed below against WMWD and CBMWD or any entities within or partially within WMWD or CBMWD which have stipulated to accept and adopt such physical solution.

(a) The Irvine Company, plaintiff, Orange County Water District, intervenor, vs. San Bernardino Valley Water Conservation District, et al., defendants, U. S. Dist. Ct., S.D. Cal. Civ. No. Y-36-M, judgments entered September 11, 1942 (Judgment Book 11 page 134), and recorded Book 1540 page 251 and Book 1541 page 85, Official Records of San Bernardino County.

(b) Orange County Water District vs. City of Riverside, et al., San Bernardino Superior Court No. 84671.

7. Watermaster. The Watermaster, when appointed by the Court, shall administer and enforce the provisions of this Judgment and the instructions and subsequent orders of this Court.

(a) Composition, Nomination and Appointment. The Watermaster shall consist of a committee composed of five (5) persons. CBMWD, WMWD and SBVMWD shall each have the right to nominate one representative and OCWD shall have the right to nominate two (2) representatives to the Watermaster committee. Each such nomination shall be made in writing, served upon the other parties to the Stipulation for this Judgment and filed with the Court. Said Watermaster representatives shall be appointed by and serve at

the pleasure of and until further order of this Court.

(b) Watermaster Determinations. Each and every finding and determination of the Watermaster shall be made in writing certified to be by unanimous action of all members of the Watermaster Committee. In the event of failure or inability of said Watermaster Committee to reach unanimous agreement, the fact, issue, or determination in question shall forthwith be certified to this Court by the Watermaster, and after due notice to the parties and opportunity for hearing, said matter shall be determined by order of this Court.

(c) Annual Report. The Watermaster shall report to the Court and to each party in writing not more than five (5) months after the end of each Water Year, each of the items required by Paragraph 4 of the Engineering Appendix, Exhibit B hereto, and such other items as the parties may mutually request or the Watermaster may deem to be appropriate. All of the books and records of the Watermaster which are used in the preparation of, or are relevant to, such reported data, determinations and reports shall be open to inspection by the parties to the Stipulation for Judgment herein.

(d) Watermaster Service Expenses. The fees, compensation and expenses of each representative on the Watermaster shall be borne by the district which nominated such person. All other Watermaster service costs and expenses shall be borne by the parties in the following proportions:

OCWD - 40%

CBMWD - 20%

SBVMWD - 20%

WMWD - 20%

The Watermaster may from time to time in its discretion require advances of operating capital from the parties in said proportions.

8. Continuing Jurisdiction of the Court. Full jurisdiction, power and authority are retained and reserved by the Court for the purpose of enabling the Court, upon application of any party or of the Watermaster by motion and upon at least 30 days' notice thereof, and after hearing thereon:

(a) To make such further or supplemental orders or directions as may be necessary or appropriate for the construction, enforcement or carrying out of this Judgment, and

(b) To modify, amend or amplify any of the provisions of this Judgment whenever substantial changes or developments affecting the physical, hydrological or other conditions dealt with herein may, in the Court's opinion, justify or require such modification, amendment or amplification; provided, however, that no such modification, amendment or amplification shall change or alter (1) the average annual obligation of CBMWD and WMWD for delivery of 42,000 acre feet of Base Flow per year at Prado, (2) the average annual obligation of SBVMWD for delivery of 15,250 acre feet of Base Flow per year at Riverside Narrows, (3) the respective minimum Base Flows at Riverside Narrows and Prado, nor (4) the right of the parties to this Judgment or of those who stipulate to accept and adopt the physical solution herein to conserve or store flows.

9. Notices. All notices, requests, objections, reports and other papers permitted or required by the terms of this

Judgment shall be given or made by written document and shall be served by mail on each party and its attorney entitled to notice and where required or appropriate, on the Watermaster. For all purposes of this paragraph, the mailing address of each party and attorney entitled to notice shall be that set forth below its signature in the Stipulation for Judgment, until changed as provided below. If any party or attorney for a party desires to change its designation of mailing address, it shall file a written notice of such change with the Clerk of this Court and shall serve a copy thereof by mail on the Watermaster. Upon receipt of any such notice, the Watermaster shall promptly give written notice thereof. Watermaster addresses for notice purposes shall be as specified in the orders appointing each representative on the Watermaster.

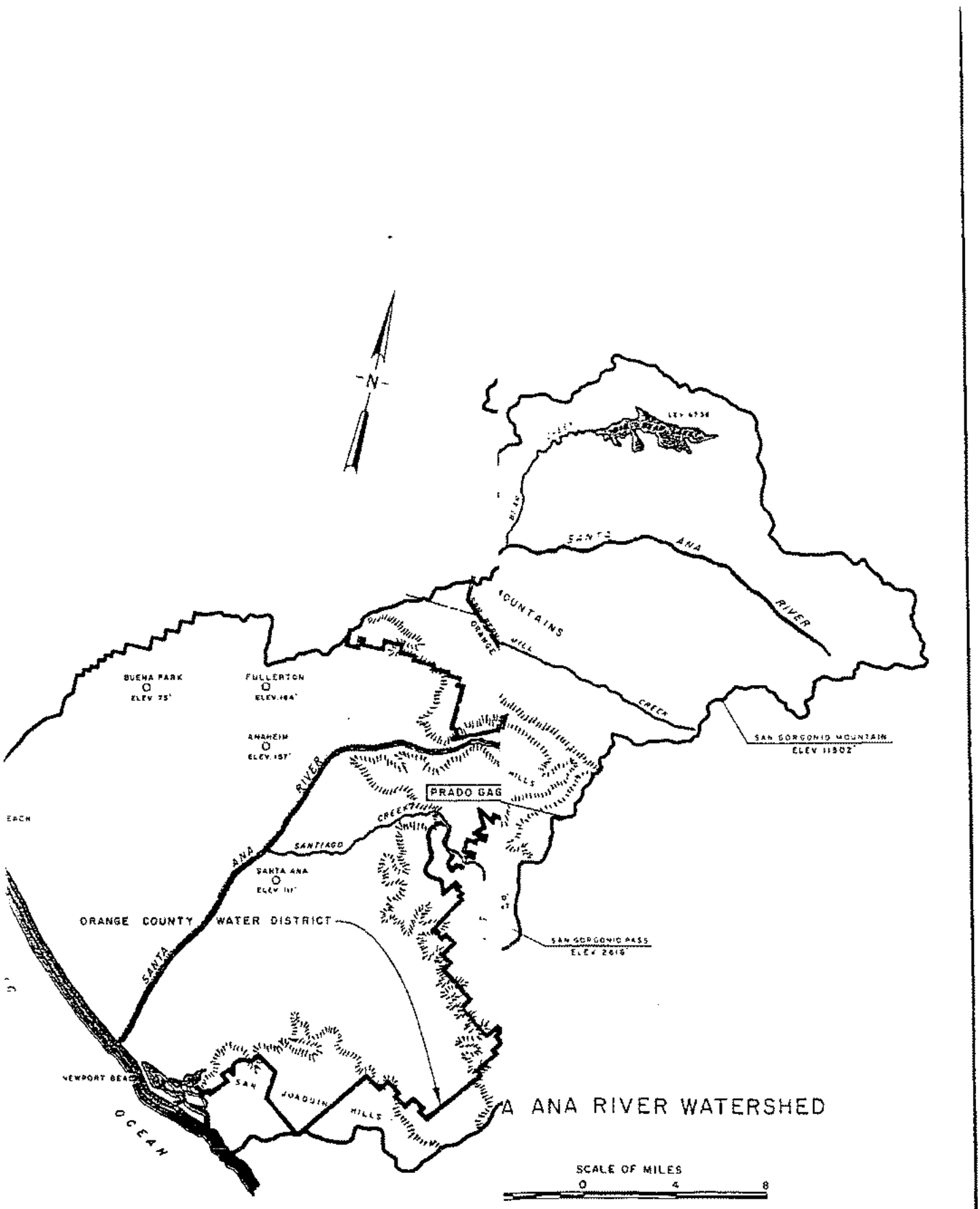
10. Successors. No party shall dissolve, nor shall it abandon or transfer all or substantially all of its powers or property, without first providing for its obligations under this Judgment to be assumed by a successor public agency, with the powers and resources to perform hereunder. Any such successor shall be approved by the Court after notice to all parties and an opportunity for hearing.

11. Future Actions. In the event that any Lower Area claimant shall in the future obtain from any court of competent jurisdiction a decree awarding to such claimant a right to receive a stated amount of water from the Upper Area for use in the Lower Area, any water delivered pursuant to such decree shall be considered as part of Base Flow. In the event that the relief obtained by any such claimant is in the form of a restriction imposed upon production and the use of water in Upper Area, rather than a right to receive a stated amount of water, then notwithstanding the proviso in Paragraph 8, any Upper District may apply to the Court to modify the physical solution herein.

12. Costs. None of the parties shall recover any costs from any other party.

Dated: April 17, 1969

Judge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SANTA ANA RIVER
MOUNTAINS
ORANGE HILL
CREEK
SAN GORGONIO MOUNTAIN
ELEV 11502'
BUENA PARK
ELEV 75'
FULLERTON
ELEV. 184'
ANAHEIM
ELEV. 157'
SANTA ANA
ELEV. 111'
PRADO DAM
SANTIAGO CREEK
SANTA ANA RIVER
ORANGE COUNTY WATER DISTRICT
SAN GORGONIO PASS
ELEV 2615'
NEWPORT BEACH
SAN JOAQUIN HILLS
OCEAN
A ANA RIVER WATERSHED
SCALE OF MILES
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EXHIBIT A

ENGINEERING APPENDIX

The purpose of the Engineering Appendix is to establish the basis for measurements, calculations and determinations required in the operation of the physical solution.

1. Measurements.

In administering the physical solution, it will be necessary to determine the quantity and quality of stream flow and flow in pipelines or other conveyance facilities at several points along the Santa Ana River. Watermaster shall make, or obtain from United States Geological Survey (USGS), flood control districts or other entities, all measurements necessary for making the determinations required by the Judgment.

a. Change in Measuring Device or Location. If any measuring device used or useful in making such determinations is inoperative, abandoned, changed or moved, Watermaster shall estimate the quantity that would have been measured at the station had it been operative at its original location, or may use a substitute device or location.

b. Erroneous Measurement. If Watermaster determines there is an error in any measurement or record, he may utilize his estimate in lieu of said measurement or record.

c. Preliminary Records. Watermaster may utilize preliminary records of measurement. If revisions are subsequently made in the records, Watermaster may reflect such changes in subsequent accounting.

2. Determination of Flow Components.

Since the records available only provide data on the total quantity of surface flow and since storm runoff occurs during and following periods of rainfall, Watermaster must determine what portion of total measured surface flow at Prado and at Riverside

Narrows is Storm Flow and what portion is Base Flow.

Under paragraph 3(k) of the Judgment, certain categories of water are to be included or excluded from Base Flow. As such waters may or may not be measured by the USGS gages at Prado and/or Riverside Narrows, Watermaster must make appropriate adjustments to account for the same.

The parties, in reaching the physical solution provided for in the Judgment, used certain procedures to separate or scalp the Storm Flow from the total measured surface flow and to determine Base Flow. These procedures are reflected in the Work Papers of the engineers, bound copies of which shall be filed with the Watermaster. Watermaster shall use either the same procedures or procedures which will give equivalent results, giving due consideration to all sources of the surface flow measured at the gages, to changes in the amounts and the proportionate contributions of each source, and to changes in location of measuring points.

3. Water Quality Determinations.

It will be necessary to determine for each water year the weighted average Total Dissolved Solids (TDS) content of the Base Flow at Riverside Narrows and of the total flow at Prado.

TDS shall be determined by the method set forth under "B. Filterable Residual", starting on page 245 of Standard Methods for Examination of Water and Wastewater, Twelfth Edition, 1965, Library of Congress Catalog Card No. 55-1979. The drying temperature shall be 180° centigrade. Milligrams per liter (mg/l) shall be deemed equivalent to parts per million (ppm) for purposes of the Judgment.

a. Procedure at Prado.

(1) Determinations of the electrical conductivity at 25°C. near the gaging station at Prado shall be made or obtained.

(2) A sufficient number of determinations of TDS of the flow at the same point shall be

made or obtained to provide the relationship between TDS and electrical conductivity for all rates of flow. This relationship shall be used to determine the average daily TDS weighted by flow, for each day of the year. During periods of Storm Flow, samples shall be taken at least daily.

(3) The annual weighted average TDS of all waters passing Prado shall be determined. Any direct deliveries or flows which are included or excluded in the definition of Base Flow as set forth in paragraph 3(k) of the Judgment, shall be similarly included or excluded in the calculation of the annual weighted average TDS.

b. Procedure at Riverside Narrows. The procedure to adjust Base Flow at Riverside Narrows shall be the same as that outlined in paragraph a. above, except that the annual weighted average TDS of Base Flow only is to be determined. Therefore during periods of Storm Flow, the TDS of Base Flow shall be estimated.

4. Accounting.

Utilizing the appropriate obligations set forth in the Judgment and the measurements, calculations and determinations described in this Engineering Appendix, Watermaster shall maintain a continuing account for each year of the following items.

a. Prado Accounting.

(1) Base Flow at Prado. See Paragraph 2 of this Engineering Appendix and Paragraph 3(k) of the Judgment.

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(2) Annual Weighted TDS of Total Flow at Prado. See Paragraph 3a of this Engineering Appendix.

(3) Annual Adjusted Base Flow. See Paragraph 5(c)(2) of the Judgment and items (1) and (2) above.

(4) Cumulative Adjusted Base Flow. This is the cumulation of quantities shown in item (3) above.

(5) Cumulative Entitlement of OCWD at Prado. This is the product of 42,000 acre feet multiplied by the number of years after October 1, 1970.

(6) Cumulative Credit or Debit. This is item (4) minus item (5).

(7) One-third of Cumulative Debit. This is equal to one-third of any cumulative debit shown in item (6) above.

(8) Minimum Required Base Flow in Following Year. This is the minimum quantity of Base Flow at Prado which CBMWD and WMWD must jointly cause to occur in the following year determined in accordance with paragraph 5(c)(1) of the Judgment and utilizing item (7) above.

b. Riverside Narrows Accounting.

(1) Base Flow at Riverside Narrows. See Paragraph 2 of this Engineering Appendix and Paragraph 3(k) of the Judgment.

(2) Annual Weighted TDS of Base Flow at Riverside Narrows. See Paragraph 3b of this Engineering Appendix.

(3) Annual Adjusted Base Flow. See

Paragraph 5(b)(2) of the Judgment and items (1) and (2) above.

(4) Cumulative Adjusted Base Flow. This is the cumulation of quantities shown in item (3) above.

(5) Cumulative Entitlement of CBMWD and WMWD at Riverside Narrows. This is the product of 15,250 acre feet multiplied by the number of years after October 1, 1970.

(6) Cumulative Credit or Debit. This is item (4) minus item (5).

(7) One-third of Cumulative Debit. This is equal to one-third of any cumulative debit shown in item (6) above.

(8) Minimum Required Base Flow in Following Year. This is the minimum quantity of Base Flow at Riverside Narrows which SBVMWD must cause to occur in the following year determined in accordance with Paragraph 5(b)(1) of the Judgment and utilizing item (7) above.

FILED
RIV. APICE COUNTY
APR 17 1969
DONALD [illegible], Clerk
By [illegible], Deputy

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA

IN AND FOR THE COUNTY OF RIVERSIDE

WESTERN MUNICIPAL WATER DISTRICT OF RIVERSIDE COUNTY, a municipal water district; CITY OF RIVERSIDE, a municipal corporation; THE GAGE CANAL COMPANY, a corporation; AGUA MANSA WATER COMPANY, a corporation, MEEKS & DALEY WATER COMPANY, a corporation; RIVERSIDE HIGHLAND WATER COMPANY, a corporation, and THE REGENTS OF THE UNIVERSITY OF CALIFORNIA,

Plaintiffs,

-vs-

(A) EAST SAN BERNARDINO COUNTY WATER DISTRICT, et al.,

Defendants

No. 754726

JUDGMENT

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APPENDIX A -- 'Map showing San Bernardino Basin Area, Colton Basin Area, and Riverside Basin Area situated within San Bernardino County; Riverside Basin Area within Riverside County; Bunker Hill Dike; Riverside Narrows; and

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		Boundaries of San Bernardino Valley Municipal Water District & Western Municipal Water District of Riverside County
APPENDIX B --		Extractions by Plaintiffs from San Bernardino Basin Area.
APPENDIX C --		Exports for Use on Lands not Tributary to Riverside Narrows
APPENDIX D --		Miscellaneous Data

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RECITALS

(a) Complaint. The complaint in this action was filed by certain parties exporting water from the area defined herein as the San Bernardino Basin Area for use within Western, and sought a general adjudication of water rights.

(b) Orange County Water District Action. Subsequently the Orange County Water District filed an action for the adjudication of the water rights of substantially all water users in the area tributary to Prado Dam in the Santa Ana River Watershed. A decree of physical solution has been entered in such action whereby individual water users were dismissed, and San Bernardino Valley and Western assumed responsibility for the deliveries of certain flows at Riverside Narrows and Prado respectively.

(c) Physical Solution. The Judgment herein will further implement the physical solution in the Orange County Water District action, as well as determine the rights of the hereinafter named Plaintiffs to extract water from the San Bernardino Basin Area, and provide for replenishment of the area above Riverside Narrows. Such Judgment is fair and equitable, in the best interests of the parties, and in furtherance of the water policy of the State. San Bernardino Valley has the statutory power and resources to effectuate this Judgment and accordingly the other defendants may be dismissed.

(d) Stipulation. The parties named herein through their respective counsel have proposed and filed a written stipulation agreeing to the making and entry of this Judgment. By reason of such stipulation, and good cause appearing

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therefor,

IT IS HEREBY ORDERED, ADJUDGED AND DECREED as follows:

I

ACTIVE PARTIES

(a) The parties to this Judgment are as follows:

(1) Plaintiff Western Municipal Water District of Riverside County, a California municipal water district, herein often called "Western", appearing and acting pursuant to Section 71751 of the Water Code;

(2) Plaintiff City of Riverside, a municipal corporation;

(3) Plaintiffs Riverside Highland Water Company, Agua Mansa Water Company and Meeks & Daley Water Company, each of which is a mutual water company and a California corporation;

(4) Plaintiff The Regents of the University of California, a California public corporation;

(5) Defendant San Bernardino Valley Municipal Water District, a California municipal water district, herein often called "San Bernardino Valley", appearing and acting pursuant to Section 71751 of the Water Code;

(b) This Judgment shall inure to the benefit of and be binding upon, the successors and assigns of the parties.

II

DISMISSED PARTIES

All parties other than those named in the preceding Paragraph I are dismissed without prejudice.

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III

PRIOR JUDGMENTS

(a) The Judgment dated and entered on May 13, 1959, in that certain action filed in the Superior Court of the State of California in and for the County of San Bernardino, entitled and numbered "San Bernardino Valley Water Conservation District, a State Agency, Plaintiff v. Riverside Water Company, a corporation, et al., Defendants", No. 97031, is superseded effective January 1, 1971, and for so long as this Judgment remains in effect as to any party hereto that was a party to that action, and as to any party hereto that is a successor in interest to the rights determined in that action.

(b) The Judgment dated June 23, 1965, and entered on April 21, 1966, in that certain action filed in the Superior Court of the State of California in and for the County of San Bernardino entitled and numbered "San Bernardino Valley Water Conservation District, a State Agency, Plaintiff, v. Riverside Water Company, a corporation, et al., Defendants," No. 111614, is superseded effective January 1, 1971, and for so long as this Judgment remains in effect as to any party hereto that was a party to that action, and as to any party hereto that is a successor in interest to any rights determined in that action.

(c) As used in this Paragraph III only, "party" includes any person or entity which stipulates with the parties hereto to accept this Judgment.

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IV

DEFINITIONS

The following ground water basins and tributary areas are situated within the Santa Ana River watershed upstream from Riverside Narrows and are tributary thereto, and their approximate locations and boundaries for purposes of this Judgment are shown upon the map attached hereto as Appendix "A": San Bernardino Basin Area (the area above Bunker Hill Dike, but excluding certain mountainous regions and the Yucaipa, San Timoteo, Oak Glen and Beaumont Basins); Colton Basin Area, Riverside Basin Area within San Bernardino County, and Riverside Basin Area within Riverside County.

As used herein the following terms shall have the meanings herein set forth:

(a) Bunker Hill Dike - The San Jacinto Fault, located approximately as shown on Appendix "A", and forming the principal downstream boundary of the San Bernardino Basin Area.

(b) Riverside Narrows - That bedrock narrows in the Santa Ana River indicated on Appendix "A".

(c) Extractions - Any form of the verb or noun shall include pumping, diverting, taking or withdrawing water, either surface or subsurface, by any means whatsoever, except extractions for hydroelectric generation to the extent that such flows are returned to the stream, and except for diversions for replenishment.

(d) Natural Precipitation - Precipitation which falls naturally in the Santa Ana River watershed.

(e) Imported Water - Water brought into the Santa Ana River watershed from sources of origin outside such watershed.

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(f) Replenishment - Artificial recharge of the ground water body achieved through the spreading or retention of water for the purpose of causing it to percolate and join the underlying ground water body, or injection of water into the ground water resources by means of wells; provided that as used with reference to any obligation of Western to replenish the Riverside Basin Area in Riverside County, the term replenishment shall include any water caused to be delivered by Western for which credit is received by San Bernardino Valley against its obligation under the Orange County Judgment to provide base flow at Riverside Narrows.

(g) Safe Yield - Safe yield is that maximum average annual amount of water that could be extracted from the surface and subsurface water resources of an area over a period of time sufficiently long to represent or approximate long-time mean climatological conditions, with a given areal pattern of extractions, under a particular set of physical conditions or structures as such affect the net recharge to the ground water body, and with a given amount of usable underground storage capacity, without resulting in long-term, progressive lowering of ground water levels or other undesirable result. In determining the operational criteria to avoid such adverse results, consideration shall be given to maincenance of adequate ground water quality, subsurface outflow, costs of pumping, and other relevant factors.

The amount of safe yield is dependent in part upon the amount of water which can be stored in and used from the ground water reservoir over a period of normal water supply under a given set of conditions. Safe yield is thus related to factors which influence or control ground water recharge, and

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to the amount of storage space available to carry over recharge occurring in years of above average supply to years of deficient supply. Recharge, in turn, depends on the available surface water supply and the factors influencing the percolation of that supply to the water table.

Safe yield shall be determined in part through the evaluation of the average net groundwater recharge which would occur if the culture of the safe yield year had existed over a period of normal native supply.

(h) Natural Safe Yield - That portion of the safe yield of the San Bernardino Basin Area which could be derived solely from natural precipitation in the absence of imported water and the return flows therefrom, and without contributions from new conservation. If in the future any natural runoff tributary to the San Bernardino Basin Area is diverted away from that Basin Area so that it is not included in the calculation of natural safe yield, any replacement made thereof by San Bernardino Valley or entities within it from imported water shall be included in such calculation.

(i) New Conservation - Any increase in replenishment from natural precipitation which results from operation of works and facilities not now in existence, other than those works installed and operations which may be initiated to offset losses caused by increased flood control channelization.

(j) Year - A calendar year from January 1 through December 31. The term "annual" shall refer to the same period of time.

(k) Orange County Judgment - The final judgment in Orange County Water District v. City of Chino, et al., Orange County Superior Court No. 117628, as it may from time to

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time be modified.

(l) Return Flow - That portion of the water applied for use in any particular ground water basin which subsequently reaches the ground water body in that basin.

(m) Five Year Period - a period of five consecutive years.

V

EXTRACTIONS FROM THE SAN BERNARDINO BASIN AREA

(a) For Use by Plaintiffs. The average annual extractions from the San Bernardino Basin Area delivered for use in each service area by each Plaintiff for the five year period ending with 1963 are hereby determined to be as set forth in Table B-1 of Appendix "B". The amount for each such Plaintiff delivered for use in each service area as set forth in Table B-1 shall be designated, for purposes of this Judgment, as its "base right" for such service area.

(b) For Use by Others. The total actual average annual extractions from the San Bernardino Basin Area by entities other than Plaintiffs for use within San Bernardino County for the five year period ending with 1963 are assumed to be 165,407 acre feet; the correct figure shall be determined by the Watermaster as herein provided.

VI

SAN BERNARDINO BASIN AREA RIGHTS AND REPLENISHMENT

(a) Determination of Natural Safe Yield. The natural safe yield of the San Bernardino Basin Area shall be computed by the Watermaster, reported to and determined initially by supplemental order of this Court, and thereafter

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shall be subject to the continuing jurisdiction thereof.

(b) Annual Adjusted Rights of Plaintiffs.

1. The annual "adjusted right" of each Plaintiff to extract water from the San Bernardino Basin Area for use in each service area designated in Table B-1 shall be equal to the sum of the following:

(a) its base right for such service area, until the natural safe yield of the San Bernardino Basin Area is determined, and thereafter its percentage of such natural safe yield determined by the methods used in Table B-2; and (b) an equal percentage for each service area of any new conservation, provided the conditions of the subparagraph 2 below have been met.

2. In order that the annual adjusted right of each such Plaintiff shall include its same respective percentage of any new conservation, such Plaintiff shall pay its proportionate share of the costs thereof. Each Plaintiff shall have the right to participate in new conservation projects, under procedures to be determined by the Watermaster for notice to Plaintiffs of the planned construction of such projects. With respect to any new conservation brought about by Federal installations, the term "costs" as used herein shall refer to any local share required to be paid in connection with such project. Each Plaintiff shall make its payment at times satisfactory to the constructing agency, and new conservation shall be credited to any participating Plaintiff as such conservation is effected.

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3. In any five year period, each Plaintiff shall have the right to extract from the San Bernardino Basin Area for use in each service area designated in Table B-1 an amount of water equal to five times its adjusted right for such service area; provided, however, that extractions by each Plaintiff in any year in any service area shall not exceed such Plaintiff's adjusted right for that service area by more than 30 percent.

4. If the natural safe yield of the San Bernardino Basin Area has not been determined by January 1, 1972, the initial determination thereof shall be retroactive to that date and the rights of the Plaintiffs, and the replenishment obligation of San Bernardino Valley as hereinafter set forth, shall be adjusted as of such date. Any excess extractions by Plaintiffs shall be charged against their respective adjusted rights over the next five year period, or in the alternative, Plaintiffs may pay to San Bernardino Valley the full cost of any replenishment which it has provided as replenishment for such excess extractions. Any obligation upon San Bernardino Valley to provide additional replenishment, by virtue of such retroactive determination of natural safe yield, may also be discharged over such next five year period.

5. Plaintiffs and each of them and their agents and assigns are enjoined from extracting any more water from the San Bernardino Basin Area than is permitted under this Judgment. Changes in place

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of use of any such water from one service area to another shall not be made without the prior approval of Court upon a finding of compliance with Paragraph XV(b) of this Judgment. So long as San Bernardino Valley is in compliance with all its obligations hereunder, and Plaintiffs are allowed to extract the water provided for in this Judgment, Plaintiffs are further enjoined from bringing any action to limit the water extracted from the San Bernardino Basin Area for use within San Bernardino Valley.

6. Nothing in this Judgment shall prevent future agreements between San Bernardino Valley and Western under which additional extractions may be made from the San Bernardino Basin Area, subject to the availability of imported water not required by San Bernardino Valley, and subject to payment satisfactory to San Bernardino Valley for replenishment required to compensate for such additional extractions.

(c) San Bernardino Valley Replenishment. San Bernardino Valley shall provide imported water for replenishment of the San Bernardino Basin Area at least equal to the amount by which extractions therefrom for use within San Bernardino County exceed during any five year period the sum of: (a) five times the total average annual extractions determined under Paragraph V(b) hereof, adjusted as may be required by the natural safe yield of the San Bernardino Basin Area; and (b) any new conservation to which users within San Bernardino Valley are entitled. Such replenishment shall be

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supplied in the year following any five year period; provided that during the first five year period, San Bernardino Valley shall supply annual amounts on account of its obligations hereunder, and such amounts shall be not less than fifty percent of the gross amount of excess extractions in the previous year.

1. Against its replenishment obligation over any five year period San Bernardino Valley shall receive credit for that portion of such excess extractions that returns to the ground water of the San Bernardino Basin Area.

2. San Bernardino Valley shall also receive credit against any future replenishment obligations for all replenishment which it provides in excess of that required herein, and for any amounts which may be extracted without replenishment obligation, which in fact are not extracted.

(d) In this subparagraph (d), "person" and "entity" mean only those persons and entities, and their successors in interest, which have stipulated with the parties to this Judgment within six months after its entry to accept this Judgment.

San Bernardino Valley agrees that the base rights of persons or entities other than Plaintiffs to extract water from the San Bernardino Basin Area for use within San Bernardino Valley will be determined by the average annual quantity extracted by such person or entity during the five year period ending with 1963. After the natural safe yield of the San Bernardino Basin Area is determined hereunder, such

base rights will be adjusted to such natural safe yield; the adjusted right of each such person or entity shall be that percentage of natural safe yield as determined hereunder from time to time which the unadjusted right of such person or entity is of the amount determined under Paragraph V(b).

San Bernardino Valley further agrees that in the event the right to extract water of any of such persons or entities in the San Bernardino Basin Area is adjudicated and legal restrictions placed on such extractions which prevent extracting of water by said persons or entities in an amount equal to their base rights, or after natural safe yield is determined, their adjusted rights, San Bernardino Valley will furnish to such persons or entities or recharge the ground water resources in the area of extraction for their benefit with imported water, without direct charge to such persons or entities therefor, so that the base rights, or adjusted rights, as the case may be, may be taken by the person or entity.

Under the provisions hereof relating to furnishing of such water by San Bernardino Valley, such persons or entities shall be entitled to extract in addition to their base rights or adjusted rights any quantities of water spread for repumping in their area of extractions, which has been delivered to them by a mutual water company under base rights or adjusted base rights included by the Watermaster under the provisions of Paragraph V (b) hereof. Extractions must be made within three years of spreading to so qualify.

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VII

WATER DISCHARGED ACROSS THE BUNKER HILL DIKE

San Bernardino Valley shall keep in force an agreement with the City of San Bernardino that the present annual quantity of municipal sewage effluent discharged across Bunker Hill Dike, assumed for all purposes herein to be 16,000 acre feet annually, shall be committed to the discharge of the downstream obligations imposed on San Bernardino Valley under this Judgment or under the Orange County Judgment, and that such effluent shall comply with the requirements of the Santa Ana River Basin Regional Water Quality Control Board in effect December 31, 1968.

VIII

EXTRACTIONS FROM COLTON BASIN AREA AND RIVERSIDE BASIN AREA IN SAN BERNARDINO COUNTY.

(a) The average annual extractions from the Colton Basin Area and that portion of the Riverside Basin Area within San Bernardino County, for use outside San Bernardino Valley, for the five year period ending with 1963 are assumed to be 3,349 acre feet and 20,191 acre feet, respectively; the correct figures shall be determined by the Watermaster as herein provided.

(b) Over any five year period, there may be extracted from each such Basin Area for use outside San Bernardino Valley, without replenishment obligation, an amount equal to five times such annual average for the Basin Area; provided, however, that if extractions in any year exceed such average by more than 20 percent, Western shall provide replenishment in the following year equal to the excess

extractions over such 20 percent peaking allowance.

(c). To the extent that extractions from each such Basin Area for use outside San Bernardino Valley exceed the amounts specified in the next preceding Paragraph (b), Western shall provide replenishment. Except for any extractions in excess of the 20 percent peaking allowance, such replenishment shall be supplied in the year following any five year period, and shall not be from reclaimed water produced within San Bernardino Valley. Such replenishment shall also be of a quality at least equal to the water extracted from the Basin Area being recharged; provided, that water from the State Water Project shall be deemed to be of acceptable quality. Replenishment shall be supplied to the Basin Area from which any excess extractions have occurred and in the vicinity of the place of the excess extractions to the extent required to preclude influence on the water level in the three wells below designated; provided that discharge of imported water into the Santa Ana River or Warm Creek from a connection on the State Aqueduct near the confluence thereof, if released in accordance with a schedule approved by the Watermaster to achieve compliance with the objectives of this Judgment, shall satisfy any obligation of Western to provide replenishment in the Colton Basin Area, or that portion of the Riverside Basin Area in San Bernardino County, or the Riverside Basin Area in Riverside County.

(d) Extractions from the Colton Basin Area and that portion of the Riverside Basin Area within San Bernardino County, for use within San Bernardino Valley, shall not be limited. However, except for any required replenishment by Western, San Bernardino Valley shall provide the water to maintain the static water levels in the area, as determined by wells numbered

1S 4W 21 Q3, 1S 4W 29 H1, and 1S 4W 29 Q1 at an average level no lower than that which existed in the Fall season of 1963. Such 1963 average water level is hereby determined to be 822.04 feet above sea level. In future years, the level shall be computed by averaging the lowest static water levels in each of the three wells occurring at or about the same time of the year, provided that no measurements will be used which reflect the undue influence of pumping in nearby wells, or in the three wells, or pumping from the Riverside Basin in Riverside County in excess of that determined pursuant to Paragraph IX(a) hereof.

(e) Extractions by Plaintiffs from the Colton Basin Area and the portion of the Riverside Basin Area in San Bernardino County may be transferred to the San Bernardino Basin Area if the level specified in Paragraph (d) above is not maintained, but only to the extent necessary to restore such 1963 average water level, provided that Western is not in default in any of its replenishment obligations. San Bernardino Valley shall be required to replenish the San Bernardino Basin Area in an amount equal to any extractions so transferred. San Bernardino Valley shall be relieved of responsibility toward the maintenance of such 1963 average water level to the extent that Plaintiffs have physical facilities available to accommodate such transfers of extractions, and insofar as such transfers can be legally accomplished.

(f) The Colton Basin Area and the portion of the Riverside Basin Area in San Bernardino County constitute a major source of water supply for lands and inhabitants in both San Bernardino Valley and Western, and the parties hereto have a mutual interest in the maintenance of water quality in these Basin Areas and in the preservation of such supply. If

If most the levels drop the Western pool can go to Bunker Hill water level exceed 822.04

Need to talk to Harriger to clarify this

the water quality in such Areas, as monitored by the City of Riverside wells along the river, falls below the Objectives set therefor by the Santa Ana River Basin Regional Water Quality Control Board, the Court shall have jurisdiction to modify the obligations of San Bernardino Valley to include, in addition to its obligation to maintain the average 1963 water level, reasonable provisions for the maintenance of such water quality.

(g) The primary objectives of Paragraph VIII and related provisions are to allow maximum flexibility to San Bernardino Valley in the operation of a coordinated replenishment and management program, both above and below Bunker Hill Dike; to protect San Bernardino Valley against increased extractions in the area between Bunker Hill Dike and Riverside Narrows, which without adequate provision for replenishment might adversely affect base flow at Riverside Narrows, for which it is responsible under the Orange County Judgment; and to protect the area as a major source of ground water supply available to satisfy the historic extractions therefrom for use within Western, without regard to the method of operation which may be adopted by San Bernardino Valley for the San Bernardino Basin Area, and without regard to the effect of such operation upon the historic supply to the area below Bunker Hill Dike.

If these provisions should prove either inequitable or unworkable, the Court upon the application of any party hereto shall retain jurisdiction to modify this Judgment so as to regulate the area between Bunker Hill Dike and Riverside Narrows on a safe yield basis; provided that under such method of operation, (1) base rights shall be determined on the basis of total average annual extractions for use within San Bernardino Valley and Western, respectively, for the five year period ending

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with 1963; (2) such base rights for use in both Districts shall be subject to whatever adjustment may be required by the safe yield of the area, and in the aggregate shall not be exceeded unless replenishment therefor is provided; (3) in calculating safe yield, the outflow from the area at Riverside Narrows shall be determined insofar as practical by the base flow obligations imposed on San Bernardino Valley under the Orange County Judgment; and (4) San Bernardino Valley shall be required to provide replenishment for any deficiency between the actual outflow and the outflow obligation across Bunker Hill Dike as established by safe yield analysis using the base period of 1934 through 1960.

IX

EXTRACTIONS FROM THE PORTION OF RIVERSIDE BASIN AREA IN RIVERSIDE COUNTY WHICH IS TRIBUTARY TO RIVERSIDE NARROWS.

(a) The average annual extractions from the portion of the Riverside Basin Area in Riverside County which is tributary to Riverside Narrows, for use in Riverside County, for the five year period ending with 1963 are assumed to be 30,044 acre feet; the correct figures shall be determined by the Watermaster as herein provided.

(b) Over any five year period, there may be extracted from such Basin Area, without replenishment obligation, an amount equal to five times such annual average for the Basin Area; provided, however, that if extractions in any year exceed such average by more than 20 percent, Western shall provide replenishment in the following year equal to the excess extractions over such 20 percent peaking allowance.

(c) To the extent that extractions from such Basin Area exceed the amounts specified in the next preceding

Paragraph (b), Western shall provide replenishment. Except for any extractions in excess of the 20 percent peaking allowance, such replenishment shall be supplied in the year following any five year period, and shall be provided at or above Riverside Narrows.

(d) Western shall also provide such replenishment to offset any reduction in return flow now contributing to the base flow at Riverside Narrows, which reduction in return flow results from the conversion of agricultural uses of water within Western to domestic or other uses connected to sewage or waste disposal systems, the effluent from which is not tributary to the rising water at Riverside Narrows.

X

REPLENISHMENT TO OFFSET NEW EXPORTS OF WATER TO AREAS NOT TRIBUTARY TO RIVERSIDE NARROWS.

Certain average annual amounts of water extracted from the San Bernardino Basin Area and the area downstream therefrom to Riverside Narrows during the five year period ending in 1963 have been exported for use outside of the area tributary to Riverside Narrows and are assumed to be 50,667 acre feet annually as set forth in Table C-1 of Appendix "C"; the correct amount shall be determined by the Watermaster as herein provided. Western shall be obligated to provide replenishment at or above Riverside Narrows for any increase over such exports by Western or entities within it from such areas for use within areas not tributary to Riverside Narrows. San Bernardino Valley shall be obligated to provide replenishment for any increase over the exports from San Bernardino Valley for use in any area not within Western nor tributary to Riverside Narrows as set forth in Table C-2 of

Appendix "C", such amounts being subject to correction by the Watermaster, or for any exports from the San Bernardino Basin Area for use in the Yucaipa, San Timoteo, Oak Glen and Beaumont Basins.

XI

REPLENISHMENT CREDITS AND ADJUSTMENT FOR QUALITY

(a) All replenishment provided by Western under Paragraph IX and all credits received against such replenishment obligation shall be subject to the same adjustments for water quality applicable to base flow at Riverside Narrows, as set forth in the Orange County Judgment.

(b) Western shall receive credit against its replenishment obligations incurred under this Judgment for the following:

1. As against its replenishment obligation under Paragraph VIII, any return flow to the Colton Basin Area or the portion of the Riverside Basin Area within San Bernardino County, respectively, resulting from any excess extractions therefrom; and as against its replenishment obligation under Paragraph IX, any return flow to the portion of the Riverside Basin Area in Riverside County, which contributes to the base flow at Riverside Narrows, resulting from any excess extractions therefrom, or from the Riverside Basin Area in San Bernardino County, or from the Colton Basin Area.

2. Subject to adjustment under Paragraph (a) hereof, any increase over the present amounts of sewage effluent discharged from

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treatment plants within Riverside County which are tributary to Riverside Narrows, and which results from the use of imported water.

3. Any replenishment which may be provided in excess of that required; any amounts which hereunder are allowed to be extracted from the Colton and Riverside Basin Areas without replenishment obligation by Western, and which in fact are not extracted; any storm flows conserved between Bunker Hill Dike and Riverside Narrows by works financed solely by Western, or entities within it, which would not otherwise contribute to base flow at Riverside Narrows; and any return flow from imported water used in Riverside County which contributes to base flow at Riverside Narrows; provided, however, that such use of the underground storage capacity in each of the above situations does not adversely affect San Bernardino Valley in the discharge of its obligations at Riverside Narrows under the Orange County Judgment, nor interfere with the accomplishment by San Bernardino Valley of the primary objectives of Paragraph VIII, as stated in Subdivision (g).

(c) The replenishment obligations of Western under this Judgment shall not apply during such times as amounts of base flow at Riverside Narrows and the amounts of water stored in the ground water resources below Bunker Hill Dike and tributary to the maintenance of such flow are found by Order of the Court to be sufficient to satisfy any obligation which San Bernardino Valley may have under this Judgment, or under the

Orange County Judgment, and if the Court further finds by Order that during such times any such increase in pumping, changes in use or exports would not adversely affect San Bernardino Valley in the future.

(d) The replenishment obligations of San Bernardino Valley under Paragraph X of this Judgment for increase in exports from the Colton and Riverside Basin Areas within San Bernardino Valley below the Bunker Hill Dike shall not apply during such times as the amounts of water in the ground water resources of such area are found by Order of the Court to be sufficient to satisfy the obligations which San Bernardino Valley may have to Plaintiffs under this Judgment, and if the Court further finds by Order that during such times any such increases in exports would not adversely affect Plaintiffs in the future.

XII

CONVEYANCE OF WATER BY SAN BERNARDINO VALLEY TO RIVERSIDE NARROWS.

If San Bernardino Valley determines that it will convey reclaimed sewage effluent, or other water, to or near Riverside Narrows, to meet its obligations under this or the Orange County Judgment, the City of Riverside shall make available to San Bernardino Valley for that purpose any unused capacity in the former Riverside Water Company canal, and the Washington and Monroe Street storm drains, without cost except for any alterations or capital improvements which may be required, or any additional maintenance and operation costs which may result. The use of those facilities shall be subject to the requirements of the Santa Ana River Basin Regional Water Quality Control Board and of the State Health Department, and compliance

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therewith shall be San Bernardino Valley's responsibility.

XIII

WATERMASTER

(a) This Judgment and the instructions and subsequent orders of this Court shall be administered and enforced by a Watermaster. The parties hereto shall make such measurements and furnish such information as the Watermaster may reasonably require, and the Watermaster may verify such measurements and information and obtain additional measurements and information as the Watermaster may deem appropriate.

(b) The Watermaster shall consist of a committee of two persons. San Bernardino Valley and Western shall each have the right to nominate one of such persons. Each such nomination shall be made in writing, served upon the other parties to this Judgment, and filed in Court. Such person shall be appointed by and serve at the pleasure of and until further order of this Court. If either Western or San Bernardino Valley shall at any time nominate a substitute appointee in place of the last appointee to represent it, such appointee shall be appointed by the Court in place of such last appointee.

(c) Appendix "D" to this Judgment contains some of the data which have been used in preparation of this Judgment, and shall be utilized by the Watermaster in connection with any questions of interpretation.

(d) Each and every finding and determination of the Watermaster shall be made in writing certified to be by unanimous action of both members of the Watermaster committee. In the event of failure or inability of such Watermaster Committee to reach agreement, the Watermaster committee may determine to submit the dispute to a third person to be selected

by them, or if they are unable to agree on a selection, to be selected by the Court, in which case the decision of the third person shall be binding on the parties; otherwise the fact, issue, or determination in question shall forthwith be certified to this Court by the Watermaster, and after due notice to the parties and opportunity for hearing, said matter shall be determined by order of this Court, which may refer the matter for prior recommendation to the State Water Resources Control Board. Such order of the Court shall be a determination by the Watermaster within the meaning of this Judgment.

(e) The Watermaster shall report to the Court and to each party hereto in writing not more than seven (7) months after the end of each year, or within such other time as the Court may fix, on each determination made by it pursuant to this Judgment, and such other items as the parties may mutually request or the Watermaster may deem to be appropriate. All of the books and records of the Watermaster which are used in the preparation of, or are relevant to, such reported data, determinations and reports shall be open to inspection by the parties hereto. At the request of any party this Court will establish a procedure for the filing and hearing of objections to the Watermaster's report.

(f) The fees, compensation and expenses of each person on the Watermaster shall be borne by the District which nominated such person. All other Watermaster service costs and expenses shall be borne by San Bernardino Valley and Western equally.

(g) The Watermaster shall initially compute and report to the Court the natural safe yield of the San Bernardino Basin Area, said computation to be based upon the cultural

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conditions equivalent to those existing during the five calendar year period ending with 1963.

(b) The Watermaster shall as soon as practical determine the correct figures for Paragraphs V(b), VI(b)1, VIII(a), IX(a) and X, as the basis for an appropriate supplemental order of this Court.

XIV

CONTINUING JURISDICTION OF THE COURT

(a) The Court hereby reserves continuing jurisdiction of the subject matter and parties to this Judgment, and upon application of any party, or upon its own motion, may review and redetermine, among other things, the following matters and any matters incident thereto:

1. The hydrologic condition of any one or all of the separate basins described in this Judgment in order to determine from time to time the safe yield of the San Bernardino Basin Area.

2. The desirability of appointing a different Watermaster or a permanent neutral member of the Watermaster, or of changing or more clearly defining the duties of the Watermaster.

3. The desirability of providing for increases or decreases in the extraction of any particular party because of emergency requirements or in order that such party may secure its proportionate share of its rights as determined herein.

4. The adjusted rights of the Plaintiffs as required to comply with the provisions hereof with respect to changes in the natural safe yield of the San Bernardino Basin

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Area. If such changes occur, the Court shall adjudge that the adjusted rights and replenishment obligations of each party shall be changed proportionately to the respective base rights.

5. Conforming the obligations of San Bernardino Valley under this Judgment to the terms of any new judgment hereafter entered adjudicating the water rights within San Bernardino Valley, if inconsistencies of the two judgments impose hardship on San Bernardino Valley.

6. Adjusting the figures in Paragraphs V(b), VI(b) 1, VIII(a) IX(a), and X, to conform to determination by the Watermaster.

7. Credit allowed for return flow in the San Bernardino Basin Area if water levels therein drop to the point of causing undue hardship upon any party.

8. Other matters not herein specifically set forth which might occur in the future and which would be of benefit to the parties in the utilization of the surface and ground water supply described in this Judgment, and not inconsistent with the respective rights of the parties as herein established and determined.

(b) Any party may apply to the Court under its continuing jurisdiction for any appropriate modification of this Judgment if its presently available sources of imported water are exhausted and it is unable to obtain additional supplies of imported water at a reasonable cost, or if there is any substantial delay in the delivery of imported water through the State Water Project.

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XV

SAVING CLAUSES

(a) Nothing in this Judgment precludes San Bernardino Valley, Western, or any other party from exercising such rights as it may have or obtain under law to spread, store underground and recapture imported water, provided that any such use of the underground storage capacity of the San Bernardino Basin Area by Western or any entity within it shall not interfere with any replenishment program of the Basin Area.

(b) Changes in the place and kind of water use, and in the transfer of rights to the use of water, may be made in the absence of injury to others or prejudice to the obligations of either San Bernardino Valley or Western under Judgment or the Orange County Judgment.

(c) If any Plaintiff shall desire to transfer all or any of its water rights to extract water within San Bernardino Valley to a person, firm, or corporation, public or private, who or which is not then bound by this Judgment, such Plaintiff shall as a condition to being discharged as hereinafter provided cause such transferee to appear in this action and file a valid and effective express assumption of the obligations imposed upon such Plaintiff under this Judgment as to such transferred water rights. Such appearance and assumption of obligation shall include the filing of a designation of the address to which shall be mailed all notices, requests, objections, reports and other papers permitted or required by the terms of this Judgment.

If any Plaintiff shall have transferred all of its said water rights and each transferee not theretofore bound by this Judgment as a Plaintiff shall have appeared in this action

and filed a valid and effective express assumption of the obligations imposed upon such Plaintiff under this Judgment as to such transferred water rights, such transferring Plaintiff shall thereupon be discharged from all obligations hereunder. If any Plaintiff shall cease to own any rights in and to the water supply declared herein and shall have caused the appearance and assumption provided for in the third preceding sentence with respect to each voluntary transfer, then upon application to this Court and after notice and hearing such Plaintiff shall thereupon be relieved and discharged from all further obligations hereunder. Any such discharge of any Plaintiff hereunder shall not impair the aggregate rights of defendant San Bernardino Valley or the responsibility hereunder of the remaining Plaintiffs or any of the successors.

(d) Non-use of any right to take water as provided herein shall not result in any loss of the right. San Bernardino Valley does not guarantee any of the rights set out herein for Western and the other Plaintiffs as against the claims of third parties not bound hereby. If Western or the other Plaintiffs herein should be prevented by acts of third parties within San Bernardino County from extracting the amounts of water allowed them by this Judgment, they shall have the right to apply to this Court for any appropriate relief, including vacation of this Judgment, in which latter case all parties shall be restored to their status prior to this Judgment insofar as possible.

(e) Any replenishment obligation imposed hereunder on San Bernardino Valley may be deferred until imported water first is available to San Bernardino Valley under its contract with the California Department of Water Resources and the

obligation so accumulated may be discharged in five approximately equal annual installments thereafter.

(f) No agreement has been reached concerning the method by which the cost of providing replenishment will be financed, and no provision of this Judgment, nor its failure to contain any provision, shall be construed to reflect any agreement relating to the taxation or assessment of extractions.

XVI

EFFECTIVE DATE

The provisions of Paragraphs III and V to XII of this Judgment shall be in effect from and after January 1, 1971; the remaining provisions are in effect immediately.

XVII

COSTS

No party shall recover its costs herein as against any other party.

THE CLERK WILL ENTER THIS JUDGMENT FORTHWITH.

DATED: April 17, 1969

ENTERED

APR 17 1969

JUDGMENT BOOK 124 PG 42

JUDGE OF THE SUPERIOR COURT

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Attorneys for Lytle Creek Water and Improvement Company and Citizens Land and Water Company of Bloomington

James A. Stone
Entered [illegible] 19[illegible]
B. 167 [illegible]
V. DENNIS [illegible] Clerk
By [illegible]
DEPUTY

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF SAN BERNARDINO

THE LYTLE CREEK WATER AND IMPROVEMENT COMPANY, a corporation, Plaintiff, vs. FONTANA RANCHOS WATER COMPANY, a corporation; HIGHLAND AVENUE WATER COMPANY, a corporation; CITIZENS LAND AND WATER COMPANY OF BLOOMINGTON, a corporation; CITY OF RIALTO, a municipal corporation; and CITY OF COLTON, a municipal corporation; et al., Defendants.	No. 81264 - DECREE

WHEREAS, there has been filed in the above-entitled action a Stipulation for Judgment duly executed by and on the part of each and all of the following named parties to said action (who are collectively hereinafter referred to as "stipulating parties"), to-wit: The Lytle Creek Water and Improvement Company, a corporation (hereinafter referred to as "Lytle Creek"); Citizens Land and Water Company of Bloomington, a corporation (hereinafter referred to as "Citizens"); Fontana Union Water Company, a corporation (hereinafter referred to as "Fontana Union"); City of Colton, a municipal corporation (hereinafter referred to as "Colton"); City of Rialto, a municipal corporation (hereinafter referred to as "Rialto"); and Semi-Tropic County Water District, a county water district organized and existing under the California County Water District Law (hereinafter referred to as "Semi-Tropic"); and

WHEREAS, the Fontana Union was sued herein as John Doe

Company No. 1 a corporation and the Complaint herein should be amended accordingly; and

WHEREAS it appears that Semi-Tropic should be joined as a defendant in this action; and

WHEREAS, the action has been dismissed as to each of the defendants Fontana Ranchos Water Company, a corporation, and Highland Avenue Water Company, a corporation; and

WHEREAS the Court has heard and considered evidence on the part of the various stipulating parties; and

WHEREAS the parties have in said Stipulation for Judgment waived Findings of Fact and Conclusions of Law;

NOW, THEREFORE, IT IS HEREBY ORDERED, ADJUDGED, AND DECREED as follows:

1. The Complaint herein is hereby amended to set forth the true name of the defendant John Doe Company No. 1, a corporation, which is Fontana Union Water Company, a corporation.

2. Semi-Tropic County Water District is hereby joined as a defendant in this action.

3. As used herein the terms listed below shall have the respective meanings next following them, viz:

(a) "Rialto Basin" or "Basin" shall mean that certain territory in the County of San Bernardino State of California, which is more particularly described on Exhibit "1".

(b) "Year" shall mean a twelve month period commencing on October 1 and ending on the next following September 30.

(c) Acre Foot" of water shall mean that quantity of water which will cover one acre to a depth of one foot, also being 43,560 cubic feet, and which also is equal to a flow of 25.208 miner's inches of water for 24 hours.

4. Except as provided herein no stipulating party shall have any priority to take water from the Basin, and the rights of the parties to take

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water from the Basin as between themselves are set forth herein.

5. Subject to the pro rata reductions hereinafter set forth, the amount of water in acre feet to which the stipulating parties are respectively entitled to extract from the Basin in each year are as follows:

Colton	3,010 acre feet
Rialto	1,580 acre feet
Citizens	3,260 acre feet
Fontana Union	550 acre feet
Lytle Creek	3,600 acre feet
Semi-Tropic	-0- acre feet

6. The following described wells in the Basin are designated and referred to herein as index wells for the purpose of determining the elevation above sea level of the ground waters within the Basin. These wells are as follows:

(a) "Duncan Well" - presently owned by Rialto, having State Location No. 1S/5W-3A1, State Serial No. D-1084, located 109 feet South of the center line of Baseline and 233 feet West of the center line of Cactus Avenue.

(b) "Willow Street Well" - presently owned by Lytle Creek, having State Location No. 1S/5W-2K1, State Serial No. D-1085, located 202 feet East of the center line of Willow Street and 133 feet North of the center line of Victoria Avenue.

(c) "Boyd Well" - presently owned by Citizens, having State Location No. 1S/5W-12L1, State Serial No. D-1095, located 109 feet West of the center line of Eucalyptus Street and 155 feet North of the center line of Wilson Street.

For the purpose of determination of the elevation of water above sea level in the said index wells, the elevation above sea level of each of the index wells is established as follows:

(a) "Duncan Well"	1352.79
(b) "Willow Street Well"	1287.00
(c) "Boyd Well"	1177.19

If for any reason any or all of said wells shall not be available

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for measurement the identity and location of a substitute index well or wells may be determined by a written stipulation executed by at least three-fourths in number of the stipulating parties (or their successor(s) in interest) and filed in this action or in default of said stipulation, by order of this Court.

The elevation of the water level above sea level of each of the index wells shall be measured in each of the months of March, April, and May in each year. Each stipulating party shall be entitled from time to time to designate one individual to be present and observe such measurements. Measurements shall be made by the owners of the respective wells or such other person, firm or corporation which three-fourths in number of the stipulating parties shall designate to do so. Such measurements shall be made at such times as the index well measured is not being pumped and has not been pumped within the preceding twenty-four hours.

7 As used herein the term "spring-high water level" for a year at each of the index wells shall mean the highest elevation in feet above sea level of the surface of the water table which shall be measured in each respective index well at any one of the monthly measurements during either March, April, or May.

In any year in which the average of the elevation of the spring-high water level in the three index wells is above elevation 1002.3 feet above mean sea level, no stipulating party shall be limited in the amount of water which may be pumped from the Basin. However, no stipulating party shall acquire any additional right to extract water from the Basin by reason of extracting more than such party is entitled under paragraph 5 above.

In any year in which the average of the elevations of the spring-high water level in the three index wells is between 1002.3 feet above mean sea level and 969.7 feet above mean sea level, each party shall be entitled to pump from the Basin in such year only the amount of water to which such party is entitled as specified in paragraph 5 above.

In any year in which the average of the elevations of the spring-high water level in the three index wells is below 969.7 feet above mean sea level, then the amount of water which the stipulating parties shall

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be entitled to pump from the Basin during such year shall be reduced one per cent (1%) for each one (1) foot that the said average is below 969.7 feet above mean sea level, and not cumulatively to be reduced more than fifty per cent (50%).

9 If any stipulating party acquires any of the wells located within the Basin which are described on Exhibit "2", which is attached hereto and hereby incorporated herein, such party shall have the additional right to extract water from the Rialto Basin annually in the amount set forth on said Exhibit "2" opposite the description of the respective wells.

10. Each stipulating party shall maintain records of all its extractions of water from the Basin so that it can be determined therefrom what extraction of water was taken from each well or combination of wells or other water sources in the Basin from which such party received water in each year. Each stipulating party shall equip each of its wells with a water metering device which shall accurately measure the entire quantity of water pumped from the well. Each stipulating party shall allow the other stipulating parties access upon reasonable notice to the wells of such party to permit of inspection and testing the metering equipment.

Upon written demand of any stipulating party, the party keeping such records shall within thirty (30) days after receipt of such demand supply to the party making such demand or other person designated by such party in such demand a written statement of the amount of water (in acre feet) so taken from each such well or combination of wells or other sources for each year after 1961 with respect to which no such statement has previously been supplied.

11. Every provision of this judgment in favor of all applies to any party hereto and also applies to and inures to the benefit of and shall also bind all of the heirs, legal representatives successors and assigns of such party.

12. Nothing in this judgment contained shall prevent any stipulating party from selling or otherwise disposing of or purchasing or otherwise acquiring any rights to extract water from the Basin which may be adjudged to belong to any other stipulating party; but any such right to acquire or to dispose of shall remain subject to any limitation or restrictions herein expressed.

13. The stipulating parties will unite in opposing any new taking

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of water from the Basin by other than a stipulating party or parties and will prorate the expenses in making such opposition, including litigation or engineering expenses, provided that:

(a) The term "new taking" shall not include any water development in the Basin hereafter made for the sole purpose of maintaining but not increasing any quantity of water now being taken from the Basin by the person who may hereafter make such development; or in the exercise by any person of an overlying right who is not a stipulating party.

(b) If any stipulating party does not join in prosecuting any future suit to prevent, enjoin or limit any such new or unlawful taking, such stipulating party not so joining shall bear proratably the expenses of such suit, including attorneys' fees and engineering fees, only if final judgment is rendered in such suit preventing enjoining or limiting such taking.

14. No stipulating party shall be entitled to recover court costs from any other stipulating party in this proceeding.

15. The court will retain jurisdiction to enter modifications of this decree upon a finding of changed circumstances.

16. In the event through litigation of the supply of water in the Basin, or by reason of adjudication in any subsequent action, the stipulating parties in the aggregate shall be unable to pump and extract from the Basin a quantity of water so great as the aggregate water is set forth herein, the stipulating parties shall prorate the aggregate quantity of water available in the Basin as long as such inability shall continue.

17. The listing herein of any number of acre feet for any party to this action other than a stipulating party shall not be deemed an admission by any stipulating party that a non-stipulating party is entitled to any water whatsoever from the Basin, nor as to the quantity which such non-stipulating party may take from the Basin, but each such figure for any non-stipulating party is listed in order that the stipulating parties may between themselves agree as to their rights to extract water on account of acquisition of the wells of non-stipulating parties.

18. As between stipulating parties only no extraction of water

from the Basin by any stipulating party in excess of the amount herein provided to be taken by such party shall be deemed adverse to any other stipulating party, and each stipulating party hereby waives as against each other stipulating party the right to plead any statute of limitation or latches with respect to water extracted by such party in excess of such amount.

19. No objection shall ever be made by any party to this judgment as to the interest or right of any such party as herein defined or as to the validity of this judgment not so defining such interest or right on the ground that such interest or right as so defined is not consistent with or warranted by the pleadings in this action relative thereto, and if in any case it shall appear that any such interest or right as so defined is in fact not consistent with or warranted by such pleadings then such pleadings shall be deemed and treated as amended to conform to and sustain such interest and right as herein defined, and said pleadings shall be deemed sufficient to support this judgment.

Each of the parties to this judgment waives all right of appeal therefrom and no appeal shall be taken by any party hereto from this judgment or any part thereof and the same shall constitute a final judgment.

DONE IN OPEN COURT this 24th day of November, 1964.

Judge of the Superior Court

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San Bernardino, California

DESCRIPTION OF BOUNDARIES OF RIALTO BASIN

BEGINNING at a point on the centerline of Meridian Avenue, as shown on plat of Town of Rialto and Adjoining Subdivisions, as recorded in Map Book 4, page 11, records of the County Recorder of said County, said point being 950 feet North of the intersection of said Meridian Avenue and San Bernardino Avenue, thence Northwesterly to a point on the centerline of Rialto Avenue (Arrow Route) as shown on said subdivision plat, said point being 400 feet East of the intersection of West Rialto Avenue and Cactus Avenue; thence Northwesterly to a point on the center line of Foothill Boulevard (State Highway Route No. 9), said point being 1,050 feet East of the intersection of said Foothill Boulevard and Linden Avenue, said intersection being the Southwest corner of Section 3, T1S, R5W, SBB&M; thence Northwesterly to a point in said Linden Avenue, said point being 700 feet North of said Foothill Boulevard; thence Northwesterly to a point in the centerline of Laurel Avenue as shown on said subdivision plat, said point being 3,600 feet North of said Foothill Boulevard; thence Northwesterly to the intersection of Alder Avenue and Baseline Road, said intersection being the Southeast corner of Section 32, T1N, R5W, SB9&M; thence Northwesterly to a point at the base of the San Gabriel Mountains, said point being 1,100 feet North and 1,400 feet West of the Southeast corner of Section 15, T1N, R6W, SBE&M; thence Northeasterly along the base of the San Gabriel Mountains in a direct line to a point in the East line of Section 13, T1N, R6W said point being 3,700 feet North of the Southeast corner of said Section 13; thence Northeasterly along the base of the San Gabriel Mountains in a direct line to a point in fractional Section 7, T1N, R5W, said point being 2,200 feet North and 3,700 feet East of the Southwest corner of said Section 7; thence Southeasterly to a point in Muscupiabe Rancho, said point being 2,500 feet North and 950 feet East of the Southwest corner of fractional Section 22, T1N, R5W, SBB&M; thence Southeasterly to a point in said Muscupiabe Rancho, said point being 700 feet North and 3,700 feet East of the Southwest corner of said fractional Section 22, thence Southeasterly to a point in said Muscupiabe Rancho, said point being 4,000 feet North and 2,500 feet East of the Southwest corner of fractional Section 26, T1N, R5W, SBB&M; thence Southeasterly to a point in fractional Section 6, T1S, R4W, SBB&M, said point being 1,500 feet North and 4,300 feet East of the Southwest corner of said fractional Section 6; thence Southeasterly to a point on the centerline of Mill Street, as shown on plat The Martin Tract, as recorded in Map Book 3, page 27, Records of the County Recorder of said County, said point being 1,050 feet West of the intersection of said Mill Street and Mt. Vernon Avenue; thence Southwesterly to the point of beginning.

Exhibit 1

STATE WELL NUMBER		LOCATION	STIPULATED RIGHT ACRE FEET
Location Number	Serial Number		
1S/5W-3B1	D-1083	680 feet South of center line Base Line, 2,183 feet West of Cactus Avenue	490
1S/5W-3J1	D-1083a	1,371 feet North of Foothill Blvd. 703 feet West of Cactus Avenue	490
1S/5W-3N1	D-1083b	404 feet North of Foothill Blvd. 1,241 feet East of center line Linden Avenue	540
1S/4W-7C1	E-8a	92 feet South of center line Foothill Blvd., 1,484 feet East of center line Meridian Avenue	290
1S/4W-18B2	E-70c	705 feet South of center line Mill Street, 1,085 feet West of Rancho Avenue	370
1S/4W-18E1	E-70a	416 feet East of center line Meridian Avenue, 608 feet North of center line Randall Avenue	160
1S/4W-18K1	E-70e	47 feet South of center line Citrus Avenue, 87 feet East of West line of Northeast 1/4 of Section 18	360
1N/5W-17K1	D-1170b	3,937 feet measured Southeasterly along the center line of Riverside Avenue from its intersection with the North line of Section 17, and 352 feet Southwest of the center line of Riverside Avenue measured at right angles	90
1N/5W-17G1	D-1170d	3,625 feet measured Southeasterly along the center line of Riverside Avenue from its intersection with the North line of Section 17, and 161 feet Southwest of the center line of Riverside Avenue measured at right angles	90
1N/5W-28J1	D-1177a	63 feet West of Linden Avenue, 45 feet South of Vineyard 0.36 miles North of Highland Avenue	40
1N/5W-31A1	D-1166	66 feet South of center line of Highland Avenue 361 feet East of center line of Juniper	370

Exhibit "2"

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Attorneys for Lytle Creek Water and Improvement Company and Citizens Land and Water Company of Bloomington

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SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF SAN BERNARDINO

THE LYTLE CREEK WATER AND IMPROVEMENT COMPANY, a corporation, Plaintiff, vs. FONTANA RANCHOS WATER COMPANY, a corporation; HIGHLAND AVENUE WATER COMPANY, a corporation; CITIZENS LAND AND WATER COMPANY OF BLOOMINGTON, a corporation; CITY OF RIALTO, a municipal corporation; and CITY OF COLTON, a municipal corporation; et al., Defendants.	No. 81264 DECREE

WHEREAS, there has been filed in the above-entitled action a Stipulation for Judgment duly executed by and on the part of each and all of the following named parties to said action (who are collectively hereinafter referred to as "stipulating parties"), to-wit: The Lytle Creek Water and Improvement Company, a corporation (hereinafter referred to as "Lytle Creek"); Citizens Land and Water Company of Bloomington, a corporation (hereinafter referred to as "Citizens"); Fontana Union Water Company, a corporation (hereinafter referred to as "Fontana Union"); City of Colton, a municipal corporation (hereinafter referred to as "Colton"); City of Rialto, a municipal corporation (hereinafter referred to as "Rialto"); and Semi-Tropic County Water District, a county water district organized and existing under the California County Water District Law (hereinafter referred to as "Semi-Tropic"); and

WHEREAS, the Fontana Union was sued herein as John Doe

Company No. 1, a corporation, and the Complaint herein should be amended accordingly; and

WHEREAS, it appears that Semi-Tropic should be joined as a defendant in this action; and

WHEREAS, the action has been dismissed as to each of the defendants Fontana Ranchos Water Company, a corporation, and Highland Avenue Water Company, a corporation; and

WHEREAS, the Court has heard and considered evidence on the part of the various stipulating parties; and

WHEREAS, the parties have in said Stipulation for Judgment waived Findings of Fact and Conclusions of Law;

NOW, THEREFORE, IT IS HEREBY ORDERED, ADJUDGED, AND DECREED as follows:

1. The Complaint herein is hereby amended to set forth the true name of the defendant John Doe Company No. 1, a corporation, which is Fontana Union Water Company, a corporation.

2. Semi-Tropic County Water District is hereby joined as a defendant in this action.

3. As used herein the terms listed below shall have the respective meanings next following them, viz:

(a) "Rialto Basin" or "Basin" shall mean that certain territory in the County of San Bernardino, State of California, which is more particularly described upon Exhibit "1", and which also includes all percolating water and underground water and water sources underlying said territory.

(b) "Year" shall mean a twelve month period commencing on October 1 and ending on the next following September 30.

(c) "Acre Foot" of water shall mean that quantity of water which will cover one acre to a depth of one foot, also being 43,560 cubic feet, and which also is equal to a flow of 25.208 miner's inches of water for 24 hours.

4. Except as provided herein no stipulating party shall have any priority to take water from the Basin, and the rights of the parties to take

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water from the Basin as between themselves are set forth herein.

5. Subject to the pro rata reductions hereinafter set forth, the amount of water in acre feet to which the stipulating parties are respectively entitled to extract from the Basin in each year are as follows:

Colton	3,010 acre feet - 3900
Rialto	1,580 acre feet - 3100
Citizens	3,260 acre feet
Fontana Union	550 acre feet — 970
Lytle Creek	3,600 acre feet

6. The following described wells in the Basin are designated and referred to herein as index wells for the purpose of determining the elevation above sea level of the ground waters within the Basin. These wells are as follows:

(a) "Duncan Well" - presently owned by Rialto, having State Location No. 1S/5W-3A1, State Serial No. D-1084, located 109 feet South of the center line of Baseline and 233 feet West of the center line of Cactus Avenue.

(b) "Willow Street Well" - presently owned by Lytle Creek, having State Location No. 1S/5W-2K1, State Serial No. D-1085, located 202 feet East of the center line of Willow Street and 133 feet North of the center line of Victoria Avenue.

(c) "Boyd Well" - presently owned by Citizens, having State Location No. 1S/5W-12L1, State Serial No. D-1095, located 109 feet West of the center line of Eucalyptus Street and 155 feet North of the center line of Wilson Street.

For the purpose of determination of the elevation of water above sea level in the said index wells, the elevation above sea level of each of the index wells is established as follows:

(a) "Duncan Well"

(b) "Willow Street Well"

(c) "Boyd Well"

If for any reason any or all of said wells shall not be available

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for measurement, the identity and location of a substitute index well or wells may be determined by a written stipulation executed by at least three-fourths in number of the stipulating parties (or their successor(s) in interest) and filed in this action, or in default of said stipulation, by order of this Court.

The elevation of the water level above sea level of each of the index wells shall be measured in each of the months of March, April, and May in each year. Each stipulating party shall be entitled from time to time to designate one individual to be present and observe such measurements. Measurements shall be made by the owners of the respective wells or such other person, firm or corporation which three-fourths in number of the stipulating parties shall designate to do so. Such measurements shall be made at such times as the index well measured is not being pumped and has not been pumped within the preceding twenty-four hours.

7. As used herein the term "spring-high water level" for a year at each of the index wells shall mean the highest elevation in feet above sea level of the surface of the water table which shall be measured in each respective index well at any one of the monthly measurements during either March, April, or May.

In any year in which the average of the elevation of the spring-high water level in the three index wells is above elevation 1002.3 feet above mean sea level, no stipulating party shall be limited in the amount of water which may be pumped from the Basin. However, no stipulating party shall acquire any additional right to extract water from the Basin by reason of extracting more than such party is entitled under paragraph 5 above.

In any year in which the average of the elevations of the spring-high water level in the three index wells is between 1002.3 feet above mean sea level and 969.7 feet above mean sea level, each party shall be entitled to pump from the Basin in such year only the amount of water to which such party is entitled as specified in paragraph 5 above.

In any year in which the average of the elevations of the spring-high water level in the three index wells is below 969.7 feet above mean sea level, then the amount of water which the stipulating parties shall

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be entitled to pump from the Basin during such year shall be reduced ten per cent (10%) for each one (1) foot that the said average is below 969.7 feet above mean sea level.

9. If any stipulating party acquires any of the wells located within the Basin which are described on Exhibit "2", which is attached hereto and hereby incorporated herein, such party shall have the additional right to extract water from the Rialto Basin annually in the amount set forth on said Exhibit "2" opposite the description of the respective wells.

10. Each stipulating party shall maintain records of all extractions of water from the Basin so that it can be determined therefrom what extraction of water was taken from each well or combination of wells or other water sources in the Basin from which such party received water in each year.

Upon written demand of any stipulating party, the party keeping such records shall within thirty (30) days after receipt of such demand supply to the party making such demand, or other person designated by such party in such demand, a written statement of the amount of water (in acre feet) so taken from each such well or combination of wells or other sources for each year after 1961 with respect to which no such statement has previously been supplied.

11. Every provision of this judgment in favor of all applies to any party hereto and also applies to and inures to the benefit of and shall also bind all of the heirs, legal representatives, successors and assigns of such party.

12. Nothing in this judgment contained shall prevent any stipulating party from selling or otherwise disposing of or purchasing or otherwise acquiring any rights to extract water from the Basin which may be adjudged to belong to any other stipulating party; but any such right to acquire or so dispose of shall remain subject to any limitation or restrictions herein expressed.

13. The stipulating parties will unite in opposing any new taking of water from the Basin other than a stipulating party or parties and will prorate the expenses in making such opposition, including litigation or engineer-

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ing expenses, provided that:

(a) The term "new taking" shall not include any water development in the Basin hereafter made for the sole purpose of maintaining but not increasing any quantity of water now being taken from the Basin by the person who may hereafter make such development.

(b) If any stipulating party does not join in prosecuting any future suit to prevent, enjoin or limit any such new or unlawful taking, such stipulating party not so joining shall bear proratably the expenses of such suit, including attorneys' fees and engineering fees, only if final judgment is rendered in such suit preventing enjoining or limiting such taking.

14. No stipulating party shall be entitled to recover court costs from any other stipulating party in this proceeding.

15. The Court will render jurisdiction to enter modifications of this decree.

16. In the event through litigation of the supply of water in the Basin, or by reason of adjudiciation in any subsequent action, the stipulating parties in the aggregate shall be unable to pump and extract from the Basin a quantity of water so great as the aggregate water is set forth herein, the stipulating parties shall prorate the aggregate quantity of water available in the Basin as long as such inability shall continue.

17. The listing herein of any number of acre feet for any party to this action other than a stipulating party shall not be deemed an admission by any stipulating party that a non-stipulating party is entitled to any water whatsoever from the Basin, nor as to the quantity which such non-stipulating party may take from the Basin, but each such figure for any non-stipulating party is listed in order that the stipulating parties may between themselves agree as to their rights to extract water on account of acquisition of the wells of non-stipulating parties.

18. As between stipulating parties only no extraction of water from the Basin by any stipulating party in excess of the amount herein provided to be taken by such party shall be deemed adverse to any other stipulating party, and each stipulating party hereby waives as against each other stipulating

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party the right to plead any statute of limitation or latches with respect to water extracted by such party in excess of such amount.

19. No objection shall ever be made by any party to this judgment as to the interest or right of any such party as herein defined or as to the validity of this judgment not so defining such interest or right on the ground that such interest or right as so defined is not consistent with or warranted by the pleadings in this action relative thereto, and if in any case it shall appear that any such interest or right as so defined is in fact not consistent with or warranted by such pleadings then such pleadings shall be deemed and treated as amended to conform to and sustain such interest and right as herein defined, and said pleadings shall be deemed sufficient to support this judgment.

Each of the parties to this judgment waives all right of appeal therefrom and no appeal shall be taken by any party hereto from this judgment or any part thereof and the same shall constitute a final judgment.

DONE IN OPEN COURT this _____ day of _____, 1961.

_____
Judge of the Superior Court

SURR & HELL
ATTORNEYS AT LAW
SAN BERNARDINO, CALIFORNIA

DESCRIPTION OF BOUNDARIES OF RIALTO BASIN

BEGINNING at a point on the centerline of Meridian Avenue, as shown on plat of Town of Rialto and Adjoining Subdivisions, as recorded in Map Book 4, page 11, records of the County Recorder of said County, said point being 950 feet North of the intersection of said Meridian Avenue and San Bernardino Avenue; thence Northwesterly to a point on the centerline of Rialto Avenue (Arrow Route) as shown on said subdivision plat, said point being 400 feet East of the intersection of West Rialto Avenue and Cactus Avenue; thence Northwesterly to a point on the center line of Foothill Boulevard (State Highway Route No. 9), said point being 1,050 feet East of the intersection of said Foothill Boulevard and Linden Avenue, said intersection being the Southwest corner of Section 3, T1S, R5W, SBB&M; thence Northwesterly to a point in said Linden Avenue, said point being 700 feet North of said Foothill Boulevard; thence Northwesterly to a point in the centerline of Laurel Avenue as shown on said subdivision plat, said point being 3,600 feet North of said Foothill Boulevard; thence Northwesterly to the intersection of Alder Avenue and Baseline Road, said intersection being the Southeast corner of Section 32, T1N, R5W, SBB&M; thence Northwesterly to a point at the base of the San Gabriel Mountains, said point being 1,100 feet North and 1,400 feet West of the Southeast corner of Section 15, T1N, R6W, SBB&M; thence Northeasterly along the base of the San Gabriel Mountains in a direct line to a point in the East line of Section 13, T1N, R6W, said point being 3,700 feet North of the Southeast corner of said Section 13; thence Northeasterly along the base of the San Gabriel Mountains in a direct line to a point in fractional Section 7, T1N, R5W, said point being 2,200 feet North and 3,700 feet East of the Southwest corner of said Section 7; thence Southeasterly to a point in Muscupiabe Rancho, said point being 2,500 feet North and 950 feet East of the Southwest corner of fractional Section 22, T1N, R5W, SBB&M; thence Southeasterly to a point in said Muscupiabe Rancho, said point being 700 feet North and 3,700 feet East of the Southwest corner of said fractional Section 22, thence Southeasterly to a point in said Muscupiabe Rancho, said point being 4,000 feet North and 2,500 feet East of the Southwest corner of fractional Section 26, T1N, R5W, SBB&M; thence Southeasterly to a point in fractional Section 6, T1S, R4W, SBB&M, said point being 1,500 feet North and 4,300 feet East of the Southwest corner of said fractional Section 6; thence Southeasterly to a point on the centerline of Mill Street, as shown on plat The Martin Tract, as recorded in Map Book 3, page 27, Records of the County Recorder of said County, said point being 1,050 feet West of the intersection of said Mill Street and Mt. Vernon Avenue; thence Southwesterly to the point of beginning.

Exhibit 1

STATE WELL NUMBER		LOCATION	STIPULATED RIGHT ACRE FEET
Location Number	Serial Number		
1S/5W-3B1	D-1083	680 feet South of center line Base Line, 2,183 feet West of Cactus Avenue	490
1S/5W-3J1	D-1083a	1,371 feet North of Foothill Blvd. 703 feet West of Cactus Avenue	490
1S/5W-3N1	D-1083b	404 feet North of Foothill Blvd. 1,241 feet East of center line Linden Avenue	540
1S/4W-7C1	E-8a	92 feet South of center line Foothill Blvd., 1,484 feet East of center line Meridian Avenue	290
1S/4W-18B2	E-70c	705 feet South of center line Mill Street, 1,085 feet West of Rancho Avenue	370
1S/4W-18E1	E-70a	416 feet East of center line Meridian Avenue, 608 feet North of center line Randall Avenue	160
1S/4W-18K1	E-70e	47 feet South of center line Citrus Avenue, 87 feet East of West line of Northeast 1/4 of Section 18	360
1N/5W-17K1	1170-B	3,937 feet measured Southeasterly along the center line of Riverside Avenue from its intersection with the North line of Section 17, and 352 feet Southwest of the center line of Riverside Avenue measured at right angles	90
1N/5W-17G1	D-1170	3,625 feet measured Southeasterly along the center line of Riverside Avenue from its intersection with the North line of Section 17, and 161 feet Southwest of the center line of Riverside Avenue measured at right angles	90
1N/5W-28J1	D-1177a	63 feet West of Linden Avenue, 45 feet South of Vineyard .036 miles North of Highland Avenue	70
1N/5W-31A1	D-1176	66 feet South of center line of Highland Avenue 361 feet East of center line of Juniper	370

Exhibit "2"

RIALTO BASIN GROUNDWATER COUNCIL
FRAMEWORK AGREEMENT

This RIALTO BASIN **GROUNDWATER COUNCIL FRAMEWORK AGREEMENT** ("**Agreement**") is entered into and effective this ___ day of _____, 2020 by and among the City of Colton ("**Colton**"), the City of Rialto ("**Rialto**"), Fontana Union Water Company ("**FUWC**") and West Valley Water District ("**WVWD**"), each of which is referred to as a "**Party**," for the purpose of coordinating, developing, and implementing groundwater management activities that individually or cumulatively address groundwater management in, and groundwater sustainability throughout, the Rialto Basin as defined in Section 1.1.8 below.

RECITALS

WHEREAS, on and after September 12, 2018, in an effort to commit to sustainable groundwater management principles, the Parties, San Bernardino Valley Municipal Water District, San Gabriel Valley Water Company, Fontana Water Company and Cucamonga Valley Water District ("Cucamonga") entered into a Settlement Agreement as defined in Section 1.1.9 below;

WHEREAS, the Settlement Agreement requires completion of this Framework Agreement within one year of the final Settlement Agreement amendments executed in February 2019;

WHEREAS, the Settlement Agreement contained Condition 3, titled "Cooperative and Sustainable Groundwater Management of the Rialto-Colton Basin;"

WHEREAS, Condition 3 (1.) of the Settlement Agreement requires the parties to develop, adopt and implement a sustainable groundwater management plan.

WHEREAS, Condition 3 (l.) of the Settlement Agreement states that if the Parties agree, the sustainable groundwater management plan is to include a new index well regime, the possibility of establishing an operating safe yield, and/or other groundwater management tools.

WHEREAS, by joining the Settlement Agreement, the Parties to this Agreement accepted and agreed to the Recitals, Definitions, Principles and Agreements set forth in the Settlement Agreement, including Condition 3 (l.).

WHEREAS, the Parties to this Agreement all overlie, produce water from, or are otherwise invested in the management and long-term sustainability of the groundwater of the Rialto Basin as identified on the Map attached hereto as Exhibit A;

WHEREAS, The Rialto Basin is part of the Rialto Subbasin which underlies a portion of the upper Santa Ana Valley in southwestern San Bernardino County and northwestern Riverside County. This Subbasin is bounded by the San Gabriel Mountains on the north, the San Jacinto

fault on the east, the Rialto Basin boundary on the south, and the Rialto fault on the west. Lytle Creek flows through this part of the valley southeastward to its confluence with the Santa Ana River in the southern part of the Subbasin;

WHEREAS, the groundwater supplies of the Rialto Basin are governed by a court decree dated December 22, 1961 (the "1961 Decree") in the case styled *The Lytle Creek Water and Improvement Company v. Fontana Ranchos Water Company, et al.*, San Bernardino County Superior Court, Case No. 81264. A copy of the 1961 Decree is attached hereto as Exhibit D;

WHEREAS, pursuant to the Settlement Agreement, FUWCs No Man's Land production of 5,014 acre feet/year will be counted as part of the Rialto Basin production limits in the 1961 decree, and it is the intention of the Parties in forming the Rialto Basin Groundwater Council to apply, administer, and conform to the requirements and provisions of the 1961 Decree.

WHEREAS, Water Code Section 10720.8(a) identifies the Rialto Basin as an adjudicated groundwater basin. As such, the Rialto Basin is exempt from the Sustainable Groundwater Management Act (SGMA) passed by the California Legislature in September 2014, other than providing certain kinds of data to the Department of Water Resources per Water Code Section 10720.8(f);

WHEREAS, notwithstanding that the Rialto Basin is not required to comply with SGMA, the Parties to this Agreement wish to coordinate their efforts to identify their respective access to, and application of, water supplies, and to harmonize use of such supplies with available groundwater in the Rialto Basin. Working to ensure that the water imported into the Rialto Basin and the facilities used to apply both imported and native water supplies to productive beneficial uses for groundwater replenishment, will allow the Rialto Basin to be maintained and managed in a sustainable manner over the long-term. The Parties recognize that the key to success in this effort is a coordinated effort with other groundwater management entities as well as the development of a strategy for coordination of recharge activities throughout the Rialto Basin;

WHEREAS, ensuring water supply reliability and long-term effectiveness and viability of recharge facilities has become increasingly important, and proactive efforts are needed to improve and mitigate low groundwater levels in the Rialto Basin through the spreading of imported water supplies, which at times are limited in availability, due to drought, environmental, and other restrictions. One purpose of this Agreement is to facilitate the cooperation of the Parties which is essential to prevent overdraft or other negative impacts during an extended drought, and for the foreseeable future;

WHEREAS, the Parties, individually and collectively, are committed to cost effective and cooperative groundwater management that respects the interests and concerns of all of the parties and the communities that they serve and which rely on the Rialto Basin for their water supply;.

WHEREAS, **t**he Parties hereby enter into this Agreement for the purpose of establishing the Rialto Basin Groundwater Council ("RBGC") to take the preliminary steps necessary to prepare for and coordinate the management of groundwater supply resources throughout the

Rialto Basin, coordinate maintenance of conveyance and recharge facilities, and coordinate with existing groundwater agencies in the Rialto Basin to expedite such management strategies. The RBGC will ensure overall coordination and sustainable management of the Rialto Basin; and,

WHEREAS, the Parties have agreed that the preliminary steps for establishing RBGC will include preparation of formation documents and procedures, the engagement of necessary experts, and the development of a budget and funding procedure for the RBGC as memorialized in this Agreement.

AGREEMENT

NOW THEREFORE, in consideration of the matters recited and the mutual promises, covenants, and conditions set forth in this Agreement, the Parties hereby agree as follows:

1. DEFINITIONS

1.1 Definitions. In addition to the terms that may be defined elsewhere in this Agreement, the following terms when used in this Agreement shall be defined as follows:

1.1.1 "***Agreement"*** means this Rialto Basin Groundwater Council Agreement.

1.1.2 ***"Annual Rialto Basin Groundwater Report***" shall mean the annual report prepared by the RBGC, to cover topics including, but not limited to, the following: annual production, recharge, environmental issues, exchanges, and all other actions and topics material to groundwater conditions in the Rialto Basin. In preparing such report, the RBGC may consult with, and draw from, data and information provided by Santa Ana River and Western/ San Bernardino Watermasters and/or other reliable sources regarding annual groundwater conditions.

1.1.3 "***BTAC***" shall mean the Basin Technical Advisory Committee, as originally created under the auspices of the Upper Santa Ana River Watershed Integrated Regional Water Management Plan, as such Committee may be modified from time to time to allow for the additional participation of one or more Parties to this Agreement. The RBGC may request BTAC to undertake specified actions in support of the RBGC's efforts.

1.1.4 **"Cost Share"** shall mean that portion of the overall annual operating costs of the RBGC assigned to a Party pursuant to the Equitable Allocation, as based on the annual budget of the RBGC.

1.1.5 "***Effective Date***" shall mean the date that the last Party executes this Agreement.

1.1.6 "***Equitable Allocation***" shall mean the manner of determining the facilities' operations and maintenance ("O&M") costs and supplemental water cost, for each Party based on an annual approved budget. This allocation will be shared equally by the Parties for the applicable RBGC budget year.

1.1.7 **No Man's Land"** shall mean that portion of the Rialto-Colton Basin that is outside the Rialto Basin as shown on the maps attached as Exhibit A to the Settlement Agreement.

1.1.8 **"Rialto Basin"** shall mean that portion of the Rialto-Colton Basin defined in the 1961 Decree.

1.1.9 **"Settlement Agreement"** shall mean the settlement agreement dated September 12, 2018, as amended, that concluded the litigation styled *San Bernardino Municipal Water District et al v. San Gabriel Water Company et al,* a copy of which is attached as Exhibit C to this Agreement.

2. TERM

This Agreement shall become operative on the Effective Date.

3. COUNCIL CREATION AND PURPOSE

3.1 Creation of the RBGC. There is hereby created the Rialto Basin Groundwater Council. The RBGC shall be, to the extent permitted by law, the forum within which the Parties shall coordinate the access to and utilization of native and imported water supplies for application to the recharge and replenishment of the Rialto Basin, and for the maintenance, and repair of recharge and conveyance facilities for both native and imported supplies to replenish the Rialto Basin, consistent with applicable law and judicial decrees. The RBGC is not a public agency subject to Government Code Sections 54950 et seq.,nor is it a joint exercise of powers agreement as defined by Government Code sections 6300 et seq.

3.2 Purpose of the Agreement. The purpose of this Agreement, and the creation of the RBGC, is to provide for the funding, integration, and coordination of the management of native and imported water and associated groundwater replenishment facilities within the Rialto Basin. The purpose is also the facilitation of implementation of policies and initiatives through the legal authorities of one or more Parties for the purpose of cooperatively managing certain aspects of the Rialto Basin including, but not limited to, accessing and applying imported water supplies to augment and complement native water supplies toward the goal of maintaining the long-term yield of the Rialto Basin, ensuring that overdraft or other negative impacts are prevented in the future and eliminated over time, and undertaking supply reliability activities that are approved by the RBGC and included in the annual approved budget.

3.3 Membership of the RBGC. The RBGC shall consist of one representative and one alternate from each Party. RBGC members shall be appointed in the manner set forth in Section 3.4 of this Agreement.

3.4 Appointment of Members to the RBGC. For Colton, Rialto and WVWD, the representative member of the RGBC shall be a publicly elected official of the Party and for FUWC the representative shall be a member of its Board of Directors. Each Party shall also appoint one alternate representative who shall be a publicly elected official of the Party or a member of its Board of Directors or senior management level employee of the Party.

Members of the RBGC shall serve throughout the term of this Agreement, provided that such members may be subject to removal and replacement by the appointing Party.

4. COUNCIL MEETINGS AND ACTIONS

4.1 Initial Meeting. The initial meeting of the RBGC shall be held at a location overlying the Rialto Basin. The RBGC shall select a President to chair its meetings, a Vice President to serve if the President is unavailable, a Secretary to record RBGC proceedings and actions, and any other officers it deems appropriate for the successful and efficient conduct of its business.

4.2 Regular Meeting Schedule and Rules of Proceeding. The RBGC shall establish a regular meeting time and place. The RBGC may vote to change the regular meeting time and place, provided that the new location remains at a place overlying the Rialto Basin. The RBGC may adopt, promulgate, repeal, or revise further rules of debate, presentation of motions, voting and proxies, process, or proceedings, as it may deem appropriate. The Parties agree that the RBGC and its Board of Directors is and shall be subject to the Ralph M. Brown Act (Cal. Government Code section 54953 et seq.,) ("Brown Act") and that meetings and other applicable operations of the RBGC will be undertaken in compliance with the Brown Act..

4.3 Quorum. A quorum of the RBGC shall consist of three members. In the absence of a quorum, no business may be transacted beyond the adjournment of a meeting by the remaining members. For efficiency, business may be discussed and action recommended for the consent calendar ratification at the next regular meeting. A member shall be deemed present for the determination of a quorum if the member is present at the meeting in person, or if the member participates in the meeting telephonically upon such rules and procedures as the RBGC may promulgate.

4.4 RBGC Voting Rights. Each member of the RBGC shall have an equal voting right and three votes are required to pass any proposals for organizational, procedural, and administrative purposes only.

4.4.1 Fiscal items, including but not limited to, approval of the annual budget of the RBGC and any expenditures for O& M expenses related to groundwater recharge and replenishment activities, costs of such facilities, and the cost of purchasing, transporting, and delivering supplemental water for groundwater recharge shall require the unanimous vote of the members and the subsequent approval by their respective governing boards or councils.

4.4.2 Subject to the Equitable Allocation and Cost Share requirements, any change in annual assessments necessary to support the work of the RBGC shall require the unanimous vote of the members and the subsequent approval by their respective governing boards or councils.

4.5 Minutes. The RBGC shall cause minutes to be kept of all meetings of the RBGC and any appointed Ad Hoc or Standing Committees. The RBGC shall further cause a copy of draft minutes to be forwarded to each member of the RBGC and to each Party, which may be done electronically, or by way of posting to a commonly available website or digital portal.

5. ANNUAL BUDGETING AND EXPENDITURE APPROVAL

5.1 The fiscal year of the RBGC shall be July 1 through June 30. The RBGC shall develop, circulate, and approve an annual budget for the funding of native supply capture and bringing water supply to the Rialto Basin, and for the maintenance and repair of groundwater recharge or water conveyance facilities serving replenishment of the Rialto Basin. The RBGC shall coordinate with BTAC to determine the likely allocation of available State Water Project imported water supplies, and other available non-native sources of water, the likely unit cost of such water, and the recharge needs of the Rialto Basin, in terms of quantities of water, locations where Rialto Basin conditions would most benefit from recharge, condition and availability of facilities to accomplish such recharge, and cost. From these sources, the RBGC shall prepare a budget that recommends all of the following:

(a) the amount of water supplies available to be purchased or otherwise acquired by RBGC members in the coming year;

(b) the recommended application or distribution of such water supplies to various parts of the Rialto Basin as recharge or as in-lieu supplies;

(c) the estimated cost of all ongoing maintenance, repair, and operation costs for then-existing and future groundwater recharge and conveyance facilities serving to replenish the Rialto Basin;

(d) any capital improvement projects approved by the RBGC

(e) any administrative costs of the RBGC; and

(f) proposed allocation of all expenditures in the budget among RBGC members as their portion of the Cost Share based upon the Equitable Allocation and Cost Share Requirements in this Agreement.

5.1.2 No later than March 1 prior to the beginning of the year for which the budget is to operate, the proposed budget shall be presented and circulated to all RBGC members for review and analysis. The circulated budget shall include the underlying presumptions and worksheets upon which it is based.

5.1.3 No later than sixty (60) days after each member agency's budget has been approved by their respective governing bodies, the RBGC shall meet to deliberate and pass upon the budget. The RBGC may accept, reject, or modify in any way the budget as proposed. Adoption of the budget shall require unanimous approval by the members and the subsequent approval by their respective governing boards or councils.

5.2 The RBGC shall appoint an entity that is responsible for the accounting and revenue collection functions of the RBGC by tracking and securing the funding from the RBGC members pursuant to the approved annual budget, and consistent with the approved cost allocations among the RBGC members therein, for all imported water supplies. The appointed

entity shall perform the accounting and revenue collection functions of the RBGC in tracking and securing the funding from its members pursuant to the approved annual budget, and consistent with the approved cost allocations among the RBGC members therein, for all facilities costs. In the event of any delinquency, the approved entity may request the RBGC to appoint it, or any other RBGC member or group of members, to represent the RBGC in securing collection of unpaid and owing amounts from any delinquent member or members. The reasonably incurred costs of such collection efforts may be reimbursed to the agent the RBGC authorized to go forward with them, and may be added as an administrative cost to other members, or as a credit against future amounts owing to the RBGC from such authorized agent.

5.3 No later than six (6) months into the budget year for which any budget is adopted by the RBGC, the RBGC shall prepare a year-in-process budget review, to assess the validity and accuracy of the presumptions upon which the budget was based, identify any budget savings or additional expenditures, assess any additional opportunities for groundwater replenishment that may have come available since the passing of the budget, and otherwise assess and recommend to the RBGC any potential amendment to the existing year budget, or suggestions for the following year's budget, as changing conditions may warrant.

6. COUNCIL POWERS AND DUTIES

6.1 The RBGC shall exercise the following powers:

6.1.1 To adopt rules, regulations, policies, bylaws and procedures governing the operation of the RBGC.

6.1.2 To produce an Annual Rialto Basin Groundwater Report, using as may be appropriate data regarding groundwater conditions available from Western Municipal Watermaster, or other sources. The Annual Report shall include data showing each Party's production from the Rialto Basin and recharge or replenishment, if any, to the Rialto Basin.

6.1.3 To monitor groundwater production and extractions in coordination with BTAC.

6.1.4 To make, after consultation with BTAC, annual recommendations for the amount of additional artificial recharge for the Rialto Basin from imported sources as a complement to native sources, and to plan for the development and application of such additional sources of recharge.

6.1.5 To establish as-needed Ad Hoc and Standing Committees for the purpose of making recommendations to the RBGC. Committees shall exist for the term specified in the action creating the committee, and the RBGC may dissolve a committee at any time through a majority vote of three voting members.

6.1.6 To contract, on behalf of the RBGC, for the services of engineers, attorneys, planners, financial consultants, and separate and apart therefrom, to appoint agents and representatives to employ such other staff persons as necessary. The BTAC will provide technical support for the RBGC, upon such terms as the RBGC and BTAC shall agree in writing.

6.1.7 To collect and monitor all data related and beneficial to the development, adoption and implementation of appropriate groundwater level management for the Rialto Basin.

6.1.8 To collect assessments from RBGC members as authorized in the approved budget.

6.1.9 To cooperate, act in conjunction, and contract with the United States, the State of California, or any agency thereof, counties, municipalities, public and private corporations of any kind (including without limitation, investor-owned utilities), and individuals, or any of them, for any and all purposes necessary or convenient for the purposes of this Agreement.

6.1.10 To accumulate operating and reserve funds and invest the same as allowed by law for the purposes of the RBGC.

6.1.11 As may be permitted by law, to apply for and accept grants, contributions, donations and loans, including under any federal, state or local programs for assistance in developing or implementing any of its projects or programs in connection with any project untaken in the RBGC's name.

6.1.12 To implement the Cost Share in a manner that qualifies as a pass through charge under the Constitutional requirements of Proposition 218, California Public Utilities Commission ratemaking policies and procedures, and similar revenue-raising requirements.

6.1.13 To exercise any power necessary or incidental to the foregoing powers in the manner and according to the procedures provided for under the law applicable to the Parties to this Agreement.

7. FUNDING RBGC ACTIVITIES

7.1 Funding for RBGC activities shall be as provided in Section 1.1.6. This mechanism is based in part on a regional sharing of Operation and Maintenance costs for Rialto Basin recharge activities, as those Operation and Maintenance costs shall be determined by the RBGC in its annual budgeting, in conjunction with BTAC. All Parties shall share in the Operation and Maintenance cost components in accordance with the provisions in Section 1.1.6 of this Agreement.

8. DISPUTE RESOLUTION

8.1 The Parties recognize that there may be disputes regarding the obligations of the Parties or the interpretation of this Agreement. The Parties agree that they may attempt to resolve disputes as follows:

8.2 Statement Describing Alleged Violation of Agreement. A Party or Parties alleging a violation of this Agreement (the "**Initiating Party(ies)**") shall provide a written

statement describing all facts that it believes constitute a violation of this Agreement to the Party(ies) alleged to have violated the terms of this Agreement (the "**Responding Party(ies)**").

8.3 Response to Statement of Alleged Violation. The Responding Party(ies) shall have sixty (60) days from the date of the written statement to prepare a written response to the allegation of a violation of this Agreement and serve that response on the Initiating Party(ies) or to cure the alleged violation to the reasonable satisfaction of the Initiating Party(ies). The Initiating Party(ies) and the Responding Party(ies) shall then meet within thirty (30) days of the date of the response to attempt to resolve the dispute amicably.

8.4 Mediation of Dispute. If the Initiating Party(ies) and the Responding Party(ies) cannot resolve the dispute within ninety (90) days of the date of the written response, they shall engage a mediator, experienced in water-related disputes, to attempt to resolve the dispute. Each Party shall ensure that it is represented at the mediation by a representative with authority to settle. These representatives of the Initiating Party(ies) and the Responding Party(ies) may consult with staff and/or technical consultants during the mediation and such staff and/or technical consultants may be present during the mediation. The costs of the mediator shall be divided evenly between the Initiating Party(ies) and the Responding Party(ies). The decision of the mediator shall be non-binding.

8.5 Reservation of Rights. Subject to the above requirements, in the event that mediation fails, each Party retains and may exercise all legal and equitable rights and remedies it may have to enforce the terms of this Agreement; provided, that prior to commencing litigation, a Party shall provide at least five (5) calendar days' written notice of its intent to sue to all Parties.

9 RELATIONSHIP TO WATER RIGHTS AND PRIOR AGREEMENTS

9.1 Water Rights and Existing Agreements. Nothing in this Agreement is intended to modify the water rights of the Parties, whether existing under a judgment, proceedings of the State Water Resources Control Board, or the common law, other than incorporating production right from No Man's Land Basin into the Rialto Basin. Nothing in this Agreement is intended to modify any existing agreements between and among the Parties, unless expressly stated herein.

9.2 Agreements Among Water Users. Nothing in this Agreement is intended to modify the rights of the signatories of this Agreement among themselves.

9.3 Judgments. Nothing in this Agreement is intended to modify the rights of the Parties under the terms of the 1961 Decree.. However, FUWC's production capacities of 5,014 acre-feet/year from No Man's Land shall be acknowledged and incorporated into the Rialto Basin production capacity limits in the 1961 decree.. It is the intention of the Parties in forming the RBGC to apply, administer, and conform to the requirements and provisions of the 1961 Decree. In the event of any conflict, except for incorporating FUWC's production in No Man's Land into the Rialto Basin production capacity limits in the 1961 decree, between the actions of the RBGC and the requirements and provisions of the 1961 Decree, the latter shall control.

9.4 No Admissions. Nothing in this Agreement shall be construed as an admission by any Party regarding any subject matter of this Agreement, including but not limited to the water rights or priorities of the Parties.

9.5 Preservation of Rights. The Parties agree that this Agreement, to the extent allowed by law, preserves all rights of the Parties as they may exist as of the Effective Date of this Agreement. Except as provided in Section 9.3, nothing in this Agreement is to be construed as altering the priorities or entitlements of water right holders among themselves to water from the Santa Ana River or the Rialto Basin.

10. MISCELLANEOUS

10.1 Authority. Each signatory of this Agreement represents that s/he is authorized to execute this Agreement on behalf of the Party for which s/he signs. Each Party represents that it has legal authority to enter into this Agreement and to perform all obligations under this Agreement, and that by doing so, such Party is not in breach or violation of any other agreement or contract.

10.2 Amendment. This Agreement may be amended or modified only by a written instrument approved by all voting members.

10.3 Jurisdiction and Venue. This Agreement shall be governed by and construed in accordance with the laws of the State of California. Any suit, action, or proceeding brought under the scope of this Agreement shall be brought and maintained to the extent allowed by law in the Superior Court, County of San Bernardino, California and shall be deemed related to the 1961 Rialto Basin Decree, San Bernardino County Superior Court Action No. 81264 and to *San Bernardino Valley Municipal Water District et al. v. San Gabriel Water Company et al*..

10.4 Headings. The paragraph headings used in this Agreement are intended for convenience only and shall not be used in interpreting this Agreement or in determining any of the rights or obligations of the Parties to this Agreement.

10.5 Construction and Interpretation. This Agreement has been arrived at through negotiations, and each Party has had a full and fair opportunity to revise the terms of this Agreement. As a result, the normal rule of construction that any ambiguities are to be resolved against the drafting Party shall not apply in the construction or interpretation of this Agreement.

10.6 Entire Agreement. This Agreement constitutes the entire agreement of the Parties with respect to its subject matter, and supersedes any prior oral or written agreement, understanding, or representation relating to the subject matter of this Agreement.

10.7 Partial Invalidity. If, after the date of execution of this Agreement, any provision of this Agreement is held to be illegal, invalid, or unenforceable under present or future laws or adjudicatory decisions effective during the term of this Agreement, such provision shall be fully severable. However, in lieu thereof; there shall be added a provision as similar in terms to such illegal, invalid or unenforceable provision as may be possible and be legal, valid and enforceable.

10.8 Successors and Assigns. To the extent authorized by law, this Agreement shall be binding on and inure to the benefit of the successors and assigns of the respective Parties to this Agreement. No Party may assign its interests in or obligations under this Agreement without the written consent of the other Parties, which consent shall not be unreasonably withheld or delayed.

10.9 Waivers. Waiver of any breach or default hereunder shall not constitute a continuing waiver or a waiver of any subsequent breach either of the same or of another provision of this Agreement, and forbearance to enforce one or more of the remedies provided in this Agreement shall not be deemed to be a waiver of that remedy.

10.10 Necessary Actions. Each Party agrees to execute and deliver additional documents and instruments and to take any additional actions as may be reasonably required to carry out the purposes of this Agreement.

10.11 Compliance with Law. In performing their respective obligations under this Agreement, the Parties shall comply with and conform to all applicable laws, rules, regulations and ordinances.

10.12 Third Party Beneficiaries. This Agreement shall not create any right or interest in any non-Party or in any member of the public as a third party beneficiary.

10.13 Notices. All notices, requests, demands or other communications required or permitted under this Agreement shall be in writing unless provided otherwise in this Agreement and shall be deemed to have been duly given and received on: (i) the date of service if served personally or served by facsimile transmission on the Party by delivery to the person(s) at the address(es) designated below, which designation may be changed from time to time by a Party in writing; (ii) on the first day after mailing, if mailed by Federal Express, U.S. Express Mail, or other similar overnight courier service, postage prepaid, and addressed as provided below, or (iii) on the third day after mailing if mailed to the Party to whom notice is to be given by first class mail, registered or certified, postage prepaid, addressed as follows:

To CITY OF COLTON:	CITY OF COLTON Attn: Utilities Director 650 N. La Cadena Drive Colton, CA 92324
To CITY OF RIALTO:	CITY OF RIALTO Attn: Utilities Manager 150 S. Palm Avenue Rialto, CA 92376
To WEST VALLEY WATER DISTRICT:	WEST VALLEY WATER DISTRICT Attn: General Manager 855 W. Baseline Road Rialto, CA 92376
	FONTANA UNION WATER COMPNY

To FONTANA UNION WATER COMPANY:	Attn: President 15966 Arrow Route Fontana, CA 92335
With Copy to:	FONTANA UNION WATER COMPANY Attn: Director of Operations 15966 Arrow Route Fontana, CA 92335

10.14 Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed to be an original, but all of which together shall constitute but one and the same instrument.

CITY OF COLTON,
a California general law city and municipal corporation

DATED: _____, 2020

By:_____
William R. Smith, City Manager

[Signatures continued on next page]

CITY OF RIALTO
a California general law city and
municipal corporation

DATED: _____, 2020

By:_____
Sean Grayson, Acting City Manager

[Signatures continued on next page]

WEST VALLEY WATER DISTRICT

DATED: _____, 2020

By:_____
Clarence Mansell,
General Manager

[Signatures continued on next page]

FONTANA UNION WATER COMPANY

DATED: _____, 2020

By:_____
John Bosler, President

EXHIBIT A

Map of Rialto Basin

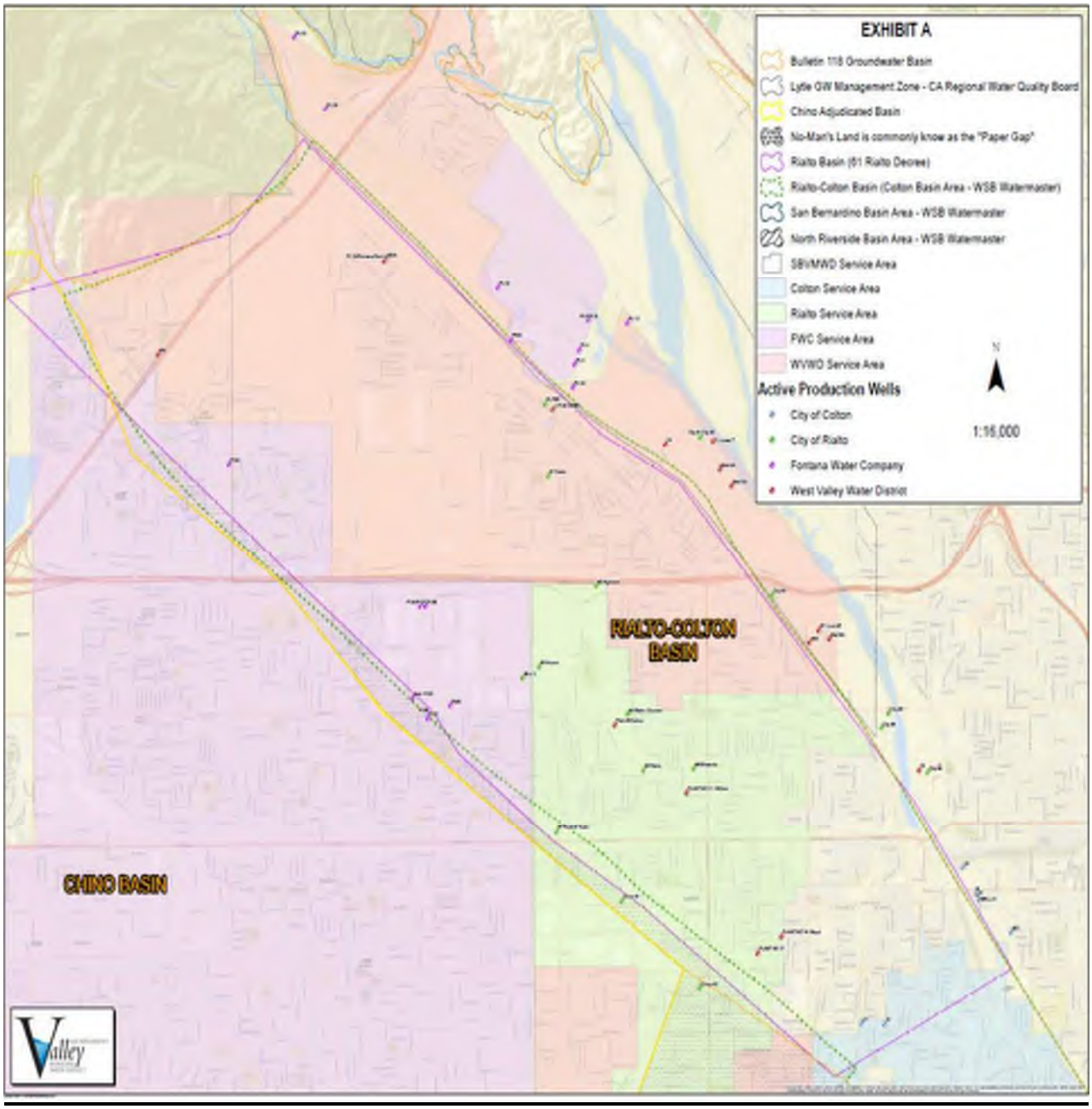

Exhibit B

WATER RIGHTS SUMMARY

The Parties to this agreement have agreed to the following water rights allocation:

Member	Adjustable Rights	Fixed Rights	No Man's Land Adjustable Rights	Total Rights	Water Rights Allocation Percentage
Colton	3,010	890	0	3,900	19%
Rialto	2,846	1,520	0	4,366	22%
WVWD	5,594	510	0	6,104	30%
FUWC	550	370	5,014	5,934	29%

Execution Copy

SETTLEMENT AGREEMENT

Relating to the Diversion of Water From the Santa Ana River System

(the "Seven Oaks Accord")

July 21, 2004

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SETTLEMENT AGREEMENT

Relating to the Diversion of Water from the Santa Ana River System

This Settlement Agreement Relating to the Diversion of Water From the Santa Ana River ("**Agreement**") is entered into this 21st day of July, 2004 ("Effective Date") by and among: San Bernardino Valley Municipal Water District ("**Muni**") and Western Municipal Water District of Riverside County ("**Western**") (collectively, Muni and Western are referred to as the "**Applicants**"); the City of Redlands ("**Redlands**"); East Valley Water District ("**East Valley**"); and Bear Valley Mutual Water Company, Lugonia Water Company, North Fork Water Company and Redlands Water Company ("**Bear Valley**"), (collectively, Redlands, East Valley and Bear Valley are referred to as the "**Water Users**"). Each of the parties to this Agreement is referred to herein as a "**Party**" and the parties are collectively referred to herein as the "**Parties**."

Recitals

Applicants have filed with the State Water Resources Control Board ("**SWRCB**") Application Nos. 31165 and 31370 (collectively, the "**Applications**") to appropriate water from the Santa Ana River for direct diversion and/or storage. Water Users have filed protests against the Applications alleging infringement of Water Users' senior water rights and adverse impacts on the environment. The Parties wish to resolve these protests without the need for a lengthy and expensive water rights hearing.

Agreements

1. *Withdrawal of Protests Presently Pending Before the SWRCB.*

a. *Withdrawal of Protests.* Within twenty business days after the date on which Water Users receive a draft environmental impact report on the Applications for public review, Water Users shall each send to the SWRCB, via certified mail with a copy to Applicants, a letter withdrawing their respective protests against the Applications. Said letters shall be in the form provided in Exhibit A and incorporated herein by reference. Applicants shall provide Water Users with notice of the release of the draft environmental impact report via facsimile transmission upon its release.

b. *Support for Applications.* Water Users shall, simultaneously with the withdrawal of their respective protests to the Applications, also each send, via certified mail with a copy to Applicants, letters to the SWRCB supporting the issuance of permits to Applicants for the diversion and storage of the full quantities of water from the Santa Ana River identified in the Applications. Such letters shall be in the form provided in Exhibit B and incorporated herein by reference. Water Users shall also, upon written request by Applicants, send similar letters to local, state and federal agencies supporting the issuance of all other permits or regulatory approvals that may be necessary for Applicants to implement their plans to divert water from the Santa Ana River, including seasonal water conservation at Seven Oaks Dam and Reservoir, as reflected in the Applications. A list of all permits/approvals that Applicants presently believe may be required to implement the Applications is included in Exhibit B and incorporated herein by reference. Applicants shall update this list annually if additional permits/approvals become necessary to implement the plans identified in the Applications and Water Users agree not to object to such additional permits/approvals that may be needed to implement the Applications.

c. *Incorporation of Settlement in Applications.* Applicants shall, within twenty business days of the date on which Applicants issue a draft environmental impact report on the Applications for public review, amend the Applications to incorporate the terms of this Agreement therein and request the SWRCB to incorporate the terms of this Agreement in any permits issued to Applicants.

2. *Effect of Agreement.* Paragraphs 3 to 11 of this Agreement shall not take effect unless and until: (i) the Parties complete the review and analysis, if any, that may be required by the terms of the California Environmental Quality Act of the potential physical change in the environment of implementing those provisions and (ii) the SWRCB approves the Applications, in whole or in part, and issues water rights permits to Applicants pursuant thereto. In the event that the SWRCB denies the Applications in their entirety, paragraphs 3 to 11 of this Agreement shall immediately be deemed null and void and no Party shall be bound thereby. In the event that the SWRCB approves the Applications by the issuance of permits which contain terms or provisions that are inconsistent with the terms or provisions of this Agreement, the Parties shall implement the terms or provisions of this Agreement to the extent legally permissible.

3. *Diversions from the Santa Ana River*

a. *Diversions by Water Users.* Subject to the conditions contained in subparagraphs 3(a)(1) to 3(a)(7) below, any rights granted Applicants by the SWRCB to divert water from the Santa Ana River shall be subject to the prior right of Water Users to divert up to the first 88 cfs of the natural flow of the Santa Ana River and Applicants shall not, during the term of this Agreement, object to, nor challenge by way of any administrative proceeding, judicial proceeding or otherwise, Water Users' combined diversion of up to the first 88 cfs of the natural flow of the Santa Ana River, as defined in paragraph 3(a)(7) below. Such diversion may include, without limitation, Water Users' diversion of water at rates sufficient to:

(i) equal the present and future treatment capacity of the Hinckley Treatment Plant or other water treatment plants used to deliver water for municipal and industrial purposes within Water Users' respective service areas, (ii) meet the irrigation demand from agricultural areas within Water Users' respective service areas, and (iii) satisfy other permitted uses of water as described in paragraphs 3(a)(1) and 3(a)(6) below. Nothing in this Agreement shall be interpreted to allow Water Users, under any circumstances, to divert water other than the first 88 cfs of the natural flow of the Santa Ana River.

(1) *"Run of the River" Basis for Diversions.* All diversions by Water Users from the Santa Ana River must be made on a "run of the river" basis (i.e., diversions for immediate delivery for beneficial use without storage of any kind, either above or below ground) for delivery within Water Users' combined service areas, *provided, however*, that Water Users may spread a portion of the natural flow of the Santa Ana River as provided in paragraph 4 below and may store a portion of the natural flow of the Santa Ana River as provided in paragraph 3(a)(6) below.

(2) *Natural Flow of the Santa Ana River.* The "natural flow of the Santa Ana River" is defined for purposes of this Agreement as the flow of the Santa Ana River in the Southern California Edison Company power conduit as measured downstream of Seven Oaks Dam, and the river pickup located downstream from Seven Oaks Dam and upstream from the afterbay of Southern California Edison Santa Ana River Powerhouse No. 3, less: (1) any releases from Bear Valley's Lake Account, and/or (2) any releases or spills from Big Bear Municipal Water District's Lake Account, as those accounts are defined in the 1977 judgment in *Big Bear Municipal Water District v. North Fork Water Company et al.* (San

Bernardino County Superior Court No. 165493) dated February 4, 1977, a copy of which is attached hereto as Exhibit C and incorporated herein by reference (the "**1977 Judgment**"). Water Users may divert up to the full 88 cfs using the combination of the Southern California Edison power conduit and the river pickup located downstream from Seven Oaks Dam and upstream from the afterbay of Southern California Edison Santa Ana River Powerhouse No. 3. The facilities described in this subparagraph are depicted in the map attached hereto as Exhibit D and incorporated herein by reference. If Southern California Edison sells or otherwise disposes of the power conduit system, Water User's right to divert the first 88 cfs of the natural flow of the Santa Ana River shall remain unaffected.

(3) *Water Users' Service Areas.* The Water Users' combined service areas are defined more precisely in Exhibit E, which is attached hereto and incorporated herein by reference.

(4) *Water Users' Points of Diversion.* Nothing in this Agreement is intended to prevent the Water Users from diverting water from points of diversion that they each respectively use at present. A list of such points of diversion is attached as Exhibit F and incorporated herein by reference. Water Users agree that Applicants may divert the water that is the subject of the Applications from Water Users' points of diversion, *provided* that Applicants may only divert water from Water Users' points of diversion during those times when there is diversion capacity available at those points of diversion which is excess to the needs of Water Users. Water Users shall execute the necessary documents, if any, to evidence full permission to Applicants to

divert water from Water Users' points of diversion, subject to the above restriction.

(5) *Cooperative Water Project Agreement Credits.* Nothing in this Agreement is to be construed as precluding Water Users from delivering water in a manner that generates Deferred Exchange Water Credits under the terms of the Santa Ana River-Mill Creek Cooperative Water Project Agreement (the "Cooperative Water Project Agreement").

(6) *Permitted Surface Storage.* Nothing in this Agreement shall: (i) preclude Bear Valley from storing water to the extent needed for system surface storage in the Mentone Reservoir at its present location to meet the needs/demands of its shareholders or (ii) preclude Bear Valley's shareholders from storing water in Crafton Reservoir at its present location to meet the needs/demands of its shareholders. Nothing in this Agreement is intended to interfere with Redlands' and East Valley's regulatory storage of potable water above ground prior to delivery of that water to retail or wholesale customers.

(7) *No Rights to Seven Oaks Reservoir.* Nothing in this Agreement shall be construed as granting Water Users any right to water that is conserved at Seven Oaks Reservoir or as granting Water Users any right to store water at Seven Oaks Reservoir; provided, however, Water Users may divert, at the Bear Valley River Pickup, up to 88 cfs of the natural flow of the Santa Ana River that is temporarily detained behind Seven Oaks Dam.

b. *Applicants' Diversion Rights.* Water Users shall not object to Applicants' diversion, pursuant to a permit or license issued by the SWRCB, of all water in the Santa Ana River in excess of the actual combined diversions

of Water Users, which, pursuant to paragraph 3(a) above, shall not exceed 88 cfs. Water Users shall have no claims to or rights in the water diverted by Applicants provided that nothing in this Agreement is to be construed as prohibiting Water Users from participating in programs developed or implemented by Applicants on the same terms and conditions as other water purveyors in the San Bernardino Valley.

4. *Groundwater Spreading Program.* Applicants, after consultation with Water Users, shall develop and manage a groundwater spreading program that is intended to maintain groundwater levels at the wells specified in Exhibit G at relatively constant levels, in spite of the inevitable fluctuations due to hydrologic variation. The groundwater spreading program shall identify target water level ranges in the specified wells and shall be subject to the requirement that such spreading not worsen the problem of high groundwater levels in the Pressure Zone. The determination of whether a particular action will worsen groundwater levels in the Pressure Zone shall be made using the integrated surface and groundwater models used by Applicants in the environmental impact report for the Applications, as those models may be refined in the future.

a. *Development and Implementation of Program.* Applicants shall adopt such an integrated management program within five years of the date on which the SWRCB grants Applicants a permit to divert water from the Santa Ana River. Water Users agree to limit spreading in the San Bernardino Basin Area so as to conform to an annual management plan adopted by Applicants that is consistent with the terms of this Agreement.

b. *Spreading by Water Users.* As part of the groundwater spreading program developed by Applicants, Bear Valley may, in lieu of a portion of its share of the 88 cfs of direct diversions of the natural flow of the Santa Ana River described in paragraph 3(a) above, divert up to a maximum collective total of 9 cfs for spreading at either the South Airport spreading basins and/or at the West Mill Creek spreading grounds. These spreading

grounds are shown on the map depicted in Exhibit H and incorporated herein by reference. The other Water Users, including but not limited to Redlands and East Valley, will also be able to participate in the spreading program by spreading a portion of their respective shares of the natural flows of the Santa Ana River within the 88 cfs limit described in paragraph 3(a) at the locations specified in Exhibit H. The maximum total spreading that may be done by all Water Users, in all locations at any given time, may not exceed a rate of 20 cfs, provided that such spreading shall not worsen high groundwater levels in the Pressure Zone as defined in paragraph 4 above. All spreading by Water Users is intended to be operated on a "put and take" basis with extractions occurring within one year of the date spread and Water Users shall report all spreading to Applicants on an annual basis for inclusion in the Watermaster's report pursuant to the *Western* Judgment identified in paragraph 7(c) below.

5. *Service of Water by Water Users.* In accordance with all applicable provisions of law, Water Users shall only deliver surface water or groundwater:

a. within Water Users' respective Service Areas as identified in Exhibit E, as modified from time to time in accordance with applicable law;

b. on a retail basis in areas outside Water Users' respective Service Areas where a Water User provides such service on a 365 day/year basis; or

c. on a non-retail basis outside Water Users' respective Service Areas and within the San Bernardino Basin Area, *provided that* if a Water User wishes to provide water on a non-retail basis outside its Service Area and within the San Bernardino Basin Area, it shall provide Applicants with at least 30 days' written notice of such proposed non-retail service. If Applicants do not object in writing to such proposed non-retail service within 15 days from the date of the notice, the Water User may proceed with such non-retail service of water. If Applicants object to such

proposed non-retail service, Applicants and the Water User shall promptly meet to consider whether the provision of non-retail water service would reduce or interfere with the diversion of water by Applicants. If the integrated groundwater/surface water model referred to in paragraph 4 above shows that the proposal for non-retail service would not have any impacts on the location, timing, quantity, spreading or other characteristic of Applicants' diversions, then the Water User may implement the proposal. In all other cases, the proposal for non-retail service shall only be implemented with the prior written consent of Applicants, which shall not be unreasonably withheld or unduly delayed.

6. *Banking and Exchanges.*

a. *By Water Users.* Save in cases of emergencies, water diverted by Water Users may only be wheeled, banked, exchanged or transferred, directly or indirectly, in lieu or otherwise in the manner allowed by the Cooperative Water Project Agreement.

b. *By Applicants.* Water Users acknowledge that Applicants intend to bank and/or exchange substantial quantities of native Santa Ana River water for water imported from the State Water Project or other sources of imported or native water pursuant to a comprehensive program for water banking and/or exchanges in the San Bernardino Valley and elsewhere in Southern California that includes, but is not limited to, the groundwater spreading plan described in paragraph 4 above, and that is not inconsistent with the terms of this Agreement.

c. *Pursuant to Applicants' Program.* Water Users acknowledge that Applicants intend to develop a comprehensive program for water banking and/or exchanges in the San Bernardino Valley and elsewhere in Southern California that includes, but is not limited to, the groundwater spreading plan described in paragraph 4 above. Water Users may participate in such

comprehensive water banking/exchange program on the same terms as other water purveyors.

d. *Definition of Emergency.* For purposes of this Agreement, the term "**emergency**" shall be defined as provided in California Code of Regulations, title 14, section 15359.

7. *State Project Water.* Applicants reserve the right to store State Water Project water in Seven Oaks Reservoir, either in conjunction with or separately from, the storage of conserved water from the Santa Ana River system. Water Users will not object to such storage of State Water Project water in Seven Oaks Reservoir to the extent that such storage is not inconsistent with the terms of this Agreement.

8. *Water Subject to Agreement.* This Agreement addresses the Parties' use of raw water (including surface water, non-contaminated groundwater and groundwater treated to remove contaminants) and potable water. Nothing in this Agreement shall be construed to regulate the Parties' use of recycled municipal wastewater.

9. *Relationship to Other Agreements and Judgments.*

a. *Cooperative Water Project Agreement.* Nothing in this Agreement is intended to modify the rights of the Parties under the Cooperative Water Project Agreement.

b. *Agreements Among Water Users.* Nothing in this Agreement is intended to modify the rights of Water Users among themselves.

c. *Judgments.* Nothing in this Agreement is intended to modify the rights of the Parties under the terms of the 1977 Judgment or the judgments in *Orange County Water District v. City of Chino et al.* (Orange County Superior Court, Case No. 117628, April 17, 1969) and *Western Municipal Water District of Riverside County v. East San Bernardino County Water District et al.* (Riverside County Superior Court Case No. 78426, April 17, 1969).

10. *No Admissions.* Nothing in this Agreement shall be construed as an admission by any Party regarding any subject matter of this Agreement, including but not limited to the water rights of the Parties. The Parties agree that Evidence Code sections 1152 and 1154 render this Agreement inadmissible as evidence against any of the Parties in any adjudicative proceeding, except a proceeding to enforce or interpret the terms or conditions of this Agreement and/or the terms or conditions of a permit or permits issued to Applicants by the SWRCB pursuant to the Applications. In particular, nothing in this Agreement shall be construed as an admission by Applicants relating to the priority, nature, quantity or other characteristic of the water rights claimed by Water Users or a waiver of any contentions by Applicants relating to Water Users' claimed water rights.

11. *Preservation of Rights.* The Parties agree that this Agreement is in settlement of water right disputes and preserves all rights of the Parties as they may exist as of the Effective Date of this Agreement. Nothing in this Agreement is to be construed as altering the priorities or entitlements of Water Users among themselves to water from the Santa Ana River.

12. *Administration of Agreement*

a. *Recordation of Agreement.* Applicants shall, within ten days of the Effective Date of this Agreement, cause this Agreement to be recorded in the Official Records of the County of San Bernardino. Applicants shall provide Water Users with recorded copies of this Agreement promptly upon the receipt of such copies from the County of San Bernardino.

b. *Books and Records.* Each Party shall have access to and the right to examine any of the other Party's pertinent books, documents, papers or other records (including, without limitation, records contained on electronic media) relating to the performance of that Party's obligations pursuant to this Agreement. The Parties shall each retain all such books, documents, papers or other records to facilitate such review. Access to

each Party's books and records shall be during normal business hours only. Nothing in this paragraph shall be construed to operate as a waiver of any applicable privileges.

c. *Disputes*. The Parties recognize that there may be disputes regarding the obligations of the Parties or the interpretation of this Agreement. The Parties agree that they may attempt to resolve disputes as follows:

(1) *Statement Describing Alleged Violation of Agreement.* A Party or Parties alleging a violation of this Agreement (the "**Initiating Party(ies)**") shall provide a written statement describing all facts that it believes constitute a violation of this Agreement to the Party(ies) alleged to have violated the terms of this Agreement (the "**Responding Party(ies)**").

(2) *Response to Statement of Alleged Violation.* The Responding Party(ies) shall have sixty days from the date of the written statement to prepare a written response to the allegation of a violation of this Agreement and serve that response on the Initiating Party(ies) or to cure the alleged violation to the reasonable satisfaction of the Initiating Party(ies). The Initiating Party(ies) and the Responding Party(ies) shall then meet within thirty days of the date of the response to attempt to resolve the dispute amicably.

(3) *Mediation of Dispute.* If the Initiating Party(ies) and the Responding Party(ies) cannot resolve the dispute within ninety days of the date of the written response, they shall engage a mediator, experienced in water-related disputes, to attempt to resolve the dispute. Each Party shall ensure that it is represented at the mediation by a Director or Trustee. These representatives of the Initiating Party(ies) and the Responding Party(ies) may consult

with staff and/or technical consultants during the mediation and such staff and/or technical consultants may be present during the mediation. The costs of the mediator shall be divided evenly between the Initiating Party(ies) and the Responding Party(ies).

(4) *Reservation of Rights.* Nothing in this paragraph 12 shall require a Party to comply with the dispute resolution process contained herein and each Party retains and may exercise at any time all legal and equitable rights and remedies it may have to enforce the terms of this Agreement; provided, that prior to commencing litigation, a Party shall provide at least five calendar days' written notice of its intent to sue to all Parties.

13. *Implementation of Agreement.* This Agreement shall become effective upon its approval by Muni, Western, Redlands, Bear Valley Mutual Water Company, and East Valley. Other Parties identified above shall have 90 days from the Effective Date to execute this Agreement.

14. *Environmental Impact Report.* Applicants shall include thresholds of significance and mitigation measures in substantially the form set forth in Exhibit I in their environmental impact report for the Applications.

15. *General Provisions.*

a. *Authority.* Each signatory of this Agreement represents that s/he is authorized to execute this Agreement on behalf of the Party for which s/he signs. Each Party represents that it has legal authority to enter into this Agreement and to perform all obligations under this Agreement.

b. *Amendment.* This Agreement may be amended or modified only by a written instrument executed by each of the Parties to this Agreement.

c. *Jurisdiction and Venue.* This Agreement shall be governed by and construed in accordance with the laws of the State of California, except for

its conflicts of law rules. Any suit, action, or proceeding brought under the scope of this Agreement shall be brought and maintained to the extent allowed by law in the County of San Bernardino, California.

d. *Headings.* The paragraph headings used in this Agreement are intended for convenience only and shall not be used in interpreting this Agreement or in determining any of the rights or obligations of the Parties to this Agreement.

e. *Construction and Interpretation.* This Agreement has been arrived at through negotiations and each Party has had a full and fair opportunity to revise the terms of this Agreement. As a result, the normal rule of construction that any ambiguities are to be resolved against the drafting Party shall not apply in the construction or interpretation of this Agreement.

f. *Entire Agreement.* This Agreement constitutes the entire agreement of the Parties with respect to the subject matter of this Agreement and supersedes any prior oral or written agreement, understanding, or representation relating to the subject matter of this Agreement.

g. *Partial Invalidity.* If, after the date of execution of this Agreement, any provision of this Agreement is held to be illegal, invalid, or unenforceable under present or future laws effective during the term of this Agreement, such provision shall be fully severable. However, in lieu thereof, there shall be added a provision as similar in terms to such illegal, invalid or unenforceable provision as may be possible and be legal, valid and enforceable.

h. *Successors and Assigns.* This Agreement shall be binding on and inure to the benefit of the successors and assigns of the respective Parties to this Agreement. No Party may assign its interests in or obligations under this

Agreement without the written consent of the other Parties, which consent shall not be unreasonably withheld or delayed.

i. *Waivers*. Waiver of any breach or default hereunder shall not constitute a continuing waiver or a waiver of any subsequent breach either of the same or of another provision of this Agreement and forbearance to enforce one or more of the remedies provided in this Agreement shall not be deemed to be a waiver of that remedy.

j. *Attorneys' Fees and Costs*. The prevailing Party in any litigation or other action to enforce or interpret this Agreement shall be entitled to reasonable attorneys' fees, expert witnesses' fees, costs of suit, and other and necessary disbursements in addition to any other relief deemed appropriate by a court of competent jurisdiction.

k. *Necessary Actions*. Each Party agrees to execute and deliver additional documents and instruments and to take any additional actions as may be reasonably required to carry out the purposes of this Agreement.

l. *Compliance with Law*. In performing their respective obligations under this Agreement, the Parties shall comply with and conform to all applicable laws, rules, regulations and ordinances.

m. *Third Party Beneficiaries*. This Agreement shall not create any right or interest in any non-Party or in any member of the public as a third party beneficiary.

n. *Counterparts*. This Agreement may be executed in one or more counterparts, each of which shall be deemed to be an original, but all of which together shall constitute but one and the same instrument.

o. *Notices*. All notices, requests, demands or other communications required or permitted under this Agreement shall be in writing unless provided otherwise in this Agreement and shall be deemed to have been duly given

and received on: (i) the date of service if served personally or served by facsimile transmission on the Party to whom notice is to be given at the address(es) provided below, (ii) on the first day after mailing, if mailed by Federal Express, U.S. Express Mail, or other similar overnight courier service, postage prepaid, and addressed as provided below, or (iii) on the third day after mailing if mailed to the Party to whom notice is to be given by first class mail, registered or certified, postage prepaid, addressed as follows:

BEAR VALLEY MUTUAL WATER COMPANY:

Bear Valley Mutual Water Company
101 E. Olive Avenue
Redlands, CA 92373
(909) 793-4901
(909) 793-7073 (FAX)
Attn: General Manager

CITY OF REDLANDS:

City of Redlands
35 Cajon Street
Redlands, CA 92373
(909) 798-7533
(909) 798-7535 (FAX)
Attn: Municipal Utilities Director

EAST VALLEY WATER DISTRICT:

East Valley Water District
1155 Del Rosa Avenue
P.O. Box 3427
San Bernardino, CA 92413
(909) 885-4900
(909) 889-5732 (FAX)
Attn: General Manager

LUGONIA WATER COMPANY:

Lugonia Water Company
101 E. Olive Avenue
Redlands, CA 92373
(909) 793-4901
(909) 793-7073 (FAX)
Attn: General Manager

NORTH FORK WATER COMPANY

North Fork Water Company
1155 Del Rosa Avenue
P.O. Box 3427
San Bernardino, CA 92413
(909) 885-4900
(909) 889-5732 (FAX)
Attn: General Manager

REDLANDS WATER COMPANY

Redlands Water Company
101 E. Olive Avenue
Redlands, CA 92373
(909) 793-4901
(909) 793-7073 (FAX)
Attn: General Manager

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT:

San Bernardino Valley Municipal Water District
1350 S. "E" Street (92408-2725)
P. O. Box 5906 (92412-5906)
San Bernardino, CA
(909) 387-9222
(909) 387-9247 (FAX)
Attn: General Manager

WESTERN MUNICIPAL WATER DISTRICT OF RIVERSIDE COUNTY:

Western Municipal Water District of Riverside County
450 Alessandro Boulevard
Riverside, CA 92508
(909) 789-5000
(909).780-3837 (FAX)
Attn: General Manager

BEAR VALLEY MUTUAL WATER COMPANY

By: _____
Robert A. Hinze
President, Board of Directors

Attest:

By: _____
Charlotte L. Van Eck
Secretary

CITY OF REDLANDS

By: _____
Susan Peppler
Mayor

Attest:

By: _____
Lorrie Poyzer
City Clerk

EAST VALLEY WATER DISTRICT

By: _____
George E. (Skip) Wilson
President, Board of Directors

LUGONIA WATER COMPANY

By: _____
David B. Knight
President

Attest:

By: _____
Charlotte Van Eck
Secretary

NORTH FORK WATER COMPANY

By: Arnold L. Wright
Arnold Wright
President, Board of Directors

REDLANDS WATER COMPANY

By: Joseph P. Buoye
Joseph P. Buoye
President, Board of Directors

Attest:

By: Charlotte L. Van Eck
Charlotte L. Van Eck
Secretary

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By:
Patrick Milligan
President, Board of Directors

WESTERN MUNICIPAL WATER DISTRICT OF RIVERSIDE COUNTY

By: Wayne Holcomb
Wayne Holcomb
President, Board of Directors

List of Exhibits

Exhibit	Title
A	Form of Letter to the State Water Resources Control Board From Water Users Withdrawing Water Users' Protests
B	Form of Letter to the State Water Resources Control Board From Water Users Supporting the Issuance of Permits to Applicants (includes list of permits)
C	Judgment in *Big Bear Municipal Water District v. North Fork Water Company et al.* (San Bernardino Superior Court, No. 165493, February 4, 1977).
D	Map of Santa Ana River Facilities
E	Water Users' Service Areas
F	Water Users' Points of Diversion
G	SBBA Index Wells
H	Map of Water Users' Spreading Grounds
I	Thresholds of Significance and Mitigation Measures to be Included in Applicants' EIR

EXHIBIT A

Arthur G. Baggett, Jr.
Chairman
State Water Resources Control Board
1101 I Street
Sacramento, California 95814

Re: Withdrawal of Protest by _____
Application Nos. 31165 and 31370
Santa Ana River, San Bernardino County

Dear Chairman Baggett:

_____ ("Protestant") has filed protests against Application Nos. 31165 and 31370 which have been filed with the State Water Resources Control Board (the "SWRCB") by San Bernardino Valley Municipal Water District and Western Municipal Water District of Riverside County ("Applicants"). Protestant and Applicants have now approved a settlement agreement that resolves all of the matters that were the subjects of Protestant's objections to Application Nos. 31165 and 31370. Protestant, accordingly, hereby withdraws its protests to Application Nos. 31165 and 31370. A copy of that executed settlement agreement is enclosed with this letter.

Please feel free to call if you or your staff have questions regarding this withdrawal of protests.

Very truly yours,

EXHIBIT B

Arthur G. Baggett, Jr.
Chairman
State Water Resources Control Board
1101 I Street
Sacramento, California 95814

Re: Letter of Support by _____
Application Nos. 31165 and 31370
Santa Ana River, San Bernardino County

Dear Chairman Baggett:

_____ ("Protestant") has filed protests against Application Nos. 31165 and 31370 (collectively, the "Applications") which have been filed with the State Water Resources Control Board ("SWRCB") by San Bernardino Valley Municipal Water District and Western Municipal Water District of Riverside County (collectively, "Applicants"). Protestant and Applicants have now approved and executed a settlement agreement that resolves all of the matters that were the subjects of Protestant's objections to the Applications.

Protestant hereby supports the SWRCB's issuance of permits to Applicants for the diversion and storage of the full quantities of water from the Santa Ana River identified in the Applications. Protestant also supports the issuance of all other permits or other regulatory approvals that may be necessary for Applicants to implement their plans to divert water from the Santa Ana Rive, including seasonal water conservation at Seven Oaks Dam and Reservoir, as reflected in the Applications.

Please feel free to call if you or your staff have questions regarding this letter in support of the Applications.

Very truly yours,

Permits Potentially Required for Water Conservation at Seven Oaks Dam

The following is a list of permits that may, depending upon site-specific circumstances, be required in order for the Applicants to implement their plans for seasonal water conservation at Seven Oaks Dam. Applicants will identify necessary permits after the completion of the Final EIR on seasonal water conservation.

Agency	*Permits/Approvals*
U.S. Army Corps of Engineers	• Approval for any physical alterations to Seven Oaks Dam and its operations, including seasonal water conservation • Approval for new pipelines to connect to facilities of Seven Oaks Dam • Permits/approvals per Section 404 of the Clean Water Act (for the discharge of dredged and fill material into waters of the United States) • Permits/approvals per Section 10 of the Rivers and Harbors Act (for construction in waterways) • Compliance with the National Environmental Policy Act (in conjunction with other Federal agencies)
U.S. Fish and Wildlife Service	• Permits/approvals per the Federal Endangered Species Act, Fish & Wildlife Coordination Act, Migratory Bird Treaty Act and similar statutes (including, if needed, incidental take permits)
U.S. Forest Service	• Access agreements/permits for construction within the San Bernardino National Forest and other compliance with applicable Forest Plan(s) • Special use permit for water conservation at Seven Oaks Dam
California State Water Resources Control Board	• Approval of Muni/Western water rights applications 31165 and 31370 • Clean Water Act Section 401 certification for all federal permits
Santa Ana Regional Water Quality Control Board	• Clean Water Act Section 401 certification for water quality/stormwater runoff during construction • National Pollutant Discharge Elimination System (NPDES) permit for ongoing pipeline cleaning and maintenance activities
California Department of Fish and Game	• Section 2081 and other permits per the California Endangered Species Act, the Fully Protected Species Act, the Natural Communities Conservation Program Act, and similar statutes (including, if needed, incidental take permits) • Section 1602 Streambed Alteration Agreement • Compliance with Section 5937 and similar statutes requiring that fish be kept in good condition below a dam or reservoir

Agency	*Permits/Approvals*
State Historic Preservation Officer	• Consultation per Section 106 of the National Historic Preservation Act
South Coast Air Quality Control Board	• Permit to Construct • Approval of the fugitive dust emissions plan
County of San Bernardino	• Road Encroachment and Closure permit • Flood Control Right-of-Way (for construction in the floodplain) • Soil Erosion and Sediment Control Permit
City of Highland	• Grading permits • Road encroachment and closure permits
City of Rialto	• Grading permits • Road encroachment and closure permits
San Bernardino Flood Control District, Orange County Flood Control District, and Riverside County Flood Control and Water Conservation District (Local Sponsors of Seven Oaks Dam)	• Encroachment permits and access agreements • Agreement(s) to implement seasonal water conservation at Seven Oaks Dam
Metropolitan Water District of Southern California	• Encroachment permits and access agreements • Exchange agreement (Attachment 5 to Coordinated Operating Agreement for Conveyance Facilities and State Water Project Supplies)

EXHIBIT C

Original Filed

FEB 7 1977

V. Dennis Wardle
County Clerk

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF SAN BERNARDINO

BIG BEAR MUNICIPAL WATER DISTRICT, Plaintiff v. NORTH FORK WATER COMPANY et al., Defendants	No. 165493 JUDGMENT

This action having been pending on appeal from a prior judgment of this Court, and the parties having stipulated to a form of judgment disposing of the issues raised by the complaint, and the Court of Appeal, pursuant to stipulation, having remanded the case for proceedings in accordance with said Stipulation for Judgment, and good cause appearing

IT IS HEREBY ORDERED, ADJUDGED AND DECREED as follows:

I. DEFINITIONS AND EXHIBITS

1. Definitions. As used in this judgment, the following terms shall have the meanings herein set forth:

(a) Basin Make-up Water. Water provided by District to

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replace water lost to San Bernardino Basin by reason of operations under terms of the physical solution herein.

(b) Bear Creek. That certain tributary of the Santa Ana River rising in Upper Bear Creek Watershed and flowing past the Dam and down to the confluence of said creek and river, all as shown on Exhibit "A".

(c) Confluence. The point at which Bear Creek joins the Santa Ana River, as shown on Exhibit "A".

(d) Conservation District. San Bernardino Valley Water Conservation District.

(e) Dam. The multiple-arch concrete dam constructed in 1911 at the location shown on Exhibit "A".

(f) District. Big Bear Municipal Water District.

(g) Division Box. The structure at the discharge from Power Plant No. 3, where Mutual divides the flow from the Edison Conduit between the North Fork and Redlands Canals.

(h) Edison. Southern California Edison Company.

(i) Edison Diversion. The works and facilities of Edison at the Confluence used to divert water into the Edison Conduit.

(j) Edison Conduit. The canal, pipeline and tunnels extending from the Edison Diversion, through Power Plants Nos. 1, 2 and 3 to the High Line and Division Box.

(k) Fiscal Year. July 1 to June 30, following.

(l) In Lieu Water. Water which is to be provided pursuant to the Physical Solution to Mutual by District, without cost to Mutual, in lieu of releases of Lake water.

(m) Lake. Big Bear Lake, being the body of water

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impounded by the Dam.

(n) Lake Storage Right. The right of Mutual to use the full storage capacity of the Lake for storage of water diverted at the Dam, pursuant to Mutual's appropriative right, which storage right was expressly reserved by Mutual in its conveyance of the Lake Properties to Bear Valley Mutual Water Company Partial Liquidation Trust.

(o) Mill Creek Exchange. The Santa Ana River-Mill Creek Cooperative Water Project Agreement, dated May 3, 1976, as amended from time to time.

(p) Mouth of the Canyon. The location at which the Santa Ana River passes from its mountain canyon onto the alluvial valley overlying San Bernardino Basin, as shown on Exhibits "A" and "C".

(q) Mutual. Bear Valley Mutual Water Company.

(r) Mutual's Lake Water Operations. The calculated, hypothetical account of operation of the lake under conditions of In Lieu Water deliveries pursuant to the physical solution herein, which account shall be maintained by Watermaster in accordance with Watermaster Criteria.

(s) North Fork Agreement. That certain agreement dated May 23, 1885, between Bear Valley Land and Water Company and North Fork Water Company, attached as Exhibit "E".

(t) Prior Right Agreements. Collectively, the North Fork Agreement and the Sunnyside Agreement, Exhibits "E" and "F".

(u) Prior Right Companies. Collectively, North Fork Water Company, Lugonia Water Company and Redlands Water

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Company.

(v) San Bernardino Basin. The ground water basin underlying the San Bernardino Valley above the Bunker Hill Fault and downstream from the Mouth of the Canyon.

(w) Sunnyside Agreement. That certain agreement dated February 27, 1886, between The Shareholders in South Fork Ditch of the Santa Ana River, Sunnyside Division, and Bear Valley Land and Water Company, attached as Exhibit "F".

(x) Upper Bear Creek Watershed. The surface drainage area tributary to the Dam and drained by Bear Creek and its tributaries, as shown on Exhibit "A".

(y) Upper Santa Ana River Watershed. The surface drainage area tributary to the Edison Diversion on the Santa Ana River, as shown on Exhibit "A".

(z) Watermaster Criteria. The detailed engineering criteria, set forth in Exhibit "D".

Geographical Names, not otherwise defined herein, are used with reference to their appearance on Exhibits "A", "B" and "C".

2. Exhibits. The following exhibits are attached to this Judgment and by this reference are made a part hereof:

"A" -- General Location Map.

"B" -- Hydrologic Map of Upper Bear Creek Watershed.

"C" -- Map showing diversion facilities and relevant system of Mutual.

"D" -- Watermaster Operating Criteria.

"E" -- North Fork Agreement.

"F" -- Sunnyside Agreement.

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II. DECLARATIONS

A. HYDROLOGY

3. Upper Bear Creek Watershed is commonly known as Bear Valley. Its surrounding mountains rise to elevations of 8500 feet, and the watershed extends down to the Dam at elevation 6743 feet. Said watershed is drained by Bear Creek and its tributaries. Immediately easterly of Upper Bear Creek Watershed is the watershed of Baldwin Lake. The dominant geographic feature in Upper Bear Creek Watershed is the Lake, which has existed continuously since 1883. Surrounding the Lake are several mountain communities, the largest of which is Big Bear Village, situate on the southerly border of the Lake. Easterly of Big Bear Village and within Baldwin Lake Watershed is Big Bear City. Domestic water service in Upper Bear Creek Watershed is provided by Southern California Water Company, a public utility, Big Bear City Community Services District, and through individual domestic wells. All of the privately-held lands in Upper Bear Creek Watershed lie within the boundaries of District.

4. Early Santa Ana River Diversions. The earliest appropriations of water from the Santa Ana River commence in 1856 from the Santa Ana River as it traversed San Bernardino Basin. Two successor diversions developed by progressive moving of canal and diversion facilities upstream to the Mouth of the Canyon, from which the North Fork Canal distributed water northwesterly into San Bernardino Basin and the Sunnyside Ditch distributed water southwesterly to the vicinity of Redlands. Above these canals there subsequently developed ancillary facilities to serve higher ground through the Edwards Canal and High Line, respectively. The

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North Fork and Sunnyside diversions had established and claimed rights to substantially the entire surface flow of the Santa Ana River at the Mouth of the Canyon by 1883, when the predecessors of Mutual undertook to build the original dam at the Lake. In order to preserve the prior appropriative rights of the North Fork and Sunnyside diversions, Mutual's predecessors entered into the Prior Right Agreements, which agreements are still in effect.

5. Mutual's Diversion Practices. Mutual has multiple sources of supply, but its major, historic source is and has been stream flow from the Santa Ana River at the Edison Diversion, the supplementing of flows between the Edison Diversion and Mouth of the Canyon, and releases by Edison onto the High Line and to the Division Box. From the end of the Edison Conduit delivery is made through the Edwards and North Fork Canals and the Redlands Canal and High Line to satisfy the rights of Prior Right Companies and to meet the needs of Mutual's irrigation shareholders. The diversion facilities utilized by Mutual are shown on Exhibit "C".

6. District's Water Supply. District and its inhabitants rely entirely upon the precipitation and runoff within Upper Bear Creek Watershed for their water supplies for direct use and for recharge of the several small ground water basins in said watershed. District does not have physical, or economically-feasible, access to significant supplies of supplemental nontributary sources of water. Although some inhabitants of District have riparian, overlying and appropriative rights to waters of Upper Bear Creek Watershed, neither District nor its inhabitants have any rights to water in storage in the Lake, or the right to store water in the Lake except to the extent that there is surplus

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storage capacity in the Lake not utilized by Mutual.

B. DECLARATION OF RIGHTS

7. Mutual. Mutual is the owner of an appropriative right, with the priorities of 1883 and 1909, to divert at the Dam and store in the Lake for subsequent release and beneficial use within Mutual's service area of all of the flow of Bear Creek at the Dam and Lake. Said diversion shall be at such rate as may be reasonably necessary to meet the requirements of Mutual's stockholders, not exceeding 65,000 acre feet in any ten (10) year period, as determined by the Board of Directors of Mutual in its sole discretion. Said rights have become prescriptive in nature as to all water right claimants downstream from the Dam, excepting only the rights of Prior Right Companies.

8. Prior Right Companies. Prior Right Companies, as the successors to the earliest diversion rights at the Mouth of the Canyon, are the owners of the prior appropriative rights confirmed by the Prior Right Agreements, which contractual rights constitute a burden and charge upon the said appropriative right of Mutual. The exact nature, scope and extent of the rights of prior right companies are set forth in said Prior Right Agreements (Exhibits "E" and "F"), and said agreements are hereby confirmed and shall remain otherwise unimpaired by the declarations and determination of this Judgment.

9. Conservation District. Conservation District owns an appropriative right to divert and spread storm flows of the Santa Ana River at and below the Mouth of the Canyon, for the benefit of water right claimants within Conservation District. Said rights are derived from and based upon

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License No. 2831, Permit No. 2488 (0300 acre feet) and License No. 2832, Permit No. 2593 (2100 acre feet), issued by the Division of Water Rights of the California Water Resources Control Board, and from a prior statutory filing by Conservation District's predecessors dated October 6, 1911.

10. San Bernardino Basin Producers within the boundaries of Conservation District have rights in and to the safe yield of said San Bernardino Basin. Said safe yield is dependent, in part, on the flow of the river at the Mouth of the Canyon and return flows from applied water delivered by Mutual to its stockholders for use overlying the Basin. Both of said sources have historically included, from time to time, waters released from Upper Bear Creek Watershed through or over the Dam.

11. District. District owns the Dam and reservoir behind it, subject to the right of Mutual to store water in the Lake, pursuant to its appropriative right. To the extent that, at any time, there is surplus storage capacity in the reservoir not utilized by Mutual, District has the right to store water therein, including water acquired by reason of operation of the physical solution herein decreed or from any source or sources other than the surface flow of Bear Creek and its tributaries, or from non-tributary streams provided such non-tributary water has been diverted into the Lake by Mutual.

III. INJUNCTIONS

12. Against District. District, its officers, agents and employees are hereby ENJOINED AND RESTRAINED from interfering with

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the release of water from the Lake to meet the requirements of Mutual, except in compliance with the physical solution hereinafter decreed.

IV. CONTINUING JURISDICTION

13. Continuing Jurisdiction. Full jurisdiction, power and authority are retained and reserved to the Court for the purpose of enabling the Court, upon application of any party by motion and upon 30 days' notice hereof, and after hearing thereon, to make such further and supplemental orders or directions as may be necessary or appropriate for interpretation, enforcement or carrying out this Judgment. The Court may award attorneys' fees to the prevailing party in any further proceedings, pursuant to this paragraph.

V. WATERMASTER

A. APPOINTMENT AND COMPOSITION

14. Watermaster Committee. The Court will appoint a Watermaster Committee, by subsequent order, in accordance with the following procedure:

(a) Nominations. On or before sixty (60) days after entry of judgment herein, nominations shall be submitted by a separate pleading filed herein. For said purpose, one nominee each shall be submitted by District, Mutual and Conservation District.

(b) Appointment. The three nominees, if acceptable to the Court, will thereupon be appointed by such subsequent order.

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(c) Term. Watermaster representatives shall serve for terms of five (5) years, unless sooner removed by the Court on its own motion or at the request of the party nominating any such Watermaster representative.

(d) Watermaster Action. Said Watermaster members, acting as a committee, shall be and constitute the Watermaster, for purposes of administering the provisions of this Judgment and subsequent orders of the Court. Action of a majority of Watermaster members shall constitute action of Watermaster.

B. POWERS AND DUTIES

15. Powers and Duties. Subject to the continuing supervision and control of the Court, Watermaster shall have and may exercise the express powers, and shall perform the duties, as provided in this Judgment or hereafter ordered or authorized by the Court in the exercise of the Court's continuing jurisdiction.

16. Rules and Regulations. Watermaster shall make and adopt appropriate rules and regulations for conduct of Watermaster affairs, including meeting schedules and procedures. Said rules and regulations shall be submitted to and approved by the Court. Thereafter, Watermaster may amend said rules from time to time, upon notice to all parties and with the approval of the Court. A copy of said rules and regulations, and of any amendments thereof, shall be mailed to each party.

17. Studies. Watermaster shall undertake such studies and investigations and collect and maintain such hydrologic and other data and records as are necessary to implement the Physical Solution herein.

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18. Accounting. Watermaster shall make calculations and maintain accounts to reflect both actual operation of Big Bear Lake and Mutual's Lake Water Operations. Said accounts shall be maintained in accordance with Watermaster Criteria.

19. Watermaster Expenses. Each party shall pay the costs and expenses of the representative of such party on Watermaster. The obligation for and cost of making measurements and accumulating basic data shall be assumed and paid as follows:

(a) At and upstream from Dam -- District.

(b) Downstream from Dam -- Mutual and Conservation District, in shares to be agreed upon from time to time.

New or additional measurements, relevant hydrologic studies or other activities of Watermaster involving significant cost shall be paid pursuant to unanimous agreement entered into before such costs are incurred. In the absence of agreement, the Court will, by subsequent order, allocate any necessary common Watermaster expenses.

20. Reports. Watermaster shall prepare, serve on all parties and file with the Court an annual report on or before April 1 of each year, which shall set forth the accounting for water under the Physical Solution, and a report on all significant Watermaster activity during the preceding calendar year.

21. Review Procedures. All actions, decisions or rules of Watermaster shall be subject to review by the Court on its own motion or on timely motion by any party or Watermaster member, as follows:

(a) Effective Date of Watermaster Action. Any action,

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decision or rule of Watermaster shall be deemed to have occurred or been enacted on the date on which written notice thereof is mailed. Mailing of copies of approved Watermaster minutes to the parties shall constitute such notice to all parties.

(b) Noticed Motion. Any party or Watermaster member may, by a regularly noticed motion, apply to the Court for review of any Watermaster's action, decision or rule. Notice of such motion shall be mailed to Watermaster and to all parties. Unless otherwise ordered by the Court, such motion shall not operate to stay the effect of such Watermaster action, decision or rule.

(c) Time for Motion. Notice of motion to review any Watermaster action, decision or rule shall be served and filed within ninety (90) days after such Watermaster action, decision or rule.

(d) De Novo Nature of Proceedings. Upon the filing of any such motion, the Court shall require the moving party to notify the parties and Watermaster of a date for taking evidence and argument. On the date so designated, the Court will review de novo the question at issue. Watermaster's findings or decision, if any, may be received in evidence at said hearing, but shall not constitute presumptive or prima facie proof of any fact in issue.

(e) Decision. The decision of the Court in such proceeding shall be an appealable supplemental order in this case. When the same is final, it shall be binding upon the Watermaster and all parties.

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VI. PHYSICAL SOLUTION

23. Need For Physical Solution. There exists a need for additional water for recreational and wildlife enhancement purposes within District. There is not an economically feasible source of supplemental water available to meet the needs of District and its inhabitants for such purposes. Any such use by District of the waters in storage in the Lake will be junior to the declared rights of Mutual and other defendants herein. Supplemental sources of water may, from time to time, be available within defendants' areas of use (other than Edison), but are more expensive than waters which might be diverted from storage in the Lake. In order to assure the maximum beneficial use of waters of the State, in accordance with the mandate Article X Section 2 of the Constitution, it is appropriate that the Court adopt a physical solution herein.

24. General Plan of Operation. In general terms, the physical solution hereafter decreed will provide for retention of waters of Bear Creek in the Lake by reason of delivery of In Lieu Water to Mutual's system. The costs of In Lieu Water and Basin Make-up Water shall be borne solely by District as consideration for the right to retain an equivalent quantity of stored water in the Lake for District's account.

25. District's Right to Provide In Lieu Water. District shall have the right to provide In Lieu Water to Mutual, at District's sole expense, to be delivered into Mutual's system at locations designated by Mutual, as a condition of retaining in the

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Lake water which would otherwise be required by Mutual for its use. Such In Lieu Water may be provided from any one or more of the following sources, or any other source usable for Mutual's purposes, and of comparable quality to waters released or subject to release from the Lake:

(a) Wells in San Bernardino Basin owned by Mutual.

(b) Third party wells or other sources, which are available under contract, lease or other arrangements with Mutual.

(c) Exchange water under the Mill Creek Exchange.

(d) State Project Water.

Provided, that Watermaster shall determine whether production of ground water pursuant to subparagraphs (a) or (b) hereof will have an unreasonable and adverse effect on water levels in any adjacent wells. In the event of such finding, Watermaster may prohibit use of such well or wells for production of In Lieu Water until Watermaster determines that such adverse effect is eliminated.

Provided, moreover:

(e) High Line Obligation. Because of the requirements by Mutual for delivery of water through its High Line and to the Edwards Canal, it is necessary that a minimum of 12 cfs be diverted into the Edison Conduit from all sources, including Santa Ana River and Bear Creek water at the Edison Diversion, canyon wells and surface inflow between the Edison Diversion and the Mouth of the Canyon. To the extent that said supplies fall below 12 cfs at the forebay of Edison Power House No. 3, being the start of the High Line, District shall release water to make up any deficiency therein from

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water in storage in the Lake. Said High Line obligation shall supersede District's In Lieu Water right unless and until In Lieu Water can be provided by District to meet said High Line requirements from other sources.

(f) Dry Year Releases. In the event, by reason of natural disaster or extreme drought, or otherwise, Mutual is unable to meet its obligation under the Prior Right Agreements to Prior Right Companies, and there exists water in storage in the Lake which is not otherwise available to Mutual, District shall make such releases as are necessary t enable Mutual to meet said Prior Right obligations. In such event, District shall acquire a right to replacement of suc quantities in the Lake for its account from the next natural inflow to the Lake, which would otherwise be credited to Mutual.

26. Basin Make-up Water. District's lake stabilization operations by exercise of its in lieu right may have some adverse impact on the supplies of water to the San Bernardino Basin.

27. Procedures for In Lieu Water. In the operation of District's In Lieu right, the following procedures shall be followed:

(a) District's Election to Provide In Lieu Water. District shall, on or before April 15 of each year, notify Mutual of District's intent to provide In Lieu Water during the following fiscal year, and shall designate the maximum amount it is prepared to so provide. District may, during any year, on ninety (90) day written notice, amend or modify the amount of In Lieu Water so specified.

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(b) Mutual's Order. At such time as Mutual's board, in its sole discretion, may determine that it requires the release of water from the Lake for the use of Mutual and the Prior Right Companies, Mutual shall notify District and, to the extent that District has indicated an intent to provide In Lieu Water, Mutual shall reasonably cooperate with, and give assistance to District in obtaining water from In Lieu Water sources. Any Lake water required by Mutual and not supplied by In Lieu Water shall be provided by District by Lake releases on at least 12 hours' notice by Mutual.

(c) Costs. Costs of In Lieu Water obtained by Mutual on behalf of District shall include all actual operating, maintenance and administrative costs attributable, in good accounting practice, to the acquisition of such In Lieu Water. Said costs shall also include pump tax applicable to such water, if any. In the event any well, pump, motor, booster pump or pipeline of Mutual used for production or delivery of In Lieu Water is required to be replaced at a time when such facility is being used for the production or delivery of In Lieu Water, District shall advance the cost of replacing such item; provided, however, that at the end of ten years after the completion of such replacement Mutual will reimburse District that percentage of the cost of such replacement which the number of hours said facility has been used by Mutual for its account during such ten-year period bears to the total number of hours such facility has been used during the ten-year period, plus interest on such amount at the rate of six percent (6%) per annum. In the event an

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such facility is being used by Mutual for its own account at the time of such replacement, Mutual shall pay such replacement cost and shall be reimbursed by District in the same manner as provided above. All such replacement facilities shall be and remain the property of Mutual.

(d) Payment. Any costs incurred by Mutual with relation to In Lieu Water deliveries shall be paid by District within thirty (30) days of receipt of approved billing therefor. All bills for such In Lieu Water shall be submitted to and approved by Watermaster, provided, however, that Watermaster may, if it deems it to be appropriate, require District to maintain on deposit reasonable sums to insure advance payment of current costs in order to relieve Mutual of any financial burden in connection with said In Lieu Water.

28. Procedure for Basin Make-up Water. Watermaster shall annually calculate the net amount of these various adjustments. District shall be obligated to periodically balance any resulting net deficiencies in recharge to the San Bernardino Basin as Watermaster shall determine. Balancing of any deficiency in said account shall occur at least once in each ten (10) year period, the time of delivery within said period to be at the option of District; provided, that in no event shall such negative impact be allowed to exceed 15,000 acre feet; provided, further, that if the net deficiency exceeds 10,000 acre feet, District shall reduce the net deficiency to at least 10,000 acre feet within the succeeding two (2) years; provided, however, that District shall, at the election of Conservation District on or before January 1, 1981,

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reimburse Conservation District for the cost of up to 10,000 acre feet of replenishment water, at not to exceed the Mill Creek Exchange price to members. Such payment shall result in an equivalent credit to District's account for Basin Make-up Water. To the extent practical, recharge will be directed to the sub-basins of San Bernardino Basin proportionally to the pattern of extraction of In Lieu Water hereunder.

29. Accounting. Watermaster shall maintain three basic accounts, in accordance with Watermaster Operating Criteria, as follows:

(a) District's Lake Water Operation. A detailed account to reflect actual operation of the Lake by District shall be maintained.

(b) Mutual's Lake Water Operations. In addition, a corollary account shall be maintained to simulate the effect of Mutual's operations with regard to Lake water under the In Lieu Water operations.

(c) Basin Make-up Account. An account of District's annual and cumulative obligation for Basin Make-up Water shall also be maintained.

30. District's Obligation to Maintain Dam. Pursuant to District's stipulation and agreement, District shall perpetually maintain and protect the Dam and Lake to preserve and maintain the existing usable storage capacity of the Lake and shall comply with all dam safety regulations of the State of California or other appropriate public authority. No excavation or filling of the Lake or any part thereof shall be done within 500 feet of the Dam, except as necessary for repair, maintenance or replacement of the

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ATTORNEY AT LAW
[illegible] BUSINESS CENTER
DRIVE
VINE, CALIF. 92718

Dam.

31. District to Hold Mutual Harmless. District shall hold Mutual free and harmless from any and all liability, cost or expense (including attorney's fees) arising from District's operation of the Lake pursuant to the Lake Surface Rights, and shall cause Mutual to be named as an additional insured on any public liability insurance policies which District may obtain covering its operation of the Lake.

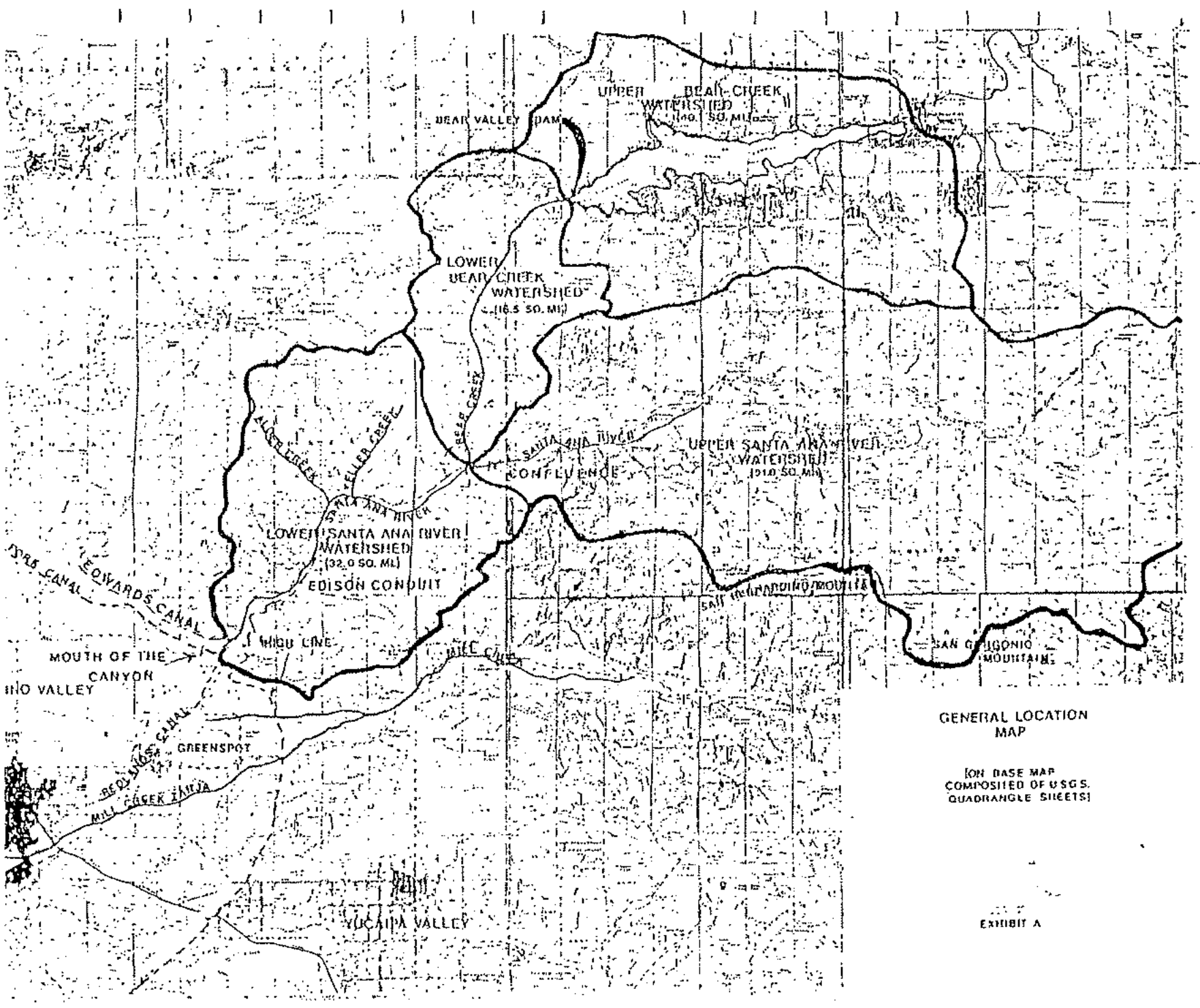
32. Physical Solution Agreement. That certain "Physical Solution Agreement" heretofore entered into between District, Mutual and Conservation District on December 23, 1976, is superseded by this Judgment.

33. Costs. No party shall recover any costs in this proceeding from any other party.

DATED: FEBRUARY 4, 1977.

JOSEPH B. CAMPBELL
Judge

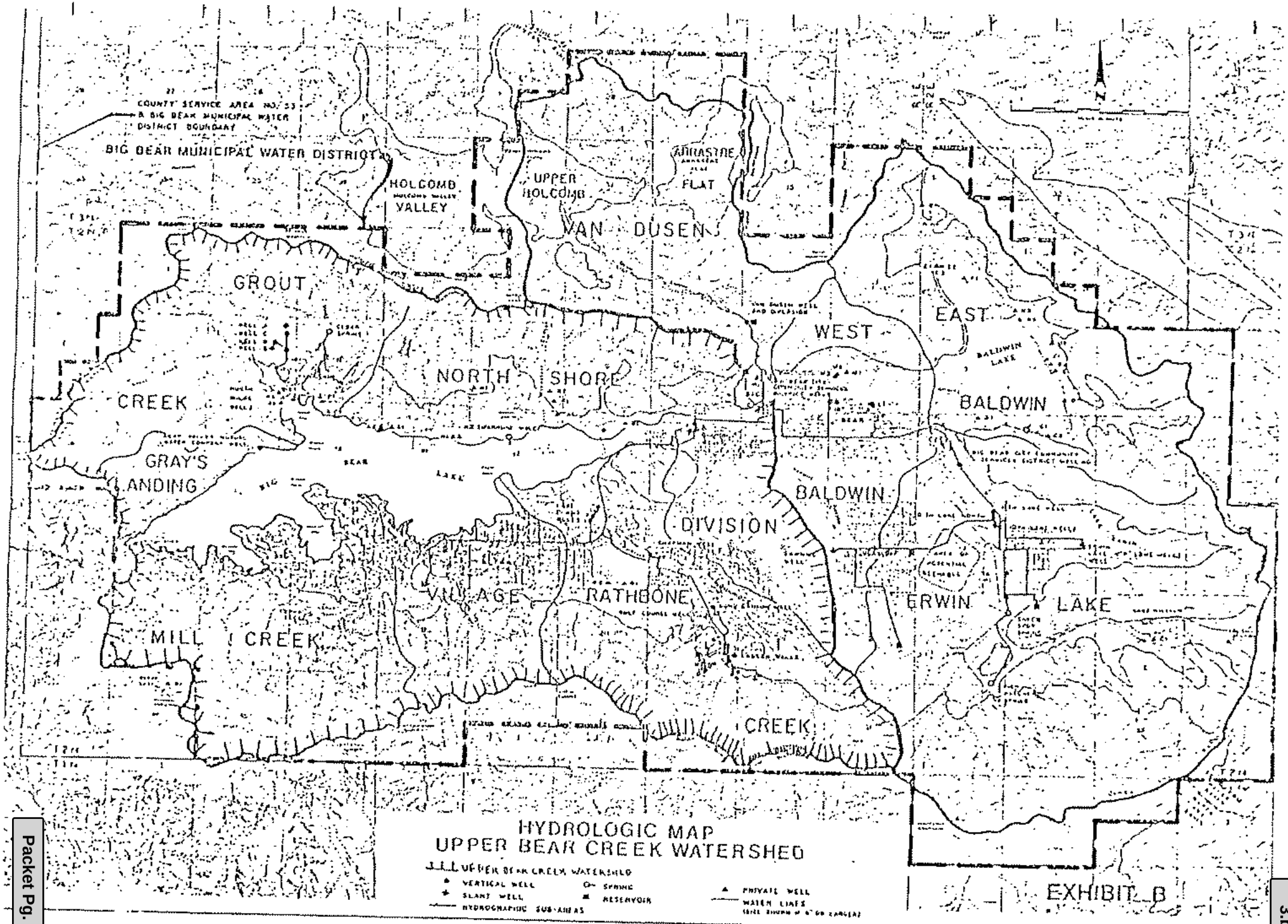
DONALD D. CLARK
ATTORNEY AT LAW
101 BUSINESS CENTER
DRIVE
IRVINE, CALIF. 92715



GENERAL LOCATION MAP

[ON BASE MAP COMPOSITED OF USGS. QUADRANGLE SHEETS]

EXHIBIT A


COUNTY SERVICE AREA NO. 53
& BIG BEAR MUNICIPAL WATER
DISTRICT BOUNDARY
BIG BEAR MUNICIPAL WATER DISTRICT
HOLCOMB
VALLEY
UPPER
HOLCOMB
ANNASTAE
FLAT
VAN DUSEN
GROUT
CREEK
NORTH SHORE
WEST
EAST
BALDWIN
GRAY'S
LANDING
BEAR
LAKE
BALDWIN
DIVISION
VILLAGE
RATHBONE
ERWIN
LAKE
MILL CREEK
CREEK
HYDROLOGIC MAP
UPPER BEAR CREEK WATERSHED
UPPER BEAR CREEK WATERSHED
VERTICAL WELL
SLANT WELL
HYDROGRAPHIC SUB-AREAS
SPRING
RESERVOIR
PRIVATE WELL
WATER LINES
EXHIBIT B

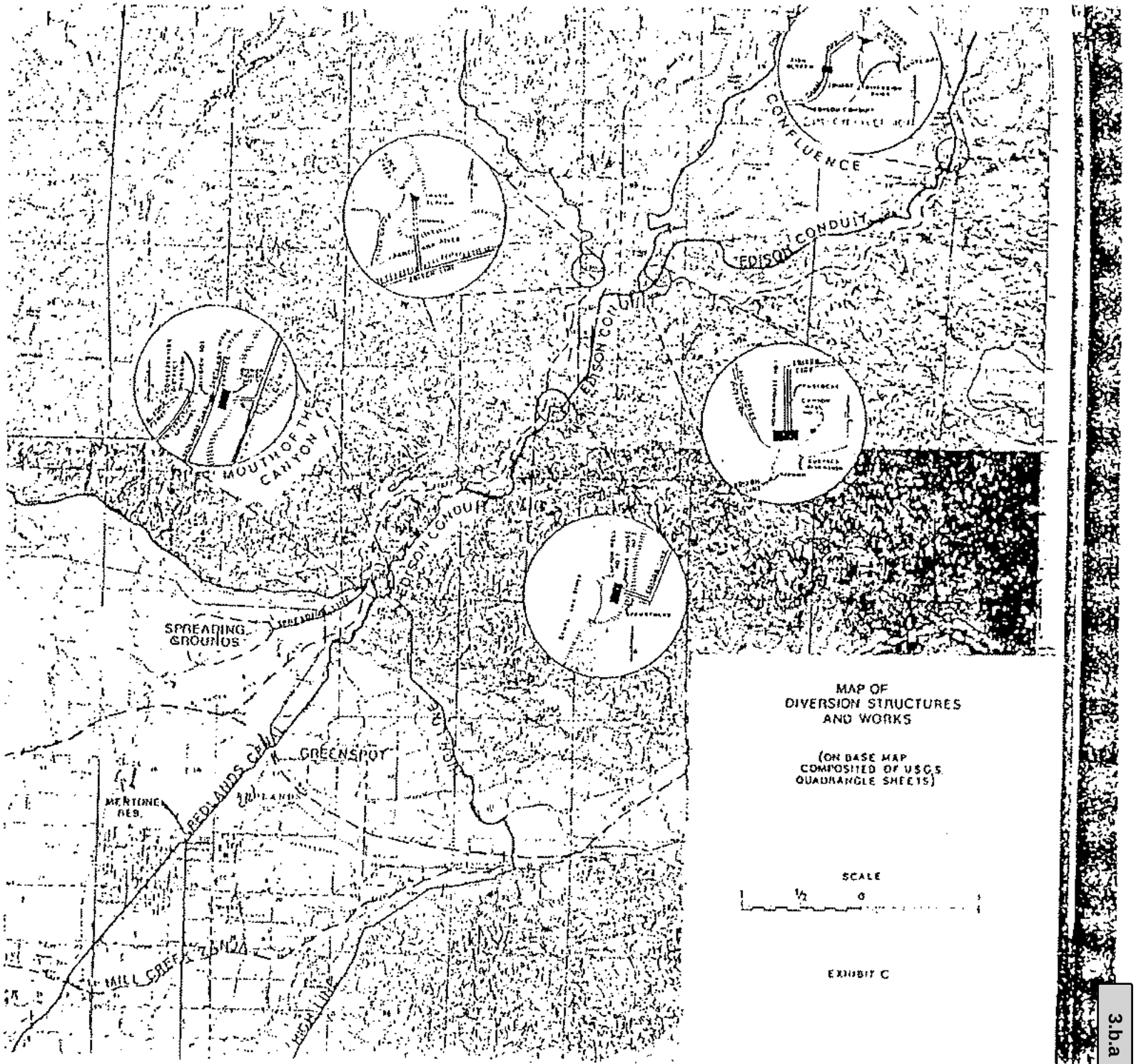

CONFLUENCE
EDISON CONDUIT
EDISON CONDUIT
MOUTH OF THE CANYON
EDISON CONDUIT
SPREADING GROUNDS
REDLANDS CANAL
GREENSPOT
MENTONE RES.
MILL CREEK ZONE
MAP OF
DIVERSION STRUCTURES
AND WORKS
(ON BASE MAP
COMPOSITED OF U.S.G.S.
QUADRANGLE SHEETS)
SCALE
½
0
EXHIBIT C

EXHIBIT "D"

WATERMASTER OPERATING CRITERIA

The following operating criteria shall guide and bind Watermaster in administering the provisions of this Physical Solution Agreement:

1. Basic Data. Watermaster shall accumulate basic data in the form of measurements or estimates of the following flows or hydrologic facts which Watermaster may determine to be necessary to maintenance of accounts required by the physical solution. In the accumulation of such data, Watermaster shall observe the following criteria:

(a) Lake Elevations. Monthly readings shall be taken on or about the first of each month of the elevation of the lake surface as shown on the gage located at the Dam.

(b) Lake Evaporation. Evaporation stations shall be strategically located in the vicinity of the lake and average monthly rates of evaporation shall be calculated therefrom.

(c) Precipitation. Average total rainfall in Upper Bear Creek Watershed shall be derived from weighted analysis of rainfall stations to be designated or established by Watermaster.

(d) Surface Flows.

(1) Natural Tributary Inflow to Lake. All

measurable or observable surface inflow to the lake from Upper Bear Creek Watershed shall be measured or estimated, directly or indirectly, and aggregated monthly.

(2) Non-tributary Diversions to Lake. Mutual currently causes waters of Siberia Creek Watershed to be diverted from Bluff Lake into Lake, and flood flows of Van Dusen Creek in Baldwin Lake Watershed to be similarly diverted. Such diversions of non-tributary waters, together with any additional such diversions shall be measured or calculated monthly and credited to the party causing such diversion. In the event Mutual desires to cease or abandon either its Bluff Lake or Van Dusen diversions, and District maintains or enlarges such flows at District's expense, such flows shall be credited to District's account in calculating water in storage vis-a-vis Mutual. In such event, accounting for such flows, for purposes of Basin Make-up Water obligations, shall depend upon whether the waters diverted are naturally tributary to the Santa Ana River or not.

(3) Dam Releases. All intentional releases of water through the Dam shall be continuously measured and recorded.

(4) Dam Spills. Any spills of water over the Dam shall be measured or estimated and recorded monthly.

(5) Dam Leakage. All leakage through the dam shall be measured or estimated and a correlation between leakage and lake elevation shall be developed if possible.

(6) Santa Ana River at the Confluence with Bear Creek shall be calculated.

(7) Bear Creek at the Confluence with Santa Ana River shall be calculated.

(8) Santa Ana River at the Mouth of the Canyon shall be measured and average daily flows recorded. (This is currently being maintained by U.S.G.S.)

(e) Canyon Subsurface Diversions. Average subsurface diversions at Canyon Wells #1 and #2 shall be recorded monthly.

(f) Diversions at Mouth of the Canyon. Monthly quantities diverted at the Mouth of the Canyon shall be separately measured and recorded for diversions to

(1) High Line

(2) Redlands Canal

(3) North Fork Canal

(4) Edwards Canal

(5) Conservation District Spreading Grounds.

(6) Amount not diverted.

(g) In Lieu Water Deliveries shall be separately recorded as to place of delivery into Mutual's system, monthly quantity and type of source, i.e., whether from

(1) Mutual's wells

(2) Third party wells

(3) Exchange Water, or

(4) Direct Delivery of State Project Water.

(h) New Water Use by Mutual's Shareholders in Upper Santa Ana River Watershed, by reason of location of additional shares in said area, shall be accumulated monthly and recorded.

(i) Additional Points of Measurement as determined from time to time to be necessary, in the opinion of Watermaster.

2. Determinations and Calculations. Based upon the foregoing basic data, Watermaster shall make the following determinations and calculations:

(a) Net Monthly Lake Inflow shall be determined, together with its components of:

(1) Natural inflow and precipitation on the Lake, plus

(2) Diverted non-tributary inflows by reason of

[a] Mutual's activity (i.e., Van Dusen Creek and Bluff Lake),

[b] District's activity (such as,

but not limited to, proposed Rathbone reclamation operation), less

(3) Export from Upper Bear Creek Watershed (i.e., BBAWA project).

(b) Monthly Evaporation shall be calculated for both

(1) Actual lake operations, and

(2) Mutual's Lake Water Operation.

(c) Monthly Releases shall be accumulated for both

(1) Actual lake operations, and

(2) In Lieu Water deliveries.

(d) Spills and Leakage shall be accumulated for

(1) Actual lake operations, and

(2) Mutual's Lake Water Operation.

(e) Monthly Change in Storage shall be calculated for

(1) Actual lake operations, and

(2) Mutual's Lake Water Operation.

(f) Area and Capacity Curve will be developed for the Lake under current conditions.

3. Accounts.

(a) Mutual's Water In Storage shall be determined as follows for each month:

Beginning storage

+ Total Inflow

- Import from Non-tributary sources by District

- Pumped groundwater introduced into Lake

+ Net Sewage Export from Upper Bear Creek Watershed

- In Lieu Water delivered

- Releases or uses by Mutual

- Spill chargeable to Mutual account

- Leakage chargeable to Mutual operation

- Evaporation charged to Mutual operation

= Mutual's month-end water in storage.

(b) District's Water in Storage. Any water actually in storage in excess of Mutual's water in storage, as calculated above, shall be for the account of District. So long as District has water in storage, all spills from the Lake shall be deemed District water.

(c) Basin Make-Up Water Account. Accounting for Basin Make-up Water Deficiency or Credit shall be pursuant to the following:

$$[(.50)(R_d) + (.51)(S_d) + (.50)(P_d)] - [(.50)(R_m) + (.51)(S_m)] = \text{Deficiency or Credit.}$$

Wherein:

R_m = Releases which would have been made under Mutual Operation.

S_m = Spill which would have occurred under Mutual Operation.

R_d = Releases actually made under District Operation.

S_d = Spill which actually occurred under District Operation.

P_d = In lieu water purchased by District from San Bernardino Valley MWD or the Management Committee of the Mill Creek Exchange and delivered under District Operation to Mutual for service area requirements.

4. Supplemental Inflow to Lake and Export from Upper Bear Creek Watershed. In accounting for water in storage in the Lake to Mutual's account and calculating District's obligation for Basin make-up water, the effect of certain existing and potential diversion and export practices must be accommodated.

(a) Supplemental Inflow. Whether inflow to the Lake is supplemented from surface streams, production of ground water, diversion of reclaimed water or otherwise, it shall be credited to the water-in-storage account of Mutual or District, in accordance with which party causes such inflow to be so supplemented. In the event an existing diversion by Mutual is enlarged or expanded by District, at its sole expense, an allocation of resulting flows shall be made by Watermaster.

Such supplemented inflow shall be accounted for in the calculation of District's Basin Make-up Water obligation depending upon whether the source of any such surface water was tributary or non-tributary to the Santa Ana River.

(b) Export from Upper Bear Creek Watershed. Conservation District has entered into an agreement with Big Bear Area Regional Wastewater Agency, County

Service Area No. 53, and the Big Bear Lake Sanitation District relating to the export of wastewater from the Santa Ana Watershed by said agencies. The agreement terminates on June 30, 1985.

In the event gross export from Upper Bear Creek Watershed to any area not tributary to the Santa Ana River exceeds gross import to the Santa Ana River Watershed within Upper Bear Creek Watershed, calculated inflow to the Lake shall be increased each year, beginning with the calendar year 1986 by the amount by which such gross export exceeds imports. If gross import exceeds gross export, said excess shall be credited against District's Basin Make-up Water obligation.

EXHIBIT "E"

THIS AGREEMENT, made this 23rd. day of May, 1905, by and between the Bear Valley Land and Water Company, a corporation party of the first part, and the North Fork Water Company, a corporation, and the undersigned, other than the said two corporations owners of water in the North Fork Ditch of the Santa Ana River, and Crum and Van Leuven Ditch, parties of the second part;

WITNESSETH: Parties of the second part are desirous of making an arrangement with the party of the first part whereby the supply of water available to said parties of the second part may be made certain and secure during the months of June, July, August, September, October and November, and are further desirous of increasing the present capacity of the said North Fork Ditch and completing the construction of the same,

NOW THEREFORE, Know all men by these presents;

I.

Parties of the second part agree that all their respective water, water rights and interests over and above the amount or quantity herein stipulated to be furnished and allowed to or attained by the parties of the second part may be perpetually held and enjoyed by the party of the first part for its use, benefit and disposal, subject to the terms and conditions of this agreement, and except as herein limited, it being expressly understood however, that each party of the second part retain the right to sell, convey, transfer, mortgage, pledge or otherwise dispose of his or its respective rights or interests in said water or water rights or in this agreement, subject also to the terms and conditions hereof.

EXHIBIT "E"

II.

The parties of the first part agree to furnish and deliver to the parties of the second part continuously during the following months of each and every year hereafter the number of inches of water, under a four inch pressure, hereinafter mentioned, as allotted to each of said monthsrespectively, to-wit; June, Five Hundred (500) inches; July, Six Hundred (600) in inches;; August, Six Hundred (600) inches; September, Five Hundred and fifty (550) inches; October, Four Hundred and fifty (450) inches; November, Four Hundred (400) inches.

It being expressly understood and agreed that at the written request of a majority in interest of the parties of the second part, based upon their respective interests, in said water and water rights the amount to said months as above respectively allotted, may be changed for the current year in which said request is made, in the manner following, to-wit; If it is desired that the allowance as above set forth for any month be lessened, such diminution shall be allowed and the amount so diminished from any one month shall be added to some other of said months succeeding; provided that the allowance or addition so made shall not increase for any one month the amount of six hundred inches.

III.

It is understood and agreed that during the months of December, January, February, March, April and May, one-fourth of all the water flowing in the Santa Ana River at the point known as the Divide, (exclusive of water placed therein by parties of the first part) being the only place where the

EXHIBIT "C"

waters of the North Fork and South Fork Ditches, so called, are divided, shall belong and be delivered to parties of the second part by parties of the first part, it being further understood and agreed that the surplus of all waters so apportioned to parties of the second part which is not required or desired to be used by parties of the second part, may be used by parties of the first part; always providing that parties of the second part shall be the sole judges of whether such surplus water is or is not required by them; all waste water at the end of the said North Fork Ditch shall belong to party of the first part. This stricken out by supplemental agreement

IV.

It is further understood and agreed that in the event of there being upwards of Thirteen Hundred (1300) inches of water in the said Santa Ana River at the point of 'Divide' aforesaid, in its natural flow exclusive of water therein placed by act of parties of the first part during the month of June of any year, then one-half of the surplus of said water shall belong and be delivered by party of the first part to parties of the second part and the division and allotment of surplus shall in no way affect or control the allotment of water hereinbefore specified under Caption II hereof, and shall be considered as and be wholly independent thereof.

This stricken out by supplemental agreement

V.

All division or allotment of water under this agreement as between party of the first part and the parties of the second part shall be measured and made at the point on the Santa Ana Canon or River hereinbefore referred to and known as the 'Divide'.

VI.

Parties of the second part agree within two years from

the date hereof to complete the Ditch of the North Fork Water Company by enlarging the same where not already paved and cemented and where not already of such capacity to a size sufficient to carry fifteen hundred (1500) inches of water, and by substantially cementing and paving such portions so to be enlarged aforesaid and to pay one-half of the expense of such enlargement, paving and cementing together with one-half of the expense of maintaining the said ditch when completed as aforesaid, and party of the first part hereby agrees to pay the other half of said expense.

VII.

On the execution of this agreement party of the first part agrees to pay the parties of the second part the sum of Two Thousand ($2000) Dollars, and on the first day of January, 1886, the further sum of Two Thousand ($2000) Dollars as a consideration for the half interest in the said North Fork Ditch mentioned. By the North Fork Ditch is meant the main ditch commencing at or near the 'Divide' aforementioned, and extending to Raven corner and as described in Articles of Incorporation of North Fork Ditch Company.

VIII.

It is further understood and agreed that until said ditch shall be enlarged to a capacity of Fifteen Hundred (1500) inches as hereinbefore stated, no greater amount of water shall be allowed to flow into or through said ditch by party of the first part than twelve hundred (1200) inches without the written consent of a majority of the water interests of parties of the second part.

IX.

The capacity of said ditch may be at any time hereafter

EXHIBIT "E"

increased beyond said fifteen hundred (1500) inches by either party of the first part or parties of the second part, in which event the expense of said enlargement may be borne in equal proportions by the parties hereto, and in that event said parties shall be entitled to share equally in the use and enjoyment of said increased capacity. In the event however, that either of the parties hereto shall fail or refuse to unite with the other of said parties in effecting said increase of capacity, or in promptly paying one-half of the expenses of making the same, then and in that case the parties so failing or refusing shall not be entitled to the use or enjoyment of said increased capacity or of any of the benefits thereof.

X.

It is understood and agreed that substantially one-half of all water taken from the Santa Ana River aside from that which may be supplied from the Bear Valley Reservoir shall at all times flow in said North Fork Ditch.

XI.

It is further understood and agreed that the party of the first part shall be under no obligation to furnish water to parties of the second part as hereinbefore provided until on and after June 1st, 1886. And that until said date all the water of said River which parties of the second part have used, or to which they have been entitled prior to the date hereof shall be used as heretofore and in the same proportions irrespective of the allotments mentioned under this agreement.

XII.

Each individual of the parties of the second part agrees

for himself and itself and his and its successors in interest respectively to contribute and pay the proportions of the expenses necessary to carry out and fulfill so much of this agreement as is to be carried out, fulfilled or performed by or on the part of the parties of the second part in proportion to the interest or shares of parties of the second part in the said water rights, ditches or privileges owned by each of said parties of the second part in said North Fork Ditch and water right.

For the purpose of equitably adjusting and distributing the division of the expenses aforesaid for the construction and maintainance of said North Fork Ditch among the owners thereof, parties hereto of the second part among themselves, said ditch shall be considered in two sections; one from the divide aforesaid down to and including the head or distributing gate of the Cram Ditch known as section one; and the other from said head or distributing gate of the Cram Ditch to the end of said North Fork Ditch, known as section two.

Those using water or drawing water from any portion of said North Fork Ditch shall pay in proportion to their respective rights or shares in and to said ditch, water or water privileges for the expenses of constructing or repairing of said section one, and those using water in or from section two of said ditch shall pay according to their respective shares or rights in said ditch, water or water privileges for the construction and repair of said section.

XIII.

If at any time the party of the first part shall fail to

EXHIBIT "E"

comply with the terms and conditions of this agreement in furnishing and delivering water to the parties of the second part or their successors in interest, then it shall forfeit all right, franchises, privileges and interest derived from parties of the second part, under and by virtue of this agreement, and all rights, franchises and privileges or interests hereby conceded to it by said parties of the second part, or created in pursuance of the terms hereof, may be resumed and retained by said parties of the second part, the same as if this agreement had not been made. And all rights and interests of said party of the first part to the said North Fork Ditch shall cease and determine. But a temporary failure or interruption of not more than ten days after said party of the first part has received written notice thereof from said parties of the second part, resulting from unforeseen or unexpected accident not attributable to the negligence or fault of the party of the first part shall not be considered such a failure as to work such forfeiture— it being the intention not to favor or take advantage of mere technical breaches of this agreement, but that the same shall receive a fair and liberal construction to promote substantial justice and fair dealing between the parties hereto.

XIV.

In all matters or things to be acted upon or done or decided by or concerning the affairs, conduct, management or interest of the parties of the second part under this agreement; A majority in interest of said parties of the second part shall control.

XV.

The parties of both parts (that is, each part) are each to have an equal voice in the construction, management and repairs of said ditch, and if they cannot agree in respect to such matters or any of them, then each party shall select a referee to decide such matters of difference; with power to said referees in case of a disagreement between them to select an umpire or third person, and a decision of a majority of said referees so selected shall be binding upon the parties hereto.

XVI.

It is understood and agreed by all the parties hereto that time is of the essence of this agreement — but if from act of God or any unforeseen accident, elemental or otherwise, not attributable to the negligence or default of party of the first part whereby their dam or other works for the supply of water may be temporarily destroyed or injured; then in event that all of the natural flow of the water of the Santa Ana River and its tributaries to which parties of the second part may be entitled independent of this agreement, be permitted by party of the first part to flow down to the "Divide" of the North Fork and South Fork Ditches, - then no damages or forfeiture is to ensue.

XVII.

It is further agreed by party of the first part that in event of said party increasing the capacity of said North Fork ditch beyond fifteen hundred (1500) inches and conducting a greater amount of water therein than said number of inches an any breakage or damage to said ditch or any part thereof shall be caused attributable to said increased flow - then said party of the first part is at its own expense to immediately

repair said ditch and to pay all of said damages.

IN WITNESS, WHEREOF, the parties hereto sign their respective names this 23 day of May 1885.

L. C. Waite, A. M. Aplin, Mrs. D. C. Randall, Geo. Miller, Th. C. Waite, Proxy, C. R. Wilke by N. Laycock, Proxy, Nelson Laycock, John Stone by R. F. Cunningham, Proxy, R. F. Cunningham, D. A. Coddington by R. F. Cunningham, Proxy, R. F. Cunningham, Dodd Dwyer, S. F. Crow by W. F. Crow, L. E. Rice, W. R. and T. S. Ingham.

John Cheny,
Wm. H. Cheny,
Seth Marshall
} By their Attorney in Fact
H. M. Willis.

G. W. Beattie, Mrs. Anjelica Beattie by G. W. Beattie, Proxy, M.M. Strong by G. W. Beattie, Att'y in Fact, Jonn W7 Downs, A. R. Crier, B. B. Possenden, C. K. Mattison, M. Cleghorn, L. F. Cram, J. C. Weeks, H. J. Quinan, Christian Kurtz, Mary Ely, F. H. Cavalier,

(SEAL)

North Fork Water Company
By L. C. Waite, President
G. W. Beattie, Secretary.

State of California
County of San Bernardino
} SS.

On this 23d day of May, one thousand eight hundred and eighty-five, before me H. Conner, Court Commissioner in and for the said County of San Bernardino, Personally appeared L. C. Waite and G. W. Beattie, known to me to be the President and Secretary respectively of the corporation that executed the within instrument, and acknowledged to me that such corporation executed the same.

EXHIBIT "E"

In Witness Whereof, I have hereunto set my hand and affixed my official seal at my office in the said County of San Bernardino, the day and year in this certificate first above written.

(SEAL)

H. Conner,
Court Commissioner.

Bear Valley Land and Water Company,

(SEAL) By J. G. Hart, President.

E. A. Holt, Secretary.

State of California }
County of San Bernardino } SS.

On this 23d day of May, one thousand eight hundred and eighty five, before me, H. Conner, Court Commissioner in and for the said County of San Bernardino, personally appeared J. G. Hart, and E. A. Holt, known to me to be the President and Secretary respectively of the corporation that executed the within instrument, and acknowledged to me that such corporation executed the same.

In Witness Whereof, I have hereunto set my hand and affixed my official seal at my office in said County of San Bernardino the day and year in this certificate first above written.

(SEAL)

H. Conner,
Court Commissioner.

EXHIBIT "E"

This supplemental agreement made this 27th day of June 1895 by and between the North Fork Water Company of the one part and the Bear Valley Land and Water Company of the other part, all of San Bernardino County, State of California, with intent to modify and render more definite and certain a certain contract heretofore made between said parties and other owners of the North Fork Water Ditch and Right.

WITNESSETH: That it is understood and agreed that section four of said agreement of May 23, 1895, be, and the same is hereby stricken out, cancelled and declared of no force and effect.

It is also understood, covenanted and agreed by the said Bear Valley Land and Water Company to and with the said North Fork Water Company and other owners of and in the North Fork Ditch, not members of said corporation, that during the months of June, July, August and September of each year the parties of the second part in said agreement of May 23, 1895, shall have the right to pass over or draw back any amount of water they may designate from any month to any month of either of their aforesaid months, not exceeding the limit of six hundred inches in any one month and the aggregate amount of water for said four months shall not exceed twenty-two hundred and fifty inches.

The last clause of section three of the agreement of May 23, 1895, in reference to waste water is stricken out.

This agreement is intended to embrace all parties drawing water through the North Fork Ditch, and especially the portion of said water belonging to the Crum and Van Leuven Ditch.

And subject to the modification herein contained all

EXHIBIT "E"

other provisions of said Agreement of May 22nd, 1885, are in full force and effect.

In Witness Whereof, the respective parties hereto have set their hands and seals this day and year first above written.

North Fork Water Company,

(SEAL) By H. C. Waite, President.

C. W. Beattie, Secretary.

Bear Valley Land and Water Company,

(SEAL) By J. S. Burt, President.

E. A. Holt, Secretary.

State of California, }
County of San Bernardino, } ss.

On this 27th. day of June, one thousand eight hundred and eighty-five before me, E. N. Morse, a Notary Public in and for the said County of San Bernardino, personally appeared H. C. Waite and C. W. Beattie, respectively President and Secretary of the North Fork Water Company and J. S. Burt and E. A. Holt respectively President and Secretary of the Bear Valley Land and Water Company, personally known to me to be the persons described in and the respective officers of the corporations that executed the within instrument, and acknowledged to me that such corporations executed the same. In Witness Whereof, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

(SEAL) E. N. Morse,

Notary Public.

EXHIBIT "E"

This Memorandum, made this 27th day of February, A. D., 1906, between the undersigned of the shareholders in the South Fork Ditch of the Santa Ana River, Sunnyside Division, parties of the first part, and the Bear Valley Land and Water Company, a corporation, party of the second part witnesseth:

Whereas parties of the first part and their co-owners in the said ditch above named are the owners of the right to use all of the half of the flow of the Santa Ana River divided at the point in the mouth of the Santa Ana Canon commonly known as the divide, and are desirous of making an arrangement with party of the second part thereby the supply of water available to parties of the first part, may be made certain and secure during the months of May, June, July, August and September and October.

Now Therefore, know all men by these presents, 1. That parties of the first part agree that all of their respective water water-rights and interests in such water and ditches hereinbefore mentioned over and above the amount or quantity herein stipulated to be furnished and allowed to or retained by said parties of the first part may be perpetually held and enjoyed by party of the second part for its use, benefit and disposal subject to the terms and conditions of this agreement and except as herein limited; it being expressly understood however that each party of the first part retains the right to sell, convey, transfer, mortgage, pledge or otherwise dispose of his respective right or interests in said water or water rights or in this agreement subject also to the terms and conditions hereof.

II. The party of the second part agrees to furnish and de-

EXHIBIT "F"

liver to parties of the first part continuously through the following named months of each and every year hereafter the number of inches of water under a four inch pressure hereinafter next mentioned as alloted to each of said months respectively, to-wit:

May	466-2/3	inches.
June	466-2/3	inches.
July	466-2/3	inches.
August	466-2/3	inches.
September	466-2/3	inches
October	466-2/3	inches

It being expressly understood and agreed that upon the written request of a majority in interest of the parties of the first part based upon their respective interests in said water and water-rights, the amounts to said months above respectively alloted may be changed for the current year in which said request is made in the manner following, to-wit:

If it be desired that the allowance as above set forth for any of said months be lessened, such a diminution shall be allowed and the amount so diminished from any one month shall be added to some other of said months designated by parties of the first part, provided that the allowance or addition so made shall not increase for any one month the amount to more than six hundred (600) inches, such request to be made in writing to party of second part on or before April 20th of such year.

III. The party of the second part agrees to furnish and deliver to parties of the first part continuously through out the following named months, three hundred (3000 inches of

EXHIBIT "F"

water measured under a four (4) inch pressure, to-wit; November, December, January, February, March of each and every year hereafter; provided that in case in any such months in any year it is found that there is flowing in said river at the divide a greater quantity of water than six hundred inches going to parties of the second part by the terms of this contract, then one half of the excess above six hundred inches up to and making a maximum of six hundred inches going to parties of the first part, shall be added to and be furnished to parties of the first part for such three hundred inches for any of such months and on the other hand; if it is found that there is flowing in said river at the divide a less quantity of water than six hundred inches going to parties of the second part by the terms of this contract, then one half of such deficiency shall be deducted from three hundred inches and the remainder only shall be for such months furnished to parties of the first part.

IV. It is understood and agreed that a quantity of water taken from the Santa Ana River aside from that which may be supplied from the Bear Valley reservoir substantially the same as that which has heretofore ordinarily flowed through the ditch of parties of the first part shall at all times hereafter flow through said ditch or such other ditch as may be constructed in lieu thereof.

V. It is further understood and agreed that the party of the second part shall be under no obligation to furnish water to parties of the first part as hereinbefore provided until on and after June 1st, 1886, and that until said date all the water of said river which parties of the first part have used, or to which they have been entitled prior to the date hereof,

EXHIBIT "B"

shall be used as heretofore and in the same proportions irrespective of the allotments mentioned under this agreement.

VI. It is further understood and agreed that party of the second part shall bear the whole cost and expense of constructing any ditch, or continuation, extension or enlargement of any ditch that may be built in lieu of addition to or in connection with the whole or any part of the ditch of parties of the first part and shall further keep said ditch in good repair and condition at its own cost and expense.

VII. If at any time party of the second part shall fail to comply with the terms and conditions of this agreement in furnishing and delivering water to the parties of the first part or their successors in interest, in that event, it shall forfeit all rights, franchises, privileges and interests derived from parties of the first part under and by virtue of this agreement and all rights, franchises, and privileges and interests hereby conceded to it by said parties of the first part or created in pursuance of the terms hereof may be reclaimed and retained by said parties of the first part the same as if this agreement had not been made, and all rights and interests of said party of the second part in the said ditch of parties of the first part shall cease and determine, and further, in the event of such failure on the part of the party of the second part and of the forfeiture hereinbefore provided for in case party of the second part shall have constructed any ditch in lieu of the whole or any portion of the ditch of parties of the first part, or shall have improved or increased the same, then and in that event parties of the first part are hereby granted the right to purchase such new or increased or

EXHIBIT "F"

improved ditch constructed or to be constructed in lieu of their old ditch or any part thereof as aforesaid, if such purchase seems to them expedient upon the basis and at a price to be fixed as follows; to-wit: Parties of the first part and party of the second part shall each respectively appoint a disinterested person to act as an appraiser and in the event of said appraisers failing to agree, the two appraisers thus appointed shall select a third person to act with them as appraiser, and in the event of their failing to agree upon such third person, the Judge of the Superior Court of the County of San Bernardino may appoint such person, and a decision of the majority of said appraisers shall control in the event that said ditch so proposed to be purchased as aforesaid shall be of a capacity no greater than that required to ~~xxxxx~~ convey two thousand (2000) inches of water measured under a four inch pressure; said appraisers shall view said ditch and determine its actual value at the time of such examination and shall report the result of their determination in the matter in writing within ten (10) days thereafter to the parties hereto or their assigns, and in the event of said ditch being of a capacity to convey more than two thousand (2000) inches of water measured under a four (4) inch pressure then said appraisers in making their estimate shall disregard the excess of capacity over two thousand (2000) inches, and shall appraise said ditch at the price that a ditch with a ~~~~ capacity of no more than two thousand (2000) inches similarly constructed and in like repair would be reasonably worth.

And in either event, the parties hereto bind themselves, their heirs, executors, administrators, assigns and succes-

EXHIBIT "F"

sors, to abide by the decision of said appraisers or a majority of them in the premises.

In case however, the forfeiture of the right of party of the second part as hereinbefore set forth, parties of the first part do not elect to purchase said ditch as hereinbefore provided, then, and in that event, it is understood and agreed that said parties of the first part shall have and they are hereby granted a perpetual right of way through such ditch for the conveyance of 600 inches of water; the excess over 600 inches of capacity of such ditch to belong to parties of second part.

It is further understood and agreed in regard to the matter of forfeiture hereinbefore referred to that a temporary failure or interruption in the performance of the condition and agreements herein stipulated as by party of the second part to be kept and performed if for not more than ten (10) days after party of the second part has received written notice thereof from parties of the first part resulting from unforseen or unexpected accident not attributable to the negligence or fault of party of the second part shall not be considered such failure as to work such forfeiture; it being the intention of all the parties hereto not to favor or take advantage of mere technical breaches of this agreement, but that the same shall receive a fair and liberal construction to promote substantial justice and fair dealing between the parties hereto.

VIII. In all matters or things to be acted upon or done or decided by or concerning the affairs, conduct, management or interests of parties of the first part under this agreement,

EXHIBIT "F"

majority in interest of said parties of said parties of the first part shall control.

IX. It is understood and agreed by all the parties hereto that time is of the essence of this agreement; but if from the act of God, or any unforseen accident elemental or otherwise not attributable to the negligence or default of the party of the second part whereby its dam or other works for the supply of water may be temporarily destroyed or injured, then in the event that all the natural flow of the water of the Santa Ana River and its tributaries to which the parties of the first part may be entitled, independent of this agreement, be permitted by party of the second part to flow down to the divide with the Redlands ditch at the place commonly known as the Sycamore Tree, then no damage shall be claimed or forfeiture ensue.

X. It is further understood and agreed that party of the second part shall permit no trespass upon, nor interference with the right of parties of the first part in or to any of the waters of the Santa Ana River during the time that this contract shall remain in force and that said party of the second part may take such prompt steps by litigation, or otherwise lawfully and which the particular exigency may require to prevent any infringement by third parties upon the rights of parties of the first part, or any of them, in or to any of said water.

And it is further understood and agreed that in the event of the failure of party of the second part to take such necessary steps for the purposes aforesaid parties of the first part hereby reserve to themselves the right to proceed in

EXHIBIT "F"

their own manner and behalf in said matter in such way as to them seems most advisable for the abatement or prosecution of such trespass or interference, anything in this contract to the contrary notwithstanding.

XI. All division or allotment of water under this agreement as between parties of the first part and party of the second part shall be measured and made at the divide, so called, between the ditch of parties of the first part and the Redlands Ditch at or near the point commonly known as the Sycamore Tree

In Witness Whereof the parties hereto have hereunto interchangeably set their hands and seals the day and year first above written.

	Shares.	
I.D.R.Stillman,	52	(Seal)
Saml. J. Hayes,	1	(Seal)
T. C. Starr,	1-1/2	(Seal)
A. L. Park,	1	(Seal)
D. B. Alverson,	1	(Seal)
D. M. Balch,	8	(Seal)
E. C. Judson, by his attorney in fact, F. E. Brown,		
F. E. Brown,	10	(Seal)
E. A. Holt,	5-1/2	(Seal)
Mrs. Mary Hopkins,	5	(Seal)
L. C. Haight,	5	(Seal)
James Garrison,	5	(Seal)
Geo. A. Cook,	1-3/4	(Seal)
F.A.Forund by C.A.Cook, Atty in fact 1		(Seal)
D.J.Abbott by J.C.Reeves,Atty in fact 1-1/2		
August M. S. Kelley,	2-1/2	
Joseph S. Hale,	2	(Seal)

EXHIBIT "F"

E. P. Ball,	2
J. B. Clover,	2-1/2
Israel Heal,	4-3/4
Redlands Water Company,	50
By David Morey, President	
J. S. Edwards, Secy.	
R. E. Smith,	4
Truman Reeves,	1
D. L. Clark,	1
Wm. and E. Leindenberg,	4-1/2
Wm. H. Reeves and R. A. Reeves,	3
Mrs. Gormlit (May)	1
W. C. Butler,	3-1/2
L. Fegler,	1
Ben Barton,	15
D. L. Adams and Julia and T. Adams	4
E. E. Booth,	1/2
C. E. Thompson by E. E. Booth	1/2
Mrs. Jane D. Hale,	1
Lugonia Fruit Packing Co.,	
by Geo. A. Cook, President,	1
2nd Congregational Church of San Bernardino at Lugonia by Geo. A. Cook, Prest Board Trustees	1/4
Mrs. A. M. Tichenor	3
E. I. Fullerton,	1/2
A. Elliot Paine,	1
Lugonia Fruit Growing and Packing Company by Henry E. Robinson, Prest and Charles W. Sumner, Treasr.	20
A. F. Jones,	1/2

EXHIBIT "F"

John Aikon Preston,	3
G. W. Chadwick,	1
H. H. Dunham,	1
Chas Frank Day,	1/2
H. Clarence Eddy,	2
Sara Mushey Eddy,	
Mira Mushey,	1
Charles H. Morse,	2
D. A. Shaw,	11-1/2
L. K. Shaw,	2
H. J. Fullerton,	1
Frank Hinkley,	21
Wm. R. Tolles,	41-1/2
C. P. Serrors,	3
C. H. Lathrop,	1-1/2
W. W. Camp,	1/4
W. M. Gonsalves	
C. A. Shaw,	2
William Gregory,	1
Bear Valley Land and Water Co.	300.5 shares of total 375
by Jas. G. Burt, Prest.	(Corporate) (Seal)
A. Holt, Secy.	

A full, true and correct copy of the original Recorded at the request of J. G. Burt, Sept. 5th A.D. 1887, at 4:35 o'clock P.M.

Legare Allen,

County Recorder,

By O.J.Troen, Deputy.

EXHIBIT "F"

STATE OF CALIFORNIA,)
) SS.
COUNTY OF SAN BERNARDINO.)

I, LEGARE ALLEN, County Recorder of said county, hereby certify the foregoing to be a full, true and correct copy of the Agreement between I. D. B. Stillman, et al, and the Bear Valley Land and Water Company, as recorded in Book I of Agreements, page 315, Records of San Bernardino County.

IN WITNESS WHEREOF, I have hereunto set my hand (Seal) and affixed my official seal this 4th day of September, A.D. 1908.

Legare Allen, County Recorder.

By W. M. Winkler, Deputy.

EXHIBIT "F"

Original Filed

FEB 7 1977

V. Dennis Wardle
County Clerk

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF SAN BERNARDINO

BIG BEAR MUNICIPAL WATER DISTRICT, Plaintiff, v. NORTH FORK WATER COMPANY, et al., Defendants.	No. 165493 ORDER APPOINTING WATERMASTER

Paragraph 14 of the Judgment herein provides for the appointment of a Watermaster Committee, consisting of representatives nominated by District, Conservation District and Mutual. Court, having received and filed the nominations by said parties, and good cause appearing,

IT IS HEREBY ORDERED that the following representatives be, and they are hereby appointed for the term and pursuant to the conditions SPECIFIED IN said Paragraph 14 of the Judgment, as the Watermaster Committee for purposes of administration of the Judgment and physical solution pursuant to this Court's continuing jurisdiction and subsequent orders:

CLAYSON, ROTHROCK & MANN
EUGENE A. NAZAREK
601 South Main Street
Corona, California 91720
Telephone: (714) 737-1910

Attorneys for Plaintiff

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF SAN BERNARDINO

BIG BEAR MUNICIPAL WATER DISTRICT, Plaintiff, v. NORTH FORK WATER COMPANY, et al., Defendants.	No. 165493 NOTICE OF WITHDRAWAL OF SPECIAL COUNSEL FOR PLAINTIFF

PLEASE TAKE NOTICE that DONALD D. STARK, special counsel for Plaintiff herein, hereby withdraws as counsel of record for purposes of the Court's continuing jurisdiction. Co-counsel of record

CLAYSON, ROTHROCK & MANN
EUGENE A. NAZAREK
601 South Main Street
Corona, California 91720
Telephone: (714) 737-1910

who are general counsel for Plaintiff District, will remain as sole counsel of record for said party.

DATED: February 14, 1977.

Donald D. Stark

STARK
AT LAW
CENTER
VE
LIF. 92715

PROOF OF SERVICE BY MAIL

STATE OF CALIFORNIA)
) ss.
COUNTY OF ORANGE)

I am a citizen of the United States and a resident of the county aforesaid; I am over the age of eighteen years and not a party to the within-entitled action; my business address is 2061 Business Center Drive, Irvine, California 92715. On February 15, 1977, I served the within Notice of Withdrawal of Special Counsel for Plaintiff on the Defendants in said action, by placing a true copy in a sealed envelope with postage thereon fully prepaid, in the United States mail at Irvine, California, addressed as follows:

Mr. James Edwards
Surr & Hellyer
599 Arrowhead Avenue
San Bernardino, Calif. 92412

Mr. Denslow Green
Green & Green
P. O. Box 1018
Madera, Calif. 93637

Mr. Richard A. Mulligan
323 Court Street
San Bernardino, Calif. 92401

Mr. Edwin B. Hales
Hales & Hales
Box 188
Redlands, Calif. 92373

Mr. Edward F. Taylor
Welebir, Brunick & Taylor
Box 351
San Bernardino, Calif. 92402

Mr. Thomas Gilfoy
Southern California Edison Company
P. O. Box 800
Rosemead, California

I declare, under penalty of perjury, that the foregoing is true and correct.

Executed on February 15, 1977, at Irvine, California.

Judy Patton

IN THE COURT OF APPEAL

FOURTH APPELLATE DISTRICT, DIVISION TWO

STATE OF CALIFORNIA

BIG BEAR MUNICIPAL WATER DISTRICT,

Plaintiff and Petitioners,

v.

NORTH FORK WATER COMPANY, et al.,

Defendants and Respondents.

STIPULATION FOR ABANDONMENT AND

DISMISSAL OF APPEAL

GREEN & GREEN
P. O. Box 1019
Madera, California 93637
(209) 674-5656

Attorneys for Respondent
North Fork Water Company

DONALD D. STARK
2061 Business Center Drive
Irvine, California 92715
(714) 752-8971

Attorney for Appellant
Big Bear Municipal Water District

HALES & HALES
P. O. Box 188
Redlands, California 92373
(714) 793-5481

Attorneys for Respondent
Lugonia Water Company

SURR & HELLYER
599 Arrowhead Avenue
San Bernardino, California 92412
(714) 884-4704

Attorneys for Respondent
Bear Valley Mutual Water Company

WELEBIR, BRUNICK & TAYLOR
P. O. Box 351
San Bernardino, California 92402
(714) 885-6838

Attorneys for Respondent
Redlands Water Company

RICHARD A. MULLIGAN
323 Court Street, Suite 201
San Bernardino, California 92401
(714) 884-2191

Attorney for Respondent
San Bernardino Valley Water
Conservation District

STIPULATION FOR ABANDONMENT AND DISMISSAL OF APPEAL

RECITALS:

This action is pending on appeal from judgment entered on an order sustaining a demurrer to the amended complaint, without leave to amend.

Pending this appeal, the parties have succeeded at negotiating an agreed solution to the several lawsuits and disputes which have heretofore existed between them.

It is the purpose of this stipulation to obtain an order of this Honorable Appellate Court dismissing the appeal and issuing a remittitur forthwith, with each party to bear its own costs on appeal.

STIPULATION:

IT IS HEREBY STIPULATED by and between the parties hereto that the appeal herein is abandoned and dismissed and that this Honorable Appellate Court may enter its order remitting this matter forthwith to the Superior Court of the State of California, for the County of San Bernardino, with each party to bear its own costs on appeal.

Dated: January 19, 1977.

Donald D. Stark
Special Counsel for Big Bear Municipal Water District

SURR & HELLYER

By _____

Attorneys for Respondent Bear Valley Mutual Water Company

GREEN & GREEN

By _____

Attorneys for Respondent North Fork Water Company

HALES & HALES

By _____

Attorneys for Respondent Lugonia Water Company

WELEBIR, BRUNICK & TAYLOR

By _____

Attorneys for Respondent Redlands Water Company

_____

Attorney for Respondent San Bernardino Valley Water Conservation District

Langdon W. Owen
2061 Business Center Drive
Suite 203
Irvine, California 92715
(714) 752-9082

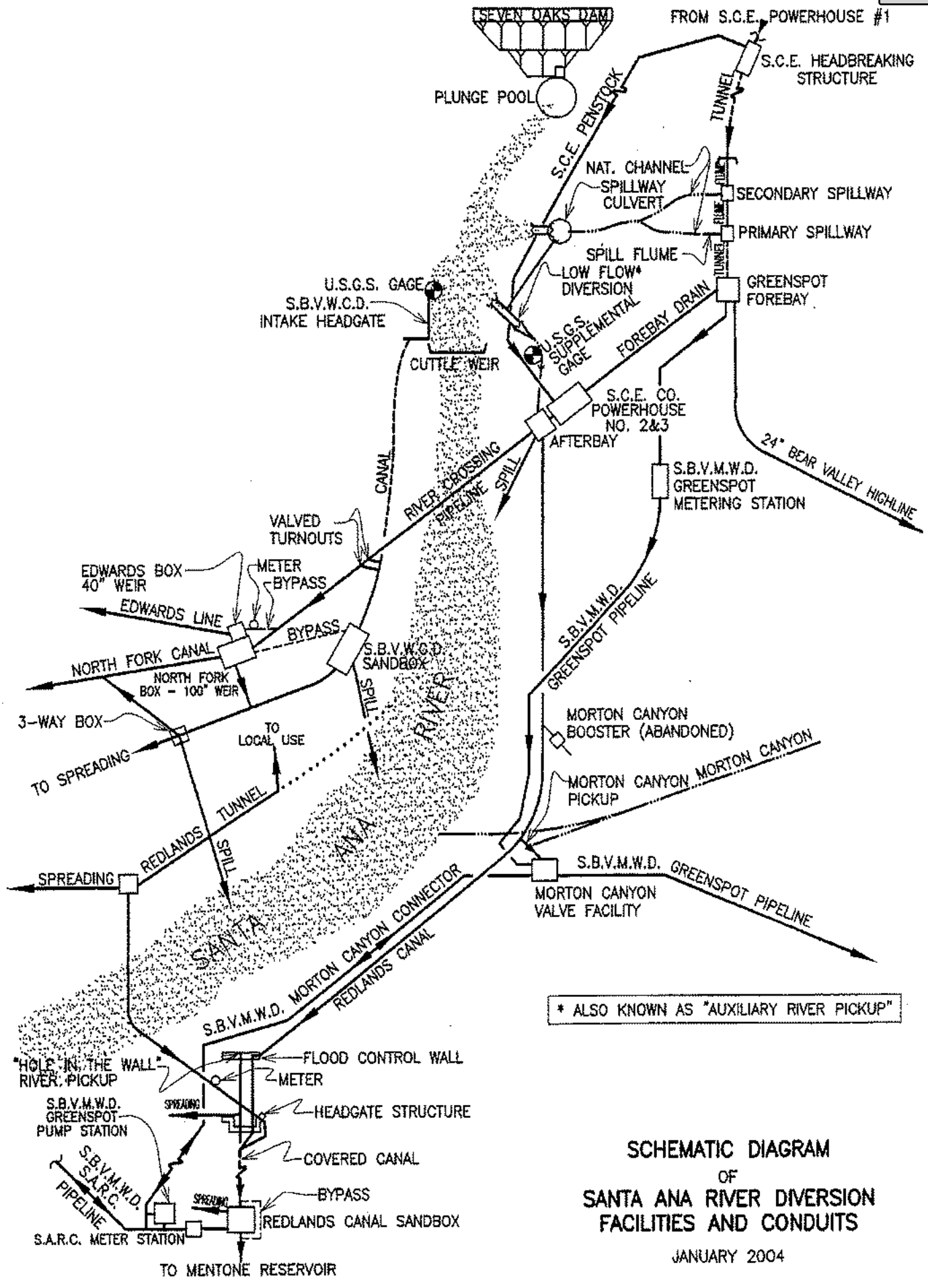
Horace P. Hinckley
101 East Olive Street
Redlands, California
(714) 793-4901

William J. Hiltgen
303 Brookside Avenue
Redlands, California 92373
(714) 793-2503

DATED: February 4, 1977.

JOSEPH B. CAMPBELL
Judge of the Superior Court

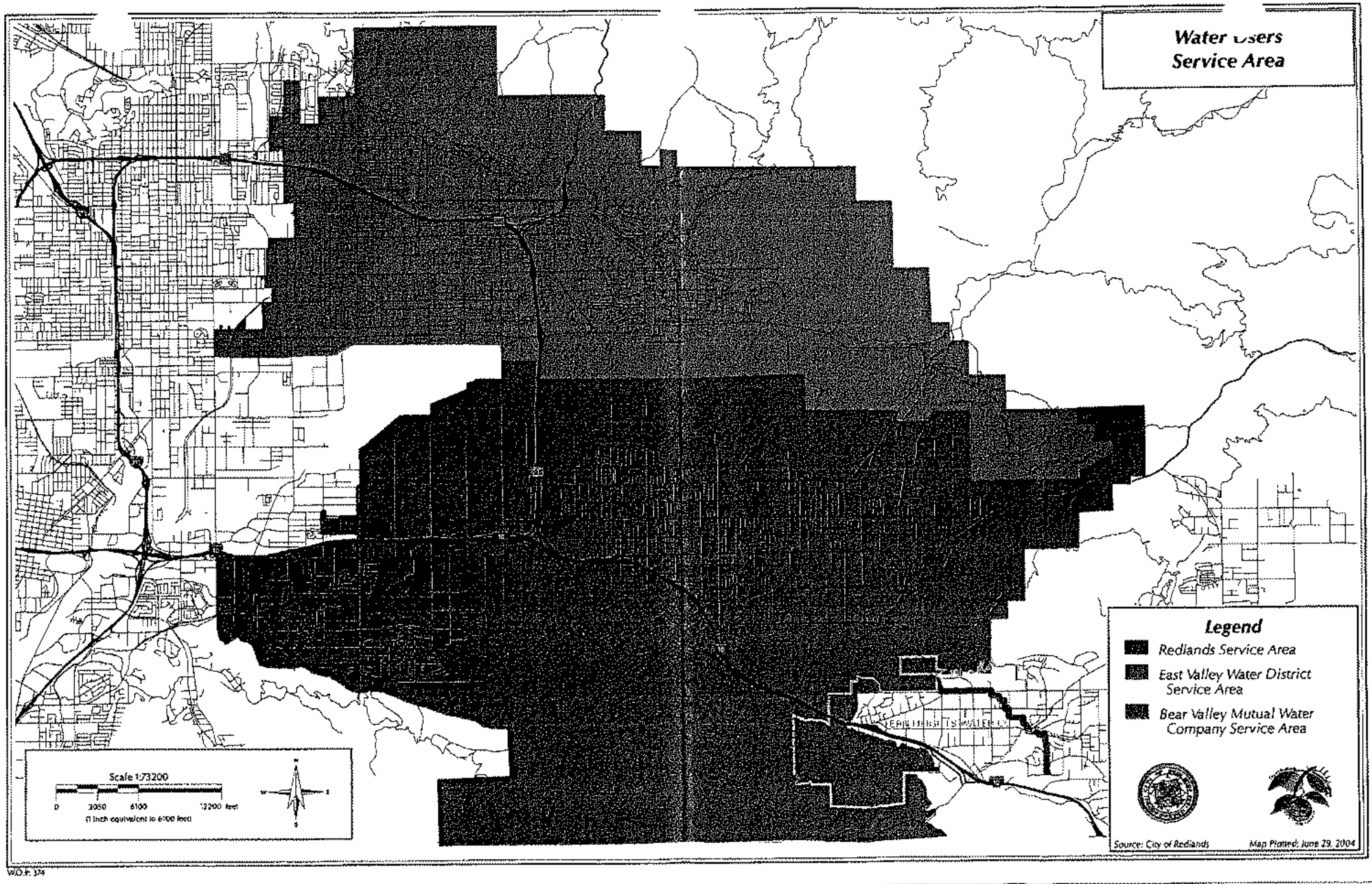
EXHIBIT D



SCHEMATIC DIAGRAM
OF
SANTA ANA RIVER DIVERSION FACILITIES AND CONDUITS

JANUARY 2004

EXHIBIT E


Water Users
Service Area
Legend
Redlands Service Area
East Valley Water District
Service Area
Bear Valley Mutual Water
Company Service Area
Scale 1:73200
0 3050 6100 12200 feet
(1 inch equivalent to 6100 feet)
Source: City of Redlands
Map Plotted: June 29, 2004
W.O.#: 374

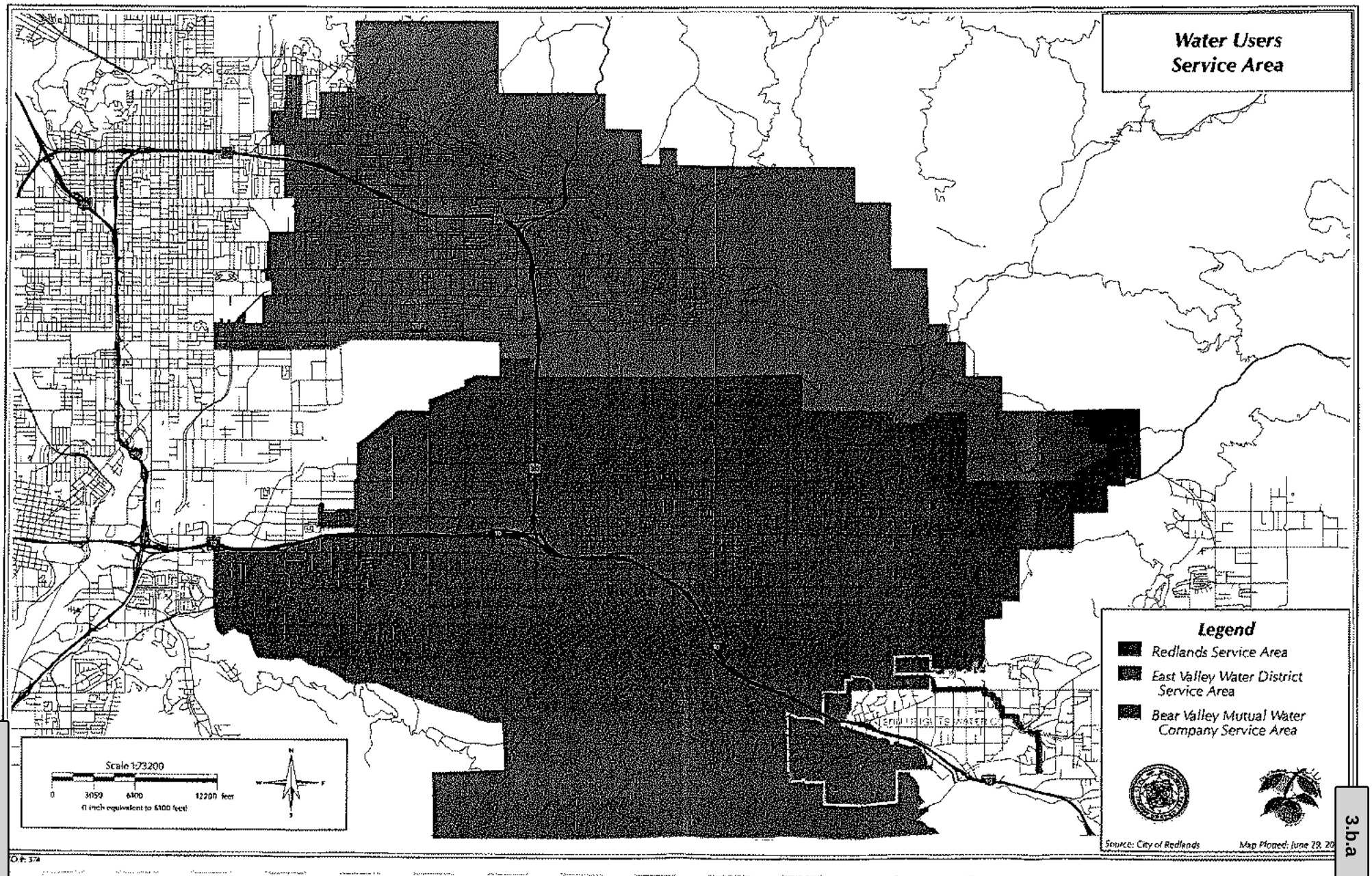

Water Users
Service Area
Legend
Redlands Service Area
East Valley Water District
Service Area
Bear Valley Mutual Water
Company Service Area
Scale 1:73200
0 3050 6100 12200 feet
1 inch equivalent to 6100 feet
Source: City of Redlands
Map Moped: June 29, 20

EXHIBIT F

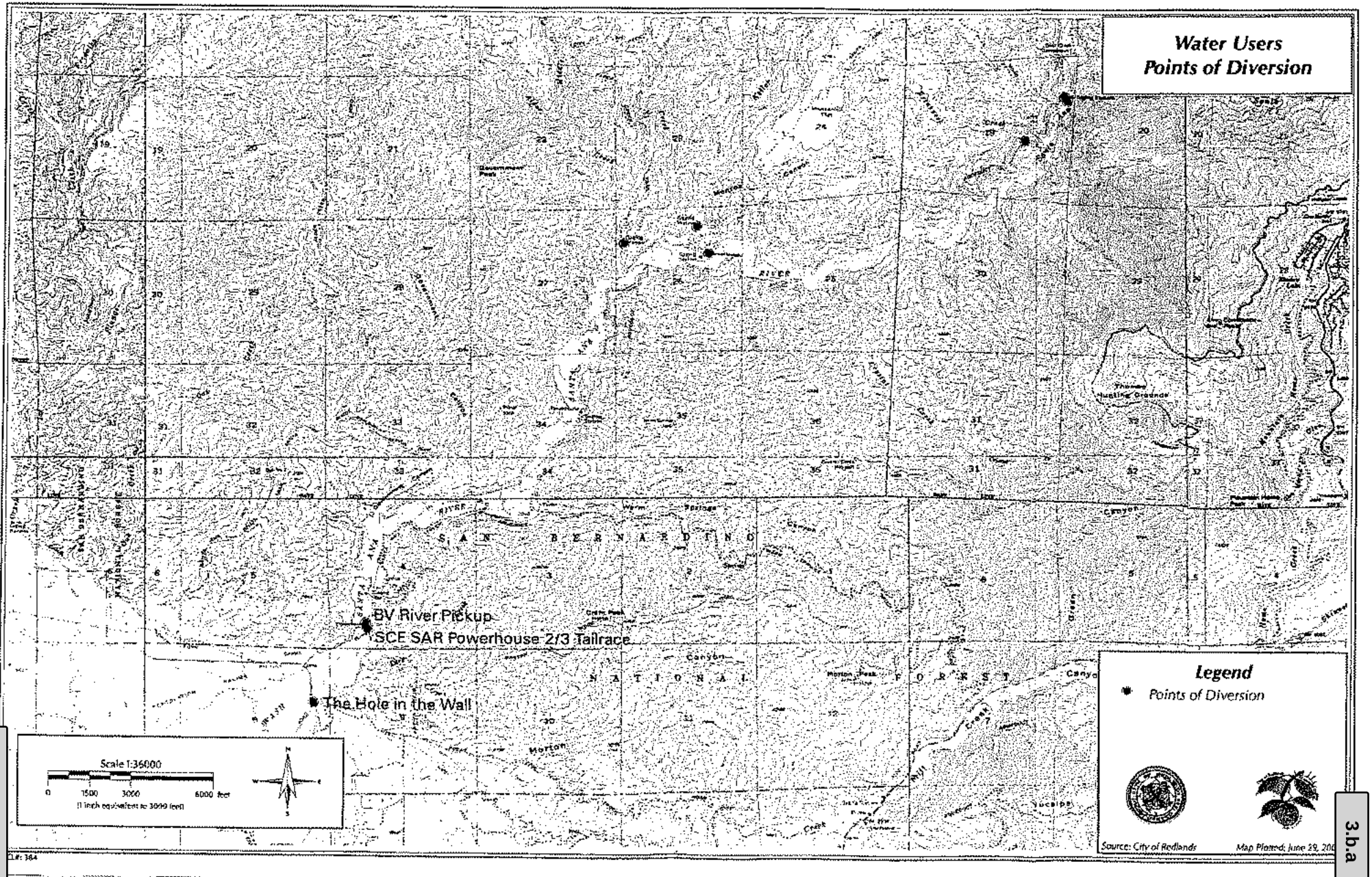

Water Users
Points of Diversion
BV River Pickup
SCE SAR Powerhouse 2/3 Tailrace
The Hole in the Wall
SAN BERNARDINO
NATIONAL FOREST
Scale 1:36000
0 1500 3000 6000 feet
1 inch equivalent to 3000 feet
Legend
Points of Diversion
Source: City of Redlands
Map Plotted: June 19, 20

EXHIBIT G

SBBA Index Wells

Well No.	State Well Number	Owner	Well Name
1	02N05W19Q01S	City of San Bernardino MWD	Vincent Well
2	01N04W06H02S	City of San Bernardino MWD	Devil Canyon No. 3
3	01N04W08M01S	City of San Bernardino MWD	Devil Canyon No. 1
4	01N05W03H01S	City of San Bernardino MWD	Cajon Well No. 1
5	01N04W31A01S	City of San Bernardino MWD	Mt. Vernon
6	01N05W06G01S	Fontana Union Water Company	Well 27
7	01N05W07H01S	Fontana Union Water Company	Well 26
8	01N05W22A01S	Fontana Union Water Company	Well 13
9	01N05W36H04S	West Valley Water District	Lord 7
10	01N04W26A02S	East Valley Water District	Well 24A
11	01S04W14P02S	City of Riverside	Raub 1
12	01S04W23Q	Gage Canal Company	Lower Kelly
13	01N04W16E03S	City of San Bernardino MWD	Newmark 3
14	01N04W27A02S	City of San Bernardino MWD	Leroy Street Well
15	01S03W04N01S	East Valley Water District	Well 40
16	01S03W15F01S	City of Redlands	Orange Street Well
17	01S03W21H01S	City of Redlands	Well 32
18	01N03W30J01S	East Valley Water District	Well 62
19	01S02W19A01S	City of Redlands	Agate 2
20	01S03W23A03S	Bear Valley Mutual Water Company	Nelson Street
21	01S03W13M01S	City of Redlands	Airport 2
22	01S03W13Q01S	San Bernardino Valley MWD	San Bernardino Ave. Well
23	01S03W02J02S	East Valley Water District	Well 120
24	01S03W03R04S	East Valley Water District	Well 146A
25	01S02W07R01S	East Valley Water District	Observation Well

EXHIBIT H

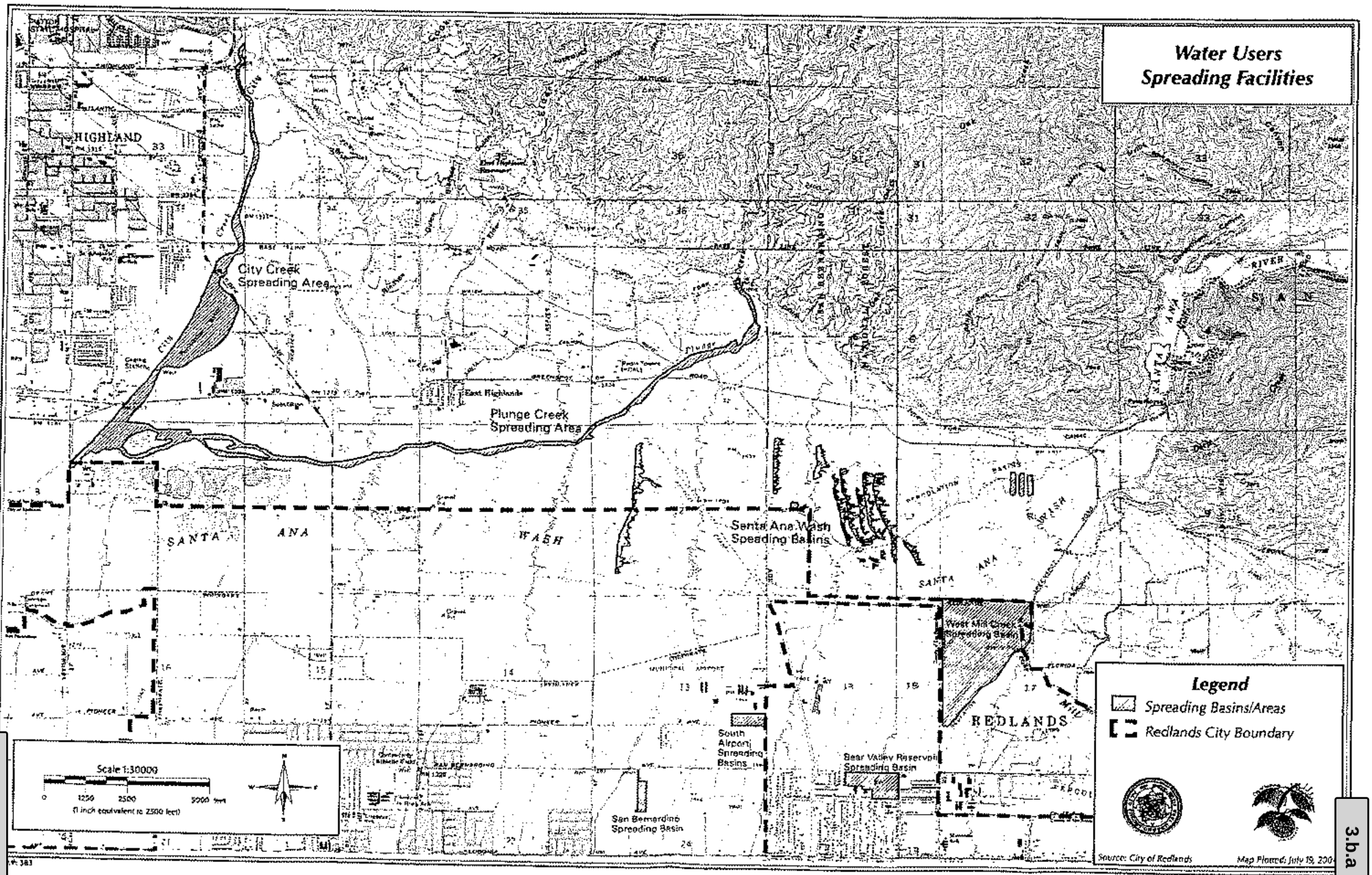

Water Users
Spreading Facilities
HIGHLAND
City Creek
Spreading Area
Plunge Creek
Spreading Area
East Highlands
SANTA ANA WASH
Santa Ana Wash
Spreading Basins
West Mill Creek
Spreading Basin
REDLANDS
South
Airport
Spreading
Basins
Bear Valley Reservoir
Spreading Basin
San Bernardino
Spreading Basin
Scale 1:30000
0 1250 2500 5000 feet
(1 inch equivalent to 2500 feet)
Legend
Spreading Basins/Areas
Redlands City Boundary
Source: City of Redlands
Map Printed: July 19, 200

EXHIBIT I

Thresholds of Significance and Mitigation Measures
To be Included in Applicants' EIR

1. Threshold of Significance: Reduction in Groundwater Levels at Index Wells Outside the Pressure Zone

A reduction in groundwater levels outside the Pressure Zone is significant if the analysis in this EIR, using the integrated surface water and groundwater model developed by the project proponents, predicts that the project would reduce static groundwater levels at one or more index wells, on average, by more than 10 feet during a repetition of the 39-year base period hydrology, as compared to static water levels in the absence of the project.

2. Threshold of Significance: Increase in Groundwater Levels at Index Wells Within the Pressure Zone

An increase in groundwater levels in the Pressure Zone is significant if the analysis in this EIR, using the integrated surface water and groundwater model developed by the project proponents, predicts that the project would increase static groundwater levels at one or more index wells in the Pressure Zone, on average, by more than 10 feet during a repetition of the 39-year base period hydrology, as compared to static water levels in the absence of the project.

3. Mitigation Measure : Targeted Sp reading to Maintain Groundwater Levels

To avoid a significant effect on groundwater levels at one or more index wells located outside the Pressure Zone, the project proponents shall spread sufficient water to maintain static groundwater levels at the affected index wells to reduce this project impact to a less-than-significant level.

4. Mitigation Measure : Limitation on Spreading to Prevent High Groundwater Levels.

To avoid a significant effect on groundwater levels in the Pressure Zone, the project proponents shall curtail their spreading or direct other parties engaged in the spreading of water to replenish the San Bernardino Basin to curtail their spreading to reduce this project impact to a less-than-significant level.

Notice of Exemption

To: ☒ Office of Planning and Research
PO Box 3044, 1400 Tenth Street, Rm. 222
Sacramento, CA 95812-3044

☒ County Clerks
County of San Bernardino
222 West Hospitality Lane
San Bernardino, California 92415

County of Riverside
P.O. Box 751
Riverside, California 92501

From: San Bernardino Valley Municipal Water District
1350 S. "E" Street (92408-2725)
P.O. Box 5906 (92412-5906)
San Bernardino, California

Western Municipal Water District of Riverside County
450 Alessandro Blvd.
Riverside, CA 92508

City of Redlands
35 Cajon Street, Suite 15-A
Redlands, CA 92373

East Valley Water District
1155 Del Rosa Avenue
San Bernardino, CA 92413

Project Title: Settlement Agreement Relating to the Diversion of Water from the Santa Ana River System (the "Seven Oaks Accord")

Project Location - Specific: See description of project, below.

Project Location – Cities: San Bernardino, Highland, Rialto, Colton, Redlands, and Terrace, Loma Linda, and Yucaipa

Project Location - Counties: San Bernardino and Riverside Counties

Description of Nature, Purpose, and Beneficiaries of Project:
San Bernardino Valley Municipal Water District and Western Municipal Water District of Riverside County have filed applications with the State Water Resources Control Board ("SWRCB") to appropriate water from the Santa Ana River for direct diversion and/or storage. The City of Redlands, East Valley Water District and Bear Valley Mutual Water Company (among others) have filed protests against the applications alleging infringement of their senior water rights and adverse impacts on the environment. The project is the execution of a settlement agreement, approved by the parties, to resolve the protests without the need for a lengthy and expensive water rights hearing. The execution of the settlement agreement will have no physical impact on the environment.

Name of Public Agency Approving Project: San Bernardino Valley Municipal Water District, Western Municipal Water District of Riverside County, City of Redlands, East Valley Water District.

Name of Person or Agency Carrying Out Project: San Bernardino Valley Municipal Water District, Western Municipal Water District of Riverside County, the City of Redlands, East Valley Water District, Bear Valley Mutual Water Company, Lugonia Water Company, North Fork Water Company, and Redlands Water Company.

Exempt Status: (*check one*)

☐ Ministerial (Sec. 21080(b)(1); 15268);
☐ Declared Emergency (Sec. 21080(b)(3); 15269(a));
☐ Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
☐ Categorical Exemption. State type and section number:
☐ Statutory Exemptions:State code number:

Reasons why project is exempt: The project is the execution of a settlement agreement which requires the withdrawal of protests to applications presently pending before the SWRCB, the submission of letters in support of the applications, and an amendment to the applications. Consequently, there is no possibility that the project will result in a physical change to the environment and the project is exempt pursuant to the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment. CEQA Guidelines §15061(b)(3).

Please see attached.

Lead Agency Contact Person:

Robert Reiter	(909) 387-9222
John Rossi	(909) 789-5000
Douglas Headrick	(909) 798-7698
Robert Martin	(909) 889-9501

If filed by applicant:

1. Attach certified document of exemption finding.
2. Has a Notice of Exemption been filed by the public agency approving the project? ☐ Yes ☐ No

Signature:_ Date: Title:

☐ Signed by Lead Agency
☐ Signed by Applicant

Date received for filing at OPR:_

Determination of Exempt Status – Execution of Seven Oaks Accord

The execution of the Seven Oaks Accord is a project that is exempt from environmental analysis under the terms of the California Environmental Quality Act ("CEQA"). A project is exempt from CEQA if a lead agency can determine with certainty that there is no possibility that the activity in question may have a significant effect on the environment. (Cal. Code Regs. tit. 14, §15061, subd. (b)(3)); No Oil, Inc. v. City of Los Angeles (1974) 13 Cal.3d 68, 74.) The purpose of this exemption is to provide "a short way for agencies to deal with discretionary activities which could arguably be subject to the CEQA process but which common sense provides should not be subject to the Act." (Cal. Code Regs. tit. 14, discussion following §15061; Davidon Homes v. City of San Jose (1997) 54 Cal.App.4th 106, 112.)

An agency can determine that a project will have no significant effect on the environment where the project will have no direct environmental effect and is not an implementation step in a comprehensive plan which can ultimately result in physical changes to the environment. (Kaufman & Broad-South Bay, Inc. v. Morgan Hill Unified School District (1992) 9 Cal.App.4th 464, 474, 476.) In Kaufman & Broad-South Bay, Inc., the court held that an environmental analysis was not required for the formation of a community facilities district, emphasizing the absence of a causal link between the action and the alleged environmental impact, the construction of new schools. (Id. at 474.) Although the District could foreseeably construct new schools in the future, the court found that the formation of a community facilities district was not an "essential step" in a chain of events leading to a change in the environment. (Id.)

Here, the project involves the execution of a settlement agreement that resolves protests against water rights applications presently pending before the State Water Resources Control Board. The project itself requires administrative activities consisting of the withdrawal of protests to applications, a submission of letters in support of applications, and an amendment to the application. The project is exempt from CEQA for at least two reasons. First, the execution of a settlement agreement is not an "essential step" in the processing of the two water right applications before the State Water Resources Control Board; accordingly, under Kaufman & Broad-South Bay, Inc., the adoption of the settlement agreement is exempt from further analysis under CEQA. Second, given the nature of the project (i.e., the exchange of correspondence with the State Water Resources Control Board), common sense dictates that it can be seen with certainty that the project will not have an adverse impact on the physical environment. Similar to Kaufman & Broad-South Bay, Inc., and consistent with the terms of the settlement agreement itself, environmental impacts resulting from future decisions related to the Project will be examined at the time those decisions are made. (9 Cal.App.4th at 473.)

For these reasons, San Bernardino Valley Municipal Water District, Western Municipal Water District of Riverside County, the City of Redlands, and East Valley Water District can determine with certainty that there is no possibility that the project may have a significant effect on the environment.

Copy

OF

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OF

JUDGMENT

Rendered in the Superior Court of San Bernardino County, California, on January 28th, 1924, in Action No. 17030 and Entitled:

"City of San Bernardino vs. Fontana Water Co. et al."

Recorded in Book 829, Page 293 of Deeds, San Bernardino County Records

Judgment

In the Superior Court of the State of California in and for the County of San Bernardino

CITY OF SAN BERNARDINO,
a municipal corporation,

Plaintiff.

vs.

FONTANA WATER COMPANY, a corporation, FONTANA UNION WATER COMPANY, a corporation, FONTANA POWER COMPANY, a corporation, FONTANA FARMS COMPANY, a corporation, FONTANA COMPANY, a corporation, LYTLE CREEK WATER AND IMPROVEMENT COMPANY, a corporation, CITIZENS LAND AND WATER COMPANY OF BLOOMINGTON, a corporation, RIVERSIDE HIGHLAND WATER COMPANY, a corporation, RANCHERIA WATER COMPANY, a corporation, MUTUAL LAND AND WATER COMPANY OF RIALTO, a corporation, TERRACE WATER COMPANY, a corporation, THE GAGE CANAL COMPANY, a corporation, RIVERSIDE TRUST COMPANY, LIMITED, a corporation, RIVERSIDE

No. 17030

ORANGE COMPANY, LIMITED, a corporation, CITY OF COLTON, a municipal corporation, GATE CITY ICE AND PRECOOLING COMPANY, a corporation, COLTON CITY WATER COMPANY, a corporation, MEEKS AND DALEY WATER COMPANY, a corporation, FONTANA LAND COMPANY, a corporation, JOHNHUB WATER COMPANY, a corporation, FONTANA DEVELOPMENT COMPANY, a corporation, NORTH COLTON WATER COMPANY, a corporation, LAWSON WELL COMPANY, a corporation, ALTA VISTA WATER COMPANY, a corporation, CLARA VISTA WATER COMPANY, a corporation, ORCHARD MUTUAL WATER COMPANY, a corporation, EAST RIVERSIDE WATER COMPANY, a corporation, JAMES BARNHILL, JOHN DOE, RICHARD ROE, SAM BLACK, JOE WHITE, SAM WHITE, CHARLES WHITE, TOM BROWN, SARAH BROWN, CHARLES BROWN, MARY BROWN, CHARLES LOW and JOHN LOW, and RIALTO DOMESTIC WATER COMPANY, a corporation,

Defendants.

WHEREAS there has been filed in this action a stipulation for judgment, duly executed by and on the part of the plaintiff above named and by and on the part of each and all of the following named defendants in this action, to-wit: Fontana Water Company, a corporation;

Fontana Union Water Company, a corporation; Fontana Power Company, a corporation, Fontana Farms Company, a corporation; Fontana Land Company, a corporation, Lytle Creek Water and Improvement Company, a corporation; Citizens Land and Water Company of Bloomington, a corporation; Riverside Highland Water Company, a corporation; Rancheria Water Company, a corporation; Mutual Land and Water Company of Rialto, a corporation; Terrace Water Company, a corporation; City of Colton, a municipal corporation; Rialto Domestic Water Company, a corporation; and James Barnhill (said Barnhill being erroneously sued herein, under the name of "W. W. Barnhill"),

NOW THEREFORE, by reason of said stipulation, and pursuant to the terms and provisions thereof,

IT IS HEREBY ORDERED, ADJUDGED AND DECREED by the Court as follows:

I.

This action is hereby dismissed as to each and all of the defendants, other than those above named as parties to said stipulation; and each and all cross-complaints or cross-actions, filed or pending by or between any of the parties to said stipulation, above named are dismissed.

II.

As between the plaintiff and each and all of the defendants, above named, as parties to said stipulation, and as to each and all of said defendants as between themselves, excepting as set forth in Paragraph XXI hereof, it is further

ADJUDGED AND DECREED, as follows:

III.

That an inch of water, as the term is used herein, shall mean such quantity of water, in continuous flow, as will supply one-fiftieth part of a cubic foot of water per second of time.

IV.

That from time immemorial, there has flowed, and now flows, in Lytle Creek Canyon, in San Bernardino County, California, a natural stream, known as "Lytle Creek," and there exists below the mouth of said canyon, a certain pressure pipe line, belonging to said Power Company, and the cement intake diverting water into said pipe line, is situate on the west side of said stream, very near the mouth of said canyon, and at a distance of about 1662 feet north of a point in the north boundary of the Muscupiabe Rancho, between stations 48 and 49 thereof, where said boundary intersects the center line of Riverside Avenue, as delineated on the map showing subdivision of the lands of the Semi-Tropic Land and Water Company, (said location of said intake having been sometimes heretofore erroneously designated in the pleadings herein and elsewhere, as being about 2375 feet north of said point of intersection), said Map being recorded in the office of the County Recorder of said County, in Book 6 of Maps, page 12 thereof; and said Power Company, for more than five years last past, has been and now is diverting from said creek, at said intake, by means of said pipe line, the waters of said Creek, flowing at said intake not exceediig 3000 inches, and is conducting said waters to the power house of said Power Company, situated on Farm Lot 66, designated on said Map, which waters,

upon being discharged from said Power House, belong to and are distributed to sundry parties, for their use, in proportion to their rights and interests therein.

V.

That in the San Bernardino Valley in said County, there exists, and lies below, and to the southeast of the mouth of said canyon, an area of land herein designated as "Lytle Creek Region" which, for the purposes of this decree, is defined and described as follows:

Commencing at a point in the center line of Mill Street, in the City of San Bernardino, in said County, situate 300 feet east of the center line of Mt. Vernon Avenue; thence north 400 feet; thence west to the center line of Mt. Vernon Avenue; thence running north along the center line of Mt. Vernon Avenue, to the intersection thereof with the center line of Fourth Street, (said street being identical with Foothill Boulevard); thence running west along the center line of Fourth Street, to a point where the center line of Fourth Street would intersect the center line of Muscott Avenue, if said Avenue were extended south; thence running north to the point of intersection of center line of Muscott Avenue with center line of Base Line; thence running west along center line of Base Line, to the southeast corner of Section 31, Township 1 North, Range 4 West, S. B. B. & M.; thence running north to the southwesterly boundary of the right of way of Atchison, Topeka and Santa Fe Railway Company (on which right of way are located the main railroad tracks of said Railroad Company, running from said City, through Cajon Pass); thence following along said southwesterly boundary of said right of way, to the point of intersection thereof, with the State Highway

at Verdemont; thence following said Highway to the point of intersection thereof, with the north line of Township 1 North, Range 5 West, San Bernardino Base and Meridian; thence running west, along the north line of Township 1 North, Range 5 West, San Bernardino Base and Meridian, to the northwest corner of said last mentioned township; thence running southeasterly to a point situate five feet east of the most easterly point of said intake of said pipe line of said Power Company, thence running southeasterly and following upon and along a line parallel with the east side of that certain cement canal, formerly known as the "Semi-Tropic Canal" (the intake of which canal is identical with said intake of said pipe line), and at all points five feet distant in a northeasterly direction from the east side of said Canal, to a point where said line would intersect the northwesterly line of Farm Lot 68, designated on said Map, if said northwesterly line of said Lot were projected southwest; thence along said northwesterly line of said Lot, to the foot of the ridge or bluff known as the "Rialto Bench," thence running southeasterly along the foot of said bluff, to a point where the foot of said bluff intersects the center line of said Mill Street; running thence east, along the center line of Mill Street, to the place of beginning.

VI.

That whenever there shall be discharge from said Power House, surplus water in excess of the quantity at the time required to satisfy the domestic and irrigation needs of the respective parties, entitled to receive and use water discharged from said Power House, all of such surplus water, so discharged, shall be used for

replenishing the underground water sources of said Lytle Creek Region, and to that end, shall be delivered by said Power Company, to and upon the wash of said Lytle Creek, by a cement conduit, at the highest point on the westerly margin of said wash, to which such water can reasonably be conducted by gravity flow from said Power House. Such replenishment work, as to the water so delivered upon said wash, shall be performed under the supervision and direction of the Committee hereinafter mentioned.

VII.

That all water flowing at said intake of said pipe line of said Power Company, between the 15th day of December, and the 15th day of the next succeeding month of April, of each year hereafter elapsing, shall be diverted and applied in the manner and in accordance with the priorities hereinafter set forth, to-wit:

First: To supply to said pipe line 2000 inches of water, or such larger quantity as may, at the time, be required and taken for immediate use for irrigation or domestic purposes, by the parties entitled to receive and use water discharged from said Power House, not exceeding the extent of their respective rights to such water.

Second: To supply additional water to said pipe line, to the extent of an aggregate amount of 3000 inches, (inclusive of the water specified in the next preceding subdivision "First"), except and provided that all or any part of such additional water shall be allowed to flow past said intake, into the wash or channel of said creek, for replenishing the underground water of said

Region, whenever so requested in writing by the said Improvement Company, except during periods:

(a) When the quantity of water flowing in said creek at said intake, exceeds 4000 inches, in which event such excess water may be diverted through said pipe line, until the total quantity of water, diverted therethrough, amounts to 2500 inches, or

(b) When the quantity of water, flowing in said creek, at said intake exceeds 5000 inches, in which event, such excess water may be diverted through said pipe line, until the total quantity of water, diverted therethrough, amounts to 3000 inches.

Third: All water, so permitted to pass said intake, shall be used, as far as reasonably practicable, for replenishing the underground water contained in the entire area of the Lytle Creek Wash, situate below said intake, provided that at all times, so far as is reasonably practicable, the upper portion of said wash shall be so replenished with water until no more water can be sunk therein, before such replenishment is performed on the portion of said wash lying south of Highland Avenue, or lying east of the west boundary of the lands in said Region now owned by the Muscoy Water Company.

Fourth: If, at the end of five years, from date hereof, said Improvement Company or their successors in interest, decide that the water producing capacity of wells, situate south of an east and west line drawn through said Power House, and north of said Highland Avenue, would be benefited and increased by conducting at said intake, into said pipe line, a quantity of water not exceeding 3000 inches, then and in that event, all of the water flowing at said intake, shall at all times

thereafter, be turned into said pipe line, to the extent of said 3000 inches, instead of permitting a portion of such waters to flow past said intake, as aforesaid, and at said Power House, all surplus water, in excess of the quantity at the time required to meet the then requirements of the respective parties, entitled to receive and use water discharged from said Power House, shall be used in accordance with, and be subject to the provisions of Paragraph VI hereof.

VII-a

That no water shall ever be conducted by any party hereto, from that certain tract of land, situated in said San Bernardino County, described as follows:

Beginning at a point on the center line of hereinbefore mentioned Muscott Avenue, said point being situate one-half mile north of said Base Line; running thence south to the center line of said Fourth Street; running thence west, along said center line of Fourth Street, to the point of intersection thereof with the center line of the right of way, for electrical transmission line, of Southern Sierras Power Company; running thence northwesterly along said center line of said right of way, to a point where said center line of said right of way would intersect a line drawn due west from said point of beginning; thence running east to said point of beginning.

VIII.

That in order to conserve, in the most economical and effectual method, all waters which, under the provisions hereof, are from time to time to be used for replenishing the underground water sources of said Region, and also, for further replenishing the underground water

supply of said Region, to conserve, so far as may be reasonably practicable, the surplus, or flood waters, of streams or canyons tributary to said Region, a committee of five persons shall annually be appointed in the month of September of each year, which committee shall have full charge and direction of such water conservation work, and of all expenditures relating thereto, provided that, in case of disagreement or difference of opinion, the power of such committee shall be exercised by concurrence of a majority of its members. One of the members of said committee shall be so appointed by said Improvement Company; one by said Citizens Company; one by said Union Water Company, one by said Mutual Company, Rancheria Water Company, Riverside Company and said City of San Bernardino; and one by said Terrace Water Company, James Barnhill and City of Colton, and each of said members shall serve for one year, and until his successor is appointed and no member of said committee shall receive any compensation for serving thereon. Vacancies on said committee shall also be filled by appointment, to be made in like manner as aforesaid, by the party or parties which made the appointment of the member whose place so becomes vacant, and any person appointed to fill such vacancies shall fill out the unexpired term of his predecessor. Subject to the provisions hereof, said committee is hereby authorized to, from time to time, install any water conservation works, including the construction of dams, ditches, cuts, obstructions, and shafts on land in said Lytle Creek Wash, lying north of Fourth Street, (said street being identical with Foothill Boulevard) and also in and along any canyon, the waters of which are tributary to said Region, and take all other steps,

as in its uncontrolled discretion may be deemed expedient, in order to accomplish the underground conservation of such waters, provided that nothing herein shall be construed as authorizing said committee to trespass upon the property or rights of any party or to do any act that would infringe upon or impair or interfere with the right of any party to the use of any water to which such party shall be entitled. The expense of installing such system and maintaining the same, and carrying on said work of water conservation, shall be borne and paid, subject to the provisions hereof, by the Fontana Companies, Citizens Company, Riverside Company, Improvement Company, Mutual Company, Rancheria Water Company, Rialto Domestic Water Company, City of Colton, City of San Bernardino, Terrace Water Company, and James Barnhill, in the same proportions that the maximum quantity of water which each of said eleven parties (or group of parties), is allotted hereunder, the right to pump from said Region, bears to the aggregate maximum quantity of water which all of said parties are alloted hereunder the right to pump from said Region, provided that in the event of any other person or corporation joining in said conservation work, and paying a proportion of the expense thereof, the proportions of said expense to be borne by said parties, as hereinbefore set forth, shall be correspondingly and equitably reduced. Said committee, in the month of October of each year, and from time to time thereafter, as they may deem proper, shall make an estimate of the amount of money at the time required to be paid to said committee by said eleven parties hereto above named, in order to meet the expense for conservation work as aforesaid, at the

time being undertaken, or in contemplation by said committee.

Said committee shall thereupon present to each of said eleven parties, a bill for the proportionate amount so to be paid by such party, and if any party shall fail to pay such bill, within thirty days after it shall be so presented to such party, then said committee may bring, and it shall be its duty to bring, suit against such party for the amount of such bill, together with costs, including a reasonable attorneys' fee to be fixed by the court in which such suit shall be brought.

Any and all lands, owned by any of said specified parties who are to bear the expense of said conservation work as aforesaid, situate in said Lytle Creek Region, and lying north of said "Fourth Street," and not suitable for the growing of crops thereon, may be used at any and all times for spreading water thereon, and sinking and conserving water therein, by means of dams, obstructions, ditches, cuts and shafts, or by taking such other steps as may be deemed expedient by said committee, provided however, that such water conservation work shall not be done in such a manner as to injure or interfere with the use of any pumping plant, structure or other improvement, situate on any land where such work is performed.

IX.

That the maximum quantity of water which said plaintiff, City of San Bernardino, shall be, and is entitled to take from said Region, and use beyond the confines thereof, is such quantity of water, which when added to the water said plaintiff is entitled to have delivered to it, from said Lytle Creek, will amount in the

aggregate, (inclusive of said Lytle Creek Water) to 325 inches of water, and said plaintiff shall not be entitled to divert, at any time, from said Region, an amount of water in excess of said 325 inches. Of said quantity of water, 225 inches and no more may be pumped or diverted from that certain tract of land in said Region, comprising 10.09 acres, and forming a part of tract known as the "McKenzie Tract" (said tract of 10.09 acres being more particularly described in that certain deed running from William L. McKenzie, and others, to said plaintiff, and recorded in Book 109 of Deeds, at page 303 thereof, in the office of the County Recorder of said San Bernardino County), and none of said 225 inches shall ever be diverted by plaintiff from any other portion of said Region.

Said plaintiff is also the owner of the right to take, divert and use water from that portion of the San Bernardino Valley, lying east of the easterly boundary line of said Lytle Creek Region and east of a line beginning at the point of intersection of the State Highway with the south boundary line of Section 34, Township 2 North, Range 5 West, S. B. B. & M., and running thence to the northwest corner of said Section 34, and north of the center line of Mill Street, extended east to Sterling Avenue, and from streams tributary to said portion of said valley, situate in said portion of said valley, either from the surface flow of such streams, or from wells bored or to be bored in said portion of said valley, to such extent as may be reasonably necessary to supply the needs of said city and its inhabitants with water for supplying needs and purposes within said City. The right of said plaintiff to take water from the surface flow of Lytle Creek, to the extent of 100 inches, shall

not be affected or diminished by any claims of the Fontana Companies, or any of them to salvage water, by reason of any water of Lytle Creek being conducted or conveyed in or through pipe lines, or conduits of any kind.

X.

That, subject to the provisions of this paragraph, the maximum quantity of water which said Rialto Domestic Water Company shall be, and is entitled to take from said Region and use beyond the confines thereof, is such quantity of water which, when added to the water said Company is entitled to have delivered to it from said Lytle Creek, will amount in the aggregate (inclusive of said Lytle Creek Water) to 143.22 inches of water, and said Company shall not be entitled to divert, at any time from said Region, an amount of water in excess of said quantity hereinbefore in this paragraph specified. Of said quantity of water, 100 inches and no more may be pumped from said Region by said Company, provided that:

(a) None of said 100 inches of water shall be taken from any well or water development situate south of a line located parallel to, and situate three-fourths of a mile north of, Highland Avenue.

(b) The right of said Company to so pump and take said one hundred inches of water, shall be exercised only to such extent as shall be necessary to supply the City of Rialto, and the inhabitants thereof, with water for municipal and domestic uses and purposes, and for the irrigation of flowers, trees and lawns, within said City, and then only during such times as the 43.22 inches of water (now supplied by said Company to the

inhabitants of said City) is inadequate, or unsuitable for such purposes or uses.

(c) None of said 100 inches of water shall, at any time, be used outside of the now, or hereafter existing corporate limits of said City of Rialto, except to the extent that said 43.22 inches is now being used outside said City.

(d) Nothing in this Paragraph X contained shall be construed as vesting in said Company the right to take any portion of said 100 inches of water from any well or water development, without the consent of the owner of the land on which such well or water development is situated.

(e) The right to pump and take said 100 inches of water from said region shall be exercised only in the event such right shall be transferred to the City of Rialto.

(f) The water derived from said 100 inches water right, other than water supplied for fire hydrants, sewers, stores and buildings, not used for dwellings, shall not be furnished to the inhabitants of said City of Rialto, except through meters and when charged for at meter rates.

XI.

That the maximum quantity of water which said Improvement Company shall be, and is entitled to take from said Region, and use beyond the confines thereof, is, such quantity of water, which when added to the water said Company is entitled to have delivered to it from said Lytle Creek, will amount in the aggregate (inclusive of said Lytle Creek Water), to 1026.23 inches, and said Improvement Company shall not be en-

titled to divert at any time, from said Region, an amount of water in excess of said quantity in this paragraph hereinbefore specified. Of said quantity of water, only 700 inches may be pumped and diverted from said Region, by said Improvement Company, except during such periods when the quantity of water said Company is deriving from said Lytle Creek, is temporarily reduced to a quantity of less than 326.23 inches, during which periods additional water may be pumped and diverted from said Region by said Company, but only to an extent sufficient to supply such deficiency of said Lytle Creek Water, and only so long as such deficiency continues. Said pumping of said 700 inches of water by said Improvement Company shall be confined to the Ferguson Ranch, (said Ranch being the real property described in that certain deed, dated November 20th, 1908, and executed by Fontana Development Company, and recorded in the office of the County Recorder of said San Bernardino County, in Book 429 of Deeds, page 103 thereof), and said Company is not entitled to pump any water from any other part of said Region.

XII.

That the maximum quantity of water, which said Mutual Company shall be, and is entitled to take and conduct from said Region, and use beyond the confines thereof, is 125 inches of water, and said Mutual Company shall not be entitled to divert at any time, from said Region, an amount of water in excess of said 125 inches, all of which said quantity of water may be pumped by said Company from said Region, but all of said water shall be taken from wells, or water de-

velopments situate south of Highland Avenue, and north of Base Line.

XIII.

That the maximum quantity of water which said Riverside Company shall be, and is entitled to take from said Region, and use beyond the confines thereof, is 450 inches of water, and said Riverside Company shall not be entitled to divert at any time, from said Region, an amount of water in excess of said 450 inches, all of which said quantity of water may be pumped or diverted by said Company from said Region, but all of said water shall be taken from wells or water developments situate south of Highland Avenue, and north of Base Line.

XIV.

That the maximum quantity of water which said Rancheria Water Company shall be, and is entitled to take from said Region, and use beyond the confines thereof, is 120 inches of water, and said Company shall not be entitled to divert at any time from said Region, an amount of water in excess of 120 inches, all of which said quantity of water may be pumped or diverted by said Company from said Region, but all of said water shall be taken from wells or water developments, situate south of Highland Avenue, and north of said Fourth Street.

XV.

That the maximum quantity of water which said Citizens Company shall be, and is entitled to take from

said Region, and use beyond the confines thereof, is 1300 inches of water, and said Citizens Company shall not be entitled to divert, at any time, from said Region, an amount of water in excess of said 1300 inches, all of which said quantity of water may be pumped or diverted by said Company from said Region, provided that:

(a) No more than 200 inches shall ever be diverted or pumped by said Citizens Company, from that part of said Ferguson Ranch specified in that certain deed, executed by the Semi-Tropic Land and Water Company, to the Rialto Irrigation District, and recorded in the office of the County Recorder of said San Bernardino County, in Book 187 of Deeds, at page 213 thereof, and

(b) No more than 585 inches shall ever be diverted from said Region by said Citizens Company, from the northeast quarter of Section 36, Township 1 North, Range 5 West, S. B. B. & M., and

(c) No more than 150 inches shall ever be diverted or pumped by said Citizens Company, from that certain tract of land, situate in said Region, described as follows, to-wit:

Commencing at a point on the Base Line two thousand and fifty feet east of the southwest corner of Township 1 North, Range 4 West, San Bernardino Base and Meridian, and running thence due east 250 feet; thence north 14 degrees west, 344 feet; thence north 24 degrees 10 minutes West, 839.7 feet; thence north 39 degrees, 56 minutes west, 1096 feet; thence due west 674 feet; thence south 8 degrees, 20 minutes east, 500 feet; thence south 34 degrees, 15 minutes east, 1119 feet; thence south 58 degrees, 35 minutes east, 998-7/10 feet, to the place of beginning.

(d) None of the remaining quantity of said 1300 inches of water shall ever be diverted or pumped by said Citizens Company, from any lands in said Region, lying to the north of Base Line, but nothing herein contained shall be construed as obligating said Citizens Company, to divert any specific quantity of water from lands lying north of Base Line, to the end that any quantity of water may be diverted by said Company, from lands in said Region lying south of Base Line, so long as such quantity, when added to the quantity of water which said Company may be then contemporaneously taking from said Region, from lands north of Base Line, shall not exceed in the aggregate, said maximum quantity of 1300 inches of water; provided however, that in the event of said Company diverting at any time from said Region, a total quantity of water, exceeding 1100 inches, then all of such excess water shall be taken by said Company from lands in said Region lying south of a line drawn parallel to, and situate 2500 feet south of Base Line.

(e) Said Citizens Company shall never be entitled to divert any water from that certain tract of land situate in said Region, and described as follows:

Beginning at the southeast corner of the northeast quarter of the northeast quarter of Section 36, Township 1 North, Range 5 West, San Bernardino Base and Meridian; running thence west, 11.89 chains to a post, thence north 3 degrees 10 minutes west, 20 chains to a post on the north line of said Section, thence east 1 chain, thence south 32 degrees east, 8.32 chains to a post; thence south 2 degrees west, 2.06 chains to a post; thence south 54 degrees east, 4.59 chains to a post; thence south 83 degrees east, 4.40 chains to the east line

of said Section, thence south 8.48 chains to the place of beginning.

XVI.

The maximum quantity of water which James Barnhill (sued herein under the erroneus name of "W. W. Barnhill"), shall be, and is entitled to take from said Region, and use beyond the confines thereof, is seventy-five inches of water and said Barnhill shall not be entitled to divert, at any time, from said Region, an amount of water in excess of said 75 inches, all of which said quantity of water may be pumped by him from said Region, but all of said water shall be taken from wells, or water developments, situate south of the existing right of way of Atchison, Topeka and Santa Fe Railway Company (on which said right of way are located the railroad tracts extending from said City of San Bernardino, to the City of Rialto), and north of said Mill Street.

XVII.

That the maximum quantity of water, which said Terrace Water Company shall be, and is entitled to take from said Region, and use beyond the confines thereof, is 150 inches of water, and said Terrace Water Company shall not be entitled to divert, at any time, from said Region, an amount of water in excess of said 150 inches, but all of said water shall be taken from wells or water developments, situate south of said right of way of said Railway Company mentioned in the next preceding paragraph hereof, and north of said Mill Street. All of said water may be pumped.

XVIII.

That the maximum quantity of water which said City of Colton shall be, and is entitled to take from said

and its tributaries, and from said Lytle Creek Region, and conduct from said Region, and use beyond the confines thereof, shall amount to an aggregate quantity of 3480.78 inches, and said Fontana Companies shall never be entited either collectively or separately to divert, beyond said confines, at any time from said water sources, or any of them, an amount of water in excess of said quantity in this paragraph hereinbefore specified. Of said 3480.78 inches of water, 1300 inches and no more may be pumped and diverted from said Region, by said Fontana Companies, provided that:

(a) No more than three hundred inches shall ever be pumped from the next hereinafter described tract of land, and said 300 inches shall be pumped from no other place; said tract being that certain tract, in said Region, described as follows:

That portion of the Southwest portion of the Muscupiabe Rancho, described as follows:

Beginning at station O of the north boundary of the Muscupiabe Rancho, which point is situate near the northeasterly bank of Lytle Creek, and near the mouth of Lytle Creek Canyon;

Thence following and along the northerly boundary of said Muscupiabe Ranch, South 67 degrees, 52 minutes East, thirty-five and fifty-three hundredths (35.53) chains to station 1 of said Muscupiabe Rancho; thence south 48 degrees, 14 minutes west, fifty-six and seventy-six hundredths (56.76) chains to the southwesterly corner of Farm Lot Ten (10) designated on the Map showing SUBDIVISION OF LANDS BELONGING TO SEMI-TROPIC LAND AND WATER COMPANY, recorded in Book 6 of Maps, at page 12, in the office of the County Recorder of said San Bernardino County;

Region, and use beyond the confines thereof, is 600 inches of water, and said City shall not be entitled to divert, at any time, from said Region, an amount of water in excess of said 600 inches, all of which said quantity of water may be pumped by said City from said Region, but all of said water shall be taken from wells or water developments situate south of the last mentioned right of way of said Railway Company, and north of said Mill Street, and none of said water shall be used west of the highway, running approximately north and south, situate on the Rialto Bench, and known as "Rancho Avenue."

XIX.

As used herein, (1) the term "Fontana Companies," refers to Fontana Water Company, Fontana Union Water Company, Fontana Power Company, Fontana Farms Company, and Fontana Land Company; (2) the term "Citizens Company" refers to the Citizens Land and Water Company of Bloomington; (3) the term "Riverside Company" refers to the Riverside Highland Water Company; (4) the term "Improvement Company" refers to the Lytle Creek Water and Improvement Company; (5) the term "Mutual Company" refers to the Mutual Land and Water Company of Rialto; (6) the term "Power Company" refers to the Fontana Power Company, and (7) the term "Union Water Company" refers to Fontana Union Water Company.

XX.

That the maximum quantity of water which said Fontana Companies shall be, and are collectively entitled to take from the surface and sub-surface waters of said Lytle Creek, and from said Lytle Creek Canyon,

Thence north 24 degrees, 43 minutes west, eighty-four and twenty-four hundredths (84.24) chains to a point in the north boundary of said Muscupiabe Rancho; said point being identical with the north corner of Farm Lot One (1), designated on said Map; thence, following and along the north boundary of the Muscupiabe Ranch, south fifty-one degrees, thirty minutes east, eleven and fifty-hundredths (11.50) chains to Station 49 thereof;

Thence, south 63 degrees, 00 minutes east, 40 chains to Station 0 of said Muscupiabe Rancho, the place of beginning.

Containing two hundred twelve and nineteen hundredths (212.19) acres.

(b) No more than 200 inches shall ever be pumped and diverted from said Region, from that certain tract of land in said Region, described as follows:

Commencing at a point on Line 2-3 of the northeasterly boundary of the southwest portion of the Rancho Muscupiabe, said point being north 45 degrees, 0 minutes west, one hundred thirty-seven and three-tenths chains from the southeast corner of Section 25, Township 1 North, Range 5 West, San Bernardino Base and Meridian; thence following the northeasterly boundary line of lands heretofore conveyed by the Fontana Development Company, to the Lytle Creek Water and Improvement Company, by deed recorded in Book 429 of Deeds, page 103, south 71 degrees, 13 minutes west, thirty-four and twenty-eight hundredths chains; thence still following said boundary north eighty-two degrees, fifty-nine minutes west, eighteen and seventy-three hundredths chains, for a point of beginning; thence from said point of beginning north fifty-four degrees,

fifteen minutes west, eighty-three and four hundredths chains; thence south 35 degrees, 45 minutes west, along the boundary line of the land conveyed by the Fontana Development Company to the Fontana Union Water Company, by deed recorded in Book 505 of Deeds, page 274, to the northwesterly corner of Lot 64, of Map showing subdivision of lands belonging to the Semi-Tropic Land and Water Company, as per plat recorded in Book 6 of Maps, page 12, of the records of said County, including the western portion of the Muscupiabe Grant, as per plat recorded in Book 7 of Maps, page 23, of the records of said County; thence from said northwesterly corner of said Lot 64, easterly and along the northeast line of Lots 64, 66, 68, 70, 72, 74 and 76, to the westerly point of land conveyed by the Fontana Development Company to the Lytle Creek Water and Improvement Company, by deed recorded in Book 429 of Deeds, page 103, et. seq.; thence following the north boundary of said tract south 82 degrees, 59 minutes east, twenty-six and twenty-seven hundredths chains, more or less, to point of beginning.

(c) None of the remaining 800 inches, or any portion of said 1300 inches of water, shall ever be pumped by said Fontana Companies, or any of them, from any portion of said Region lying to the south, or southeasterly of a line drawn from the southeast corner of Farm Lot 68, designated on said Map, to that certain point situate on the boundary of said Muscupiabe Rancho, designated or known as "Stake No. 3" (which said last mentioned point is situate very near to the northeast corner of Section 22, Township 1 North, Range 5 west, S. B. B. & M.); thence running due east to the southwesterly boundary of said right of way of

said Atchison, Topeka and Santa Fe Railway Company, hereinbefore mentioned, save and except that 150 inches of said 1300 inches of water may be pumped or diverted from lands in said Region lying below or to the south or southeasterly of said line.

(d) No water, pumped in said Region by any of said Fontana Companies, shall ever be conducted east of the west boundary of the lands in said Region now owned by the Muscoy Water Company, a corporation, provided however, that if any of the said Fontana Companies shall exercise the right to substitute for 150 inches of the surface waters of said Lytle Creek other water (said right being specifically provided for in that certain judgment rendered by the Superior Court of said San Bernardino County, in Action numbered 9383 in said Court, a copy of which judgment is recorded in the office of the County Recorder of said County, in Book 369 of Deeds at page 323 thereof, which said judgment is based upon that certain contract, dated October 26, 1891, wherein John L. Campbell granted to the Semi-Tropic Land and Water Company, the right to make such substitution of such water), then and in that event, such substituted water, not exceeding 150 inches, may be conducted anywhere.

(e) No water, except the 300 inches permitted to be pumped hereunder, from the tract of land described in Subdivision (a) of this Paragraph XX, shall ever be pumped and diverted by any of said Fontana Companies, from said Region, except and provided that whenever the quantity of water which said Fontana Companies are deriving from said Lytle Creek, at said intake, when added to any water that shall at the time be actually pumped from said tract (there shall be no

obligation to pump any water from said tract), shall amount in the aggregate to less than 2500 inches, then, so long as such deficiency shall continue, said Fontana Companies may take and divert from said Region from any or all of said other areas hereinbefore specified (but not more from any one of said areas than the maximum that they are entitled to take from such tract as hereinbefore stated) such quantity of water as may be necessary to make up such deficiency and maintain such aggregate supply of 2500 inches.

(f) Said quantity of 2500 inches and said maximum quantity of 3480.78 inches of water, hereinbefore referred to in this Paragraph XX, both relate exclusively to water which said Fontana Companies are entitled to take for their own use for irrigation and other beneficial purposes, beyond the confines of said Region.

XXI.

Nothing herein contained shall settle, bind or affect any question, matter or right existing between any of said Fontana Companies only, the purpose of this decree being to define and adjudicate the rights involved herein, of each and all of the respective parties hereto, other than said Fontana Companies, and also to adjudicate the collective rights of all of said Fontana Companies, constituting one group of defendants, without affecting any right which any of said Fontana Companies may have against any other of said Fontana Companies.

XXII.

That, except as provided in Paragraph XXIV hereof, no well shall ever be sunk hereafter by any party to

this action, within a distance of 200 feet of the north boundary line of said Ferguson Ranch, and it is further decreed that none of said Fontana Companies shall be entitled to hereafter pump any water in said Lytle Creek Canyon, at any time when such water is not needed for irrigation purposes.

XXIII.

Nothing contained herein shall be construed as permitting or shall permit, any water to be diverted from said Region, or from any water sources herein mentioned, at any time when the water so diverted is not reasonably needed for some useful or beneficial purpose, and it shall not be deemed a useful or beneficial purpose within the meaning of this paragraph, to use water:

(a) For irrigating, between the 15th day of November and the 15th day of March, of the next succeeding year, any grain or cereal crop, unless such crop is growing in an orchard;

(b) For saturating or causing water to sink in lands, lying outside of the said Region and canyon, for the purpose of accomplishing underground storing of water, or of adding to the water contained in such lands, nor for excercising unreasonable irrigation of crops or trees growing thereon.

XXIV.

That none of the parties to this action shall ever be entitled hereafter, to sink any well within a distance of 500 feet from any other well, owned, or operated by any other party to this action, except for substituting a new well in lieu of any now existing well, within said distance, for the sole purpose of maintaining, but not in-

creasing, the quantity of water now taken by such existing well, within such distance, provided however, that if it is desired to sink such new well within said distance, then such new well shall be always located as near as reasonably practicable to the existing old well for which it is to be substituted, as aforesaid.

XXV.

That each and all of the parties to this action, when taking any water from any water source mentioned herein, shall install, and at all times maintain respectively, at every point at which such water is so taken, such measuring box or weir or other measuring device, as will show readily and accurately the quantity of water at the time being taken at such point, which box and weir or other device, shall be installed and maintained as directed by, and to the satisfaction of said committee on water conservation, and shall at all times be open to inspection by an member of said committee, and by any party to this action.

XXVI.

Nothing herein contained shall be construed as vesting any new right in any of the parties hereto, to enter upon and take water from any water development or well situate on any property of any other party hereto, but the provisions of this paragraph shall not impair or affect any existing right of any party hereto.

XXVII.

That the rights of each and all of the said parties to pump water from said Region, as hereinbefore specified and defined are, as between said parties, equal and cor-

relative, without any priority or superiority of right, except as hereinbefore specifically stated or provided as to a particular interest or right, as between particular specified parties.

XXVIII.

That every provision of this decree in favor of, or applying to any party hereto, shall also apply to, and inure to the benefit of, and also bind each and all of the heirs, legal representatives, successors and assigns of such party.

XXIX.

That nothing herein decreed shall impair, abridge, or affect any existing right of any party hereto, which is now established by decree of court, or by other record, to have delivered, or to share in water from the surface flow of said Lytle Creek, except as may hereinbefore be otherwise specifically provided. Nothing herein decreed shall impair, abridge or affect any existing right of any party hereto to practice water conservation by sinking water in said Lytle Creek Canyon.

XXX.

That each and all of the parties hereto, and the agents and employees of each of them, are hereby perpetually restrained and enjoined from doing any act or thing in violation of the provisions of this decree.

XXXI.

None of the several maximum quantities of water which the parties hereto are respectively entitled to take from said Region, and use beyond the confines thereof, as herein specified, shall be increased or affected by the

future acquiring of additional lands in said Region by any of said parties; provided, however, anything to the contrary herein contained notwithstanding, should any party hereto hereafter purchase from any other party hereto the herein specified right to divert water of such other party, such purchasing party shall be entitled to exercise such purchased right of diverting water from said Region, in addition to the right allotted hereunder to such purchasing party.

XXXII.

No objection shall ever be made by any of said parties as to the interest or right of any party, as hereinbefore specified and defined, or as to the validity of this judgment in so specifying or defining such interest or right, on the ground that such interest or right, as so specified or defined, is not consistent with or warranted by the pleadings relative thereto; and if, in any case, it shall appear that any such interest or right, as so specified and defined, is in fact not consistent with or warranted by such pleading as actually filed, then such pleading shall be deemed and treated as amended, to conform to and sustain such interest and right as hereinbefore specified and defined.

XXXIII.

Each of said parties waives all right of appeal from this judgment, and no appeal shall be taken by any party or parties from this judgment or any part thereof.

XXXIV.

No party to this judgment shall be entitled to recover costs from any other party.

Dated: January 28th, 1924.

BENJAMIN F. WARMER,
Judge.

Endorsed:
Filed Jan. 28, 1924

HARRY L. ALLISON, Clerk
By M. L. ALDRIDGE, Deputy.

Docketed: Jan. 30, 1924, at 1:35 o'clock P. M.

Entered: Jan. 28, 1924, Book 41, Page 154.

HARRY L. ALLISON, Clerk
By R. M. SCHMIDT, Deputy Clerk

STATE OF CALIFORNIA,
COUNTY OF SAN BERNARDINO, } ss.

I, HARRY L. ALLISON, County Clerk and ex-officio Clerk of the Superior Court, do hereby certify the foregoing to be a full, true and correct copy of the original on file in my office.

Witness my hand and seal of the Superior Court, this 14th day of Feb., 1924.

HARRY L. ALLISON, County Clerk.
By R. M. SCHMIDT, Deputy.

Recorded at request of Leonard, Surr & Hellyer, Feb. 16, 1924, at 28 minutes past 9.00 A. M., in Book 829, Page 293, of Deeds, Records San Bernardino County.

FULTON G. FERAUD, County Recorder.
By IRENE MCINERNY, Deputy Recorder.
Fee $13.50.

I hereby certify that I have correctly tanscribed this instrument on the records in the office of the Recorder of San Bernardino County.

R. EASTON, Copyist.

Compared:
M. ALEXANDER,—R. EASTON.

AGREEMENT
BETWEEN
BIG BEAR MUNICIPAL WATER DISTRICT
AND
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

This Agreement is entered into between Big Bear Municipal Water District (hereinafter "BIG BEAR") and San Bernardino Valley Municipal Water District (hereinafter "VALLEY MUNICIPAL").

R E C I T A L S

A. BIG BEAR is obligated to release water from Big Bear Lake (hereinafter "Lake") to Bear Valley Mutual Water Company (hereinafter "BEAR VALLEY"), or to provide other water in lieu of releases from the Lake. This obligation arises from the judgment in *Big Bear Municipal Water District* v. *North Fork Water Co. et al.*, Case 165493, Superior Court, County of San Bernardino (hereinafter "1977 Judgment"). The 1977 Judgment also created the Big Bear Watermaster. Under the 1977 Judgment, BEAR VALLEY may call on BIG BEAR to deliver up to 65,000 acre-feet of water from the Lake in any ten-year period if BEAR VALLEY has water in BEAR VALLEY's Lake Account, as determined by the Big Bear Watermaster.

B. BIG BEAR wishes to obtain a long-term supply of in-lieu water to satisfy part of the obligation to deliver water to BEAR VALLEY. VALLEY MUNICIPAL has a long-term water supply contract with the California Department of Water Resources and access to other sources, and wishes to provide in-lieu water to BIG BEAR.

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SBVMWD LEGAL
DOCUMENT 1645

C. If BIG BEAR's Lake Release Policy first adopted May 1, 1987 (hereinafter "Lake Release Policy") had been in effect under the 1977 Judgment, BIG BEAR would have released 2,000 acre-feet of water per year, on average, from the Lake to Bear Creek for use by BEAR VALLEY during the 26-year period, October 1, 1934 to September 30, 1960. This policy is attached as Exhibit "1". BIG BEAR currently removes up to 1,000 acre-feet per year of snow-making water from the Lake, half of which returns to the Lake when the snow melts. The Lake Release Policy contemplates continuation of this activity at current volumes.

D. If the 1977 Judgment, the Lake Release Policy and this Agreement had been in effect in said period, VALLEY MUNICIPAL would have been called upon to deliver to BEAR VALLEY up to 4,500 acre-feet of water per year, on average, as in-lieu water for BIG BEAR.

E. VALLEY MUNICIPAL has instituted litigation against BIG BEAR and others, which litigation seeks a judicial determination of the rights of the water producers and users within the San Bernardino Basin (hereinafter "Basin") to water from the Basin and to water which historically flowed from Bear Creek and the Lake to the Basin. This litigation is currently on appeal in the California Court of Appeal, Fourth District, Division One, in San Diego (No. D020907).

F. BIG BEAR and VALLEY MUNICIPAL wish to enter into an agreement which will satisfy the in-lieu water requirements of BIG BEAR and end said litigation.

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C O V E N A N T S

NOW, THEREFORE, IT IS AGREED by and between the parties hereto as follows:

1. In each calendar year, when BEAR VALLEY demands Lake water pursuant to the 1977 Judgment, BIG BEAR shall make Lake releases to meet such demands to the extent such releases are consistent with the Lake Release Policy. Releases shall be made in response to any demand which BEAR VALLEY is entitled to make pursuant to the 1977 Judgment, whether for irrigation or other purposes. If BIG BEAR acquires any right (a) to store in the Lake reclaimed water currently discharged outside the watershed or other water imported from outside the watershed, or (b) to remove water from the Lake, then the parties shall make reasonable adjustment of this release obligation to allow BIG BEAR to enjoy the benefits of such water, provided that no such adjustment shall have the effect of reducing the average annual quantity of usable Lake releases contemplated under this Agreement.

2. In each calendar year, whenever Lake releases under the Lake Release Policy are not sufficient to meet BEAR VALLEY's Lake release demands, VALLEY MUNICIPAL shall deliver in-lieu water to satisfy the remainder of those demands. For purposes hereof BEAR VALLEY's Lake release demands shall be limited to water which BEAR VALLEY is entitled to demand from BIG BEAR (a) out of its Lake account under the 1977 Judgment, computed using the same formulas and coefficients used in the Big Bear Watermaster Eighteenth Annual Report dated July 26, 1995, or (b) pursuant to subparagraphs 25(e) and 25(f) of the 1977 Judgment. This water can be provided from the State Water Project, wells, the Santa Ana

River, Exchange Water under the "Santa Ana River – Mill Creek Cooperative Water Project Agreement" (dated May 3, 1976 and recorded in Book 9008, Pages 1 *et seq.*, Official Records of San Bernardino County) or any other lawful source. If VALLEY MUNICIPAL's in-lieu deliveries result in an obligation by BIG BEAR to provide Basin Make-up water under the 1977 Judgment (as determined using the same formulas and coefficients used in the Big Bear Watermaster's Eighteenth Annual Report dated July 26, 1995), VALLEY MUNICIPAL shall provide replenishment water to bring the Basin Make-up Account up to the minimum balance contemplated by the 1977 Judgment. For purposes of the immediately preceding sentence, the percentage credit allowance for stock water deliveries for spreading in Table 4.C of said Annual Report shall be assumed to be 0%.

3. Prior to May 1, 1996, VALLEY MUNICIPAL shall pay sufficient amounts into an escrow account to provide for defeasance of BIG BEAR's remaining payments under the 1989 Certificates of Participation which funded purchase of the well and well sites described in Exhibit "2" attached hereto. Immediately after establishment of the escrow account BIG BEAR shall convey by grant deed to VALLEY MUNICIPAL marketable title to said well and well sites.

4. Immediately after execution of this Agreement BIG BEAR shall convey to VALLEY MUNICIPAL, free of liens and unpaid assessments, all right, title and interest in and to all BEAR VALLEY stock now owned by BIG BEAR, as described in Exhibit "3" attached hereto.

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5. BIG BEAR shall pay VALLEY MUNICIPAL the following amounts:

a. Commencing July 1, 1996 and on each July 1 through 2005, BIG BEAR shall pay VALLEY MUNICIPAL the smaller of:

i. $834,000, or

ii. The product of $834,000 times a fraction in which the denominator is BIG BEAR's assessed value for fiscal year 1995-96 and the numerator is BIG BEAR's assessed value for the fiscal year prior to the fiscal year in which the payment is due. Provided that the annual amount paid shall be not less than 90% of $834,000.

b. Commencing July 1, 2006 and on each July 1 through 2016, BIG BEAR shall pay VALLEY MUNICIPAL the larger of:

i. $834,000, or

ii. The product of $834,000 times a fraction in which the denominator is BIG BEAR's assessed value for fiscal year 2004-05 and the numerator is BIG BEAR's assessed value for the fiscal year prior to the fiscal year in which the payment is due.

c. Commencing July 1, 2017 and on each July 1 thereafter during the life of this Agreement, BIG BEAR shall pay VALLEY MUNICIPAL the larger of:

i. $895,000, or

ii. The product of $895,000 times a fraction in which the denominator is BIG BEAR's assessed value for fiscal year 2004-05 and the numerator is BIG BEAR's assessed value

for the fiscal year prior to the fiscal year in which the payment is due.

As used in this section the term "assessed value" means the Total Net Value After RDA as determined by the San Bernardino County Auditor-Controller. For example, the "assessed value" for 1995-96 is $2,087,130,141.

6. BIG BEAR hereby pledges revenues from its general property tax allocation through the County of San Bernardino as sole security for the payments set forth in this Agreement.

7. BIG BEAR shall not acquire stock, or exercise rights pursuant to stock, in water companies within VALLEY MUNICIPAL.

8. As long as VALLEY MUNICIPAL meets its obligation to deliver water hereunder, BIG BEAR shall not drill or operate wells, or cause wells to be drilled or operated on its behalf, within VALLEY MUNICIPAL except wells which may be operated by, or on behalf of, VALLEY MUNICIPAL to meet the terms of this Agreement.

9. BIG BEAR shall keep adequate records of the water level in the Lake and of the date and amount of each release made in response to demands from BEAR VALLEY and shall submit these records annually to VALLEY MUNICIPAL. VALLEY MUNICIPAL shall keep adequate records of the source and quantity of all water it delivers under this Agreement and shall submit these records annually to BIG BEAR.

10. As long as BIG BEAR makes the releases and payments set forth in paragraphs 1 and 5 hereof, VALLEY MUNICIPAL shall not

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make any other claim regarding prior obligations of BIG BEAR to the Basin.

11. Each party to this Agreement shall abandon or dismiss its appeal in the pending litigation (No. D020907), with each party bearing its own costs and attorney fees therein.

12. This Agreement shall remain in force through the term of VALLEY MUNICIPAL's water supply contract with the California Department of Water Resources, as it may be extended from time to time.

13. This Agreement may be amended only by written agreement of the Parties hereto pursuant to action of their respective boards of directors.

14. **ARBITRATION OF DISPUTES:**

Any disputes between the Parties arising from this Agreement shall be resolved by binding arbitration in accordance with the California Code of Civil Procedure, Part III, Title 9 (commencing with section 1280) and Title 9.3 (commencing with section 1298). Provided, however, parties shall be entitled to discovery under the rules of the Code of Civil Procedure, the arbitrator(s) shall issue a written opinion adequately explaining the basis of the award, and in any proceeding to confirm, correct or vacate an award, the court may consider and correct errors of law.

NOTICE: BY INITIALLING IN THE SPACE BELOW YOU ARE AGREEING TO HAVE ANY DISPUTE ARISING OUT OF THE MATTERS INCLUDED IN THE 'ARBITRATION OF DISPUTES' PROVISION DECIDED BY NEUTRAL ARBITRATION AS PROVIDED BY CALIFORNIA LAW AND YOU ARE GIVING UP ANY RIGHTS YOU MIGHT POSSESS TO HAVE THE DISPUTE LITIGATED IN A COURT OR JURY TRIAL. BY INITIALLING IN THE SPACE BELOW YOU ARE GIVING UP YOUR JUDICIAL RIGHTS TO DISCOVERY AND APPEAL, UNLESS THOSE RIGHTS ARE SPECIFICALLY INCLUDED IN THE 'ARBITRATION OF DISPUTES' PROVISION. IF YOU REFUSE TO SUBMIT TO ARBITRATION AFTER AGREEING TO THIS

PROVISION, YOU MAY BE COMPELLED TO ARBITRATE UNDER THE AUTHORITY OF THE CALIFORNIA CODE OF CIVIL PROCEDURE. YOUR AGREEMENT TO THIS ARBITRATION PROVISION IS VOLUNTARY.

WE HAVE READ AND UNDERSTAND THE FOREGOING AND AGREE TO SUBMIT DISPUTES ARISING OUT OF THE MATTERS INCLUDED IN THE 'ARBITRATION OF DISPUTES' PROVISION TO NEUTRAL ARBITRATION.

If the dispute in arbitration involves changes in circumstances after execution of this Agreement, the arbitrator(s) shall consider any remedies which may be legally available in response to such changes.

15. Nothing in this Agreement is intended to create, nor shall anything herein be construed as creating, any rights in, benefits for or obligations to, any person or entity other than BIG BEAR and VALLEY MUNICIPAL.

16. This Agreement shall be effective as of the date set forth below.

IN WITNESS WHEREOF this Agreement is executed by the persons authorized by the parties' respective Boards of Directors.

DATED: February 1, 1996

BIG BEAR
MUNICIPAL WATER DISTRICT

By: _____

By: _____

SAN BERNARDINO VALLEY
MUNICIPAL WATER DISTRICT

By: _____

By: _____

EXHIBIT "1"

Big Bear Municipal Water District's Lake Release Policy was first adopted on May 1, 1987.

Policy states:

"1. When the Lake is within the top four feet, the irrigation demands from Bear Valley Mutual will be met with Lake releases;

2. When the Lake is between four and six feet below full, the District intends to obtain in-lieu water between the months of May 1 and October 31. Between November 1 and April 30, water required would be released from Big Bear Lake.

3. When the Lake is between six and seven feet below full, the Board of Directors shall determine whether to release from the Lake;

4. When the Lake is more than seven feet below full, the District intends to obtain in-lieu water throughout the year."

EXHIBIT "2"

Big Bear Municipal Water District Well Sites and Well

1. Well site only San Bernardino County APN 168-091-07.

2. Well site and well San Bernardino County APN 168-091-08.

These sites are as shown on San Bernardino County Assessor's Map Book 0168 Page 09 which follows and further described in the Grant Deed recorded as document 88-323072 in the Official Records of San Bernardino County.

EXHIBIT "2"

Order No. 919783
Escrow No. 10604-JP
Loan No.

RECORDED AT THE REQUEST OF FIRST AMERICAN TITLE INSURANCE CO.

WHEN RECORDED MAIL TO:

Big Bear Municipal
Water District
P.O. Box 2863
Big Bear Lake, CA 92315

FEE			TP
Ø			
S SVY	$ 29	UTT	50
10	42.90	G	

RECORDED IN OFFICIAL RECORDS
SEP 27 1988 AT 8:00 AM
SAN BERNARDINO COUNTY, CALIF.

88-323072

SPACE ABOVE THIS LINE FOR RECORDER'S USE

MAIL TAX STATEMENTS TO:

SAME

DOCUMENTARY TRANSFER TAX $ 42.90

X Computed on the consideration or value of property conveyed; OR
..... Computed on the consideration or value less liens or encumbrances remaining at time of sale.

Signature of Declarant or Agent determining tax — Firm Name

GRANT DEED PORTION OF 168-091-06

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,

AIRPORT INDUSTRIAL, a California Limited Partnership

hereby GRANT(S) to

BIG BEAR MUNICIPAL WATER DISTRICT

the real property in the City of Redlands
County of SAN BERNARDINO, State of California, described as

COMPLETE LEGAL DESCRIPTION ATTACHED AND MADE A PART HERETO

AS EXHIBIT "A"

919783 ok

THE RIGHT OF ENTRY TO THESE WELL SITES SHALL BE OFF OF SAN BERNARDINO AVENUE.

Airport Industrial, a California
Limited Partnership

By: Western International Associates

By: Houshang Sanai

By: Khosrow Sohrab

Dated July 28, 1988

STATE OF CALIFORNIA
COUNTY OF ..... } ss.

On .....

before me, the undersigned, a Notary Public in and for said State, personally appeared .....

.....

.....

personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same.

WITNESS my hand and official seal.

Signature .....

(This area for official notarial seal)

1002 (6/82)

MAIL TAX STATEMENTS AS DIRECTED ABOVE

EXHIBIT "2"

88-323072

EXHIBIT "A"

LEGAL DESCRIPTION OF PROPERTY FOR BIG BEAR MUNICIPAL WATER DISTRICT

Well Site #2:

All that portion of the Southwest 1/4 of the Southeast 1/4 of Section 13, Township 1 South, Range 3 West, SAN BERNARDINO MERIDIAN, in the City of Redlands, County of San Bernardino, State of California, described as follows:

COMMENCING at the Southeast corner of said Section 13 in the centerline of 66 foot wide San Bernardino Avenue; thence along said centerline, South 89° 13' 16" West 1620.00 feet; thence at right angles leaving said centerline, North 0° 46' 44" West 44.00 feet to the TRUE POINT OF BEGINNING; thence from the TRUE POINT OF BEGINNING, continuing North 0° 46' 44" West 50.00 feet; thence North 89° 13' 16" East 50.00 feet; thence South 0° 46' 44" East 50.00 feet; thence South 89° 13' 16" West 50.00 feet to the TRUE POINT OF BEGINNING.

Well Site #3:

All that portion of the Southeast 1/4 of the Southeast 1/4 of Section 13, Township 1 South, Range 3 West, SAN BERNARDINO MERIDIAN, in the City of Redlands, County of San Bernardino, State of California, described as follows:

COMMENCING at the Southeast corner of said Section 13 in the centerline of 66 foot wide San Bernardino Avenue; thence along said centerline, South 89° 13' 16" West 620.00 feet; thence at right angles leaving said centerline, North 0° 46' 44" West 44.00 feet to the TRUE POINT OF BEGINNING; thence from the TRUE POINT OF BEGINNING, continuing North 0° 46' 44" West 50.00 feet; thence North 89° 13' 16" East 50.00 feet; thence South 0° 46' 44" East 50.00 feet; thence South 89° 13' 16" West 50.00 feet to the TRUE POINT OF BEGINNING.

Prepared by: H. R. Hartwick

March 22, 1988

LICENSED LAND SURVEYOR
No. 2031
Expires June, 1988
STATE OF CALIFORNIA

EXHIBIT "2"

[redacted]

Acknowledgment Partnership

STATE OF CALIFORNIA
COUNTY OF ORANGE } ss

88-323072

On this 28th day of July 19 88 before me, the undersigned a Notary Public in and for said County and State, personally appeared Houshang Sanai

personally known to me (or proved to me on the basis of satisfactory evidence) to be an individual doing business as Western International Associates one of the general partners of the partnership that executed the within instrument, and acknowledged to me that such partnership executed the same.
WITNESS my hand and official seal.

Susan Mae Kibel
Notary signature

OFFICIAL SEAL
SUSAN MAE KIBEL
NOTARY PUBLIC - CALIFORNIA
ORANGE COUNTY
My comm. expires MAR 8, 1991

(This area for official seal)

Acknowledgment Partnership

STATE OF CALIFORNIA
COUNTY OF ORANGE } ss.

On this 28th day of July 19 88 before me, the undersigned, a Notary Public in and for said County and State, personally appeared Khosrow Sohrab

personally known to me (or proved to me on the basis of satisfactory evidence) to be one of the general partners of the partnership that executed the within instrument, and acknowledged to me that such partnership executed the same.
WITNESS my hand and official seal.

Debra Campbell
Notary signature

OFFICIAL SEAL
DEBRA CAMPBELL
NOTARY PUBLIC - CALIFORNIA
ORANGE COUNTY
My Comm. Expires April 24, 1992

(This area for official seal)

EXHIBIT "2"

88-323072

R.V.E. CO. REC'D JUL 1 [illegible]

THIS IS TO CERTIFY THAT THE INTEREST IN THE REAL PROPERTY CONVEYED BY THE WITHIN INSTRUMENT TO BIG BEAR MUNICIPAL WATER DISTRICT, A BODY CORPORATE AND POLITIC, IS HEREBY ACCEPTED BY ORDER OF THE BOARD OF DIRECTORS MADE ON FEBRUARY 26, 1988 AND THE GRANTEE CONSENTS TO THE RECORDATION THEREOF BY ITS DULY AUTHORIZED OFFICER.

Richard A Lewsader

RICHARD A. LEWSADER
SECRETARY/TREASURER OF THE BIG BEAR MUNICIPAL WATER DISTRICT AND THE BOARD OF DIRECTORS THEREOF

EXHIBIT "3"

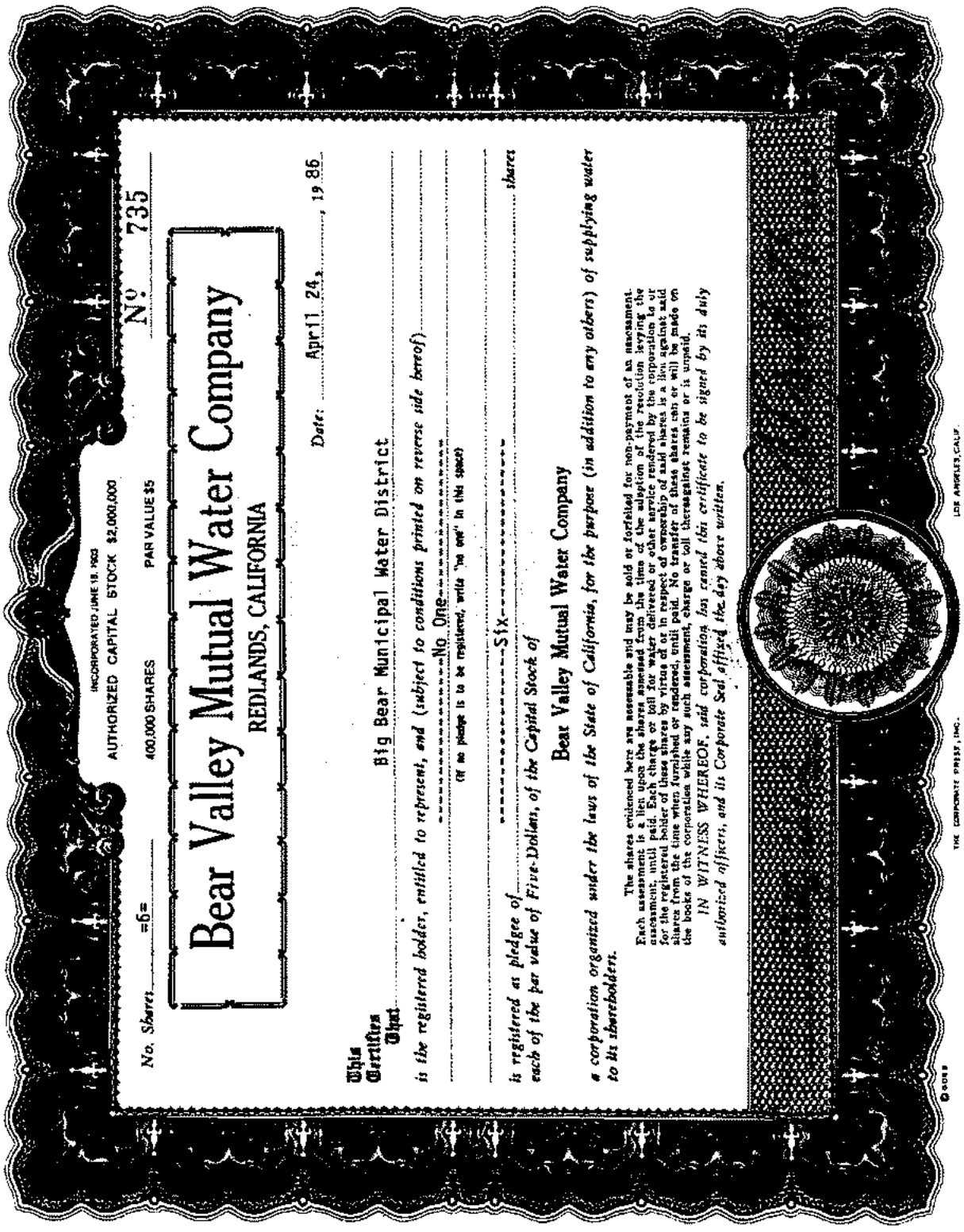
Big Bear Municipal Water District

Bear Valley Mutual Water Company Stock Ownership

5 attached stock certificates summarized below:

No. 735	April 24, 1986	6 Shares
No. 771	March 16, 1987	950 Shares
No. 823	February 29, 1988	200 Shares
No. 879	January 25, 1989	19,870 Shares
No. 1044	January 8, 1993	154 Shares
	Total	21,180 Shares

EXHIBIT "3"



INCORPORATED JUNE 18, 1903

AUTHORIZED CAPITAL STOCK $2,000,000

No. 735

Bear Valley Mutual Water Company

REDLANDS, CALIFORNIA

No. Shares =6= 400,000 SHARES PAR VALUE $5

Date: April 24, 1986

This Certifies That Big Bear Municipal Water District

is the registered holder, entitled to representations printed on reverse side hereof) No One

(If no pledge is to be registered, write "no one" in this space)

is registered as pledge of Six shares each of the par value of Five Dollars, of the Capital Stock of

Bear Valley Mutual Water Company

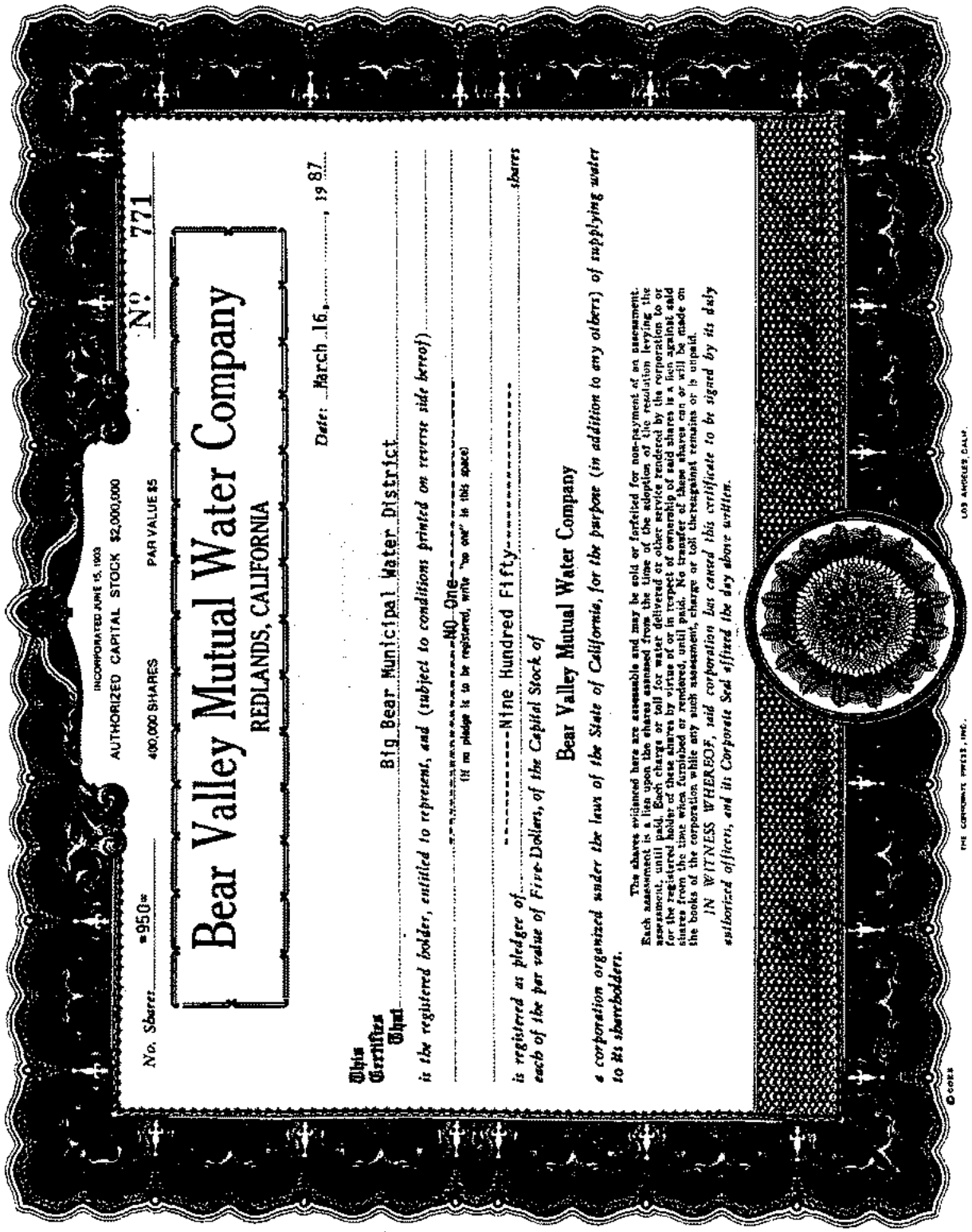
a corporation organized under the laws of the State of California, for the purpose (in addition to any others) of supplying water to its shareholders.

The shares evidenced here are assessable and may be sold or forfeited for non-payment of an assessment. Each assessment is a lien upon the shares assessed from the time of the adoption of the resolution levying the assessment, until paid. Each charge or toll for water delivered or other service rendered by the corporation to or for the registered holder of these shares by virtue of or in respect of ownership of said shares is a lien against said shares from the time when furnished or rendered, until paid. No transfer of these shares can or will be made on the books of the corporation while any such assessment, charge or toll thereagainst remains or is unpaid.

IN WITNESS WHEREOF, said corporation has caused this certificate to be signed by its duly authorized officers, and its Corporate Seal affixed the day above written.

THE CORPORATE PRESS, INC. LOS ANGELES, CALIF.

EXHIBIT "3"



INCORPORATED JUNE 15, 1903

AUTHORIZED CAPITAL STOCK $2,000,000

No. 771

No. Shares 950

400,000 SHARES PAR VALUE $5

Bear Valley Mutual Water Company

REDLANDS, CALIFORNIA

Date: March 16, 1987

This Certifies that Big Bear Municipal Water District

is the registered holder, entitled to represent, and (subject to conditions printed on reverse side hereof)

NO One

(If no pledge is to be registered, write "no one" in this space)

is registered as pledgee of Nine Hundred Fifty shares

each of the par value of Five Dollars, of the Capital Stock of

Bear Valley Mutual Water Company

a corporation organized under the laws of the State of California, for the purpose (in addition to any others) of supplying water to its shareholders.

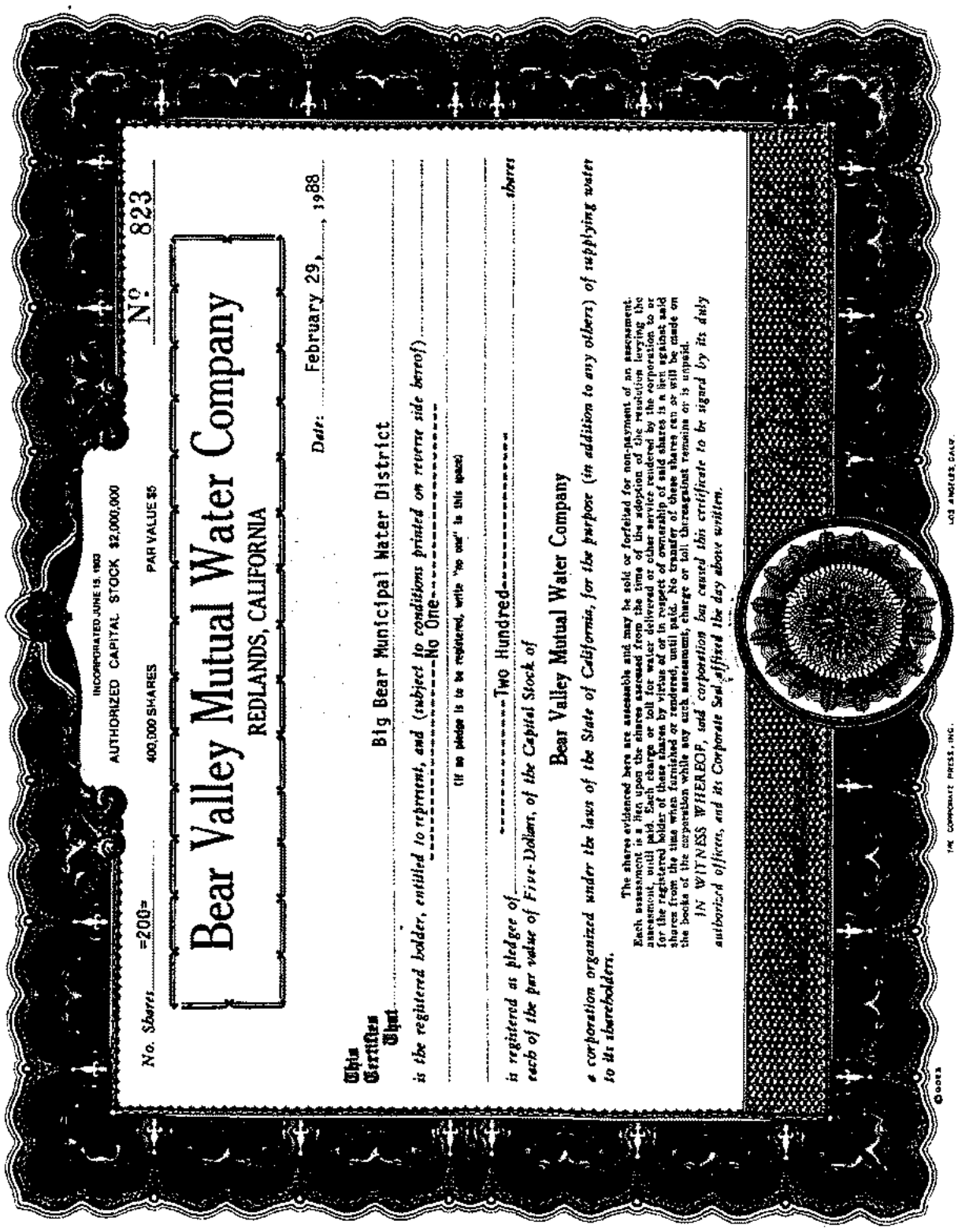
The shares evidenced here are assessable and may be sold or forfeited for non-payment of an assessment. Each assessment is a lien upon the shares assessed from the time of the adoption of the resolution levying the assessment, until paid. Each charge or toll for water delivered or other service rendered by the corporation to or for the registered holder of these shares by virtue of or in respect of ownership of said shares is a lien against said shares from the time when furnished or rendered, until paid. No transfer of these shares can or will be made on the books of the corporation while any such assessment, charge or toll thereagainst remains or is unpaid.

IN WITNESS WHEREOF, said corporation has caused this certificate to be signed by its duly authorized officers, and its Corporate Seal affixed the day above written.

©6883

THE CORPORATE PRESS, INC., LOS ANGELES, CALIF.

EXHIBIT "3"



INCORPORATED JUNE 15, 1923

AUTHORIZED CAPITAL STOCK $2,000,000

No. 823

Bear Valley Mutual Water Company

REDLANDS, CALIFORNIA

No. Shares =200= 400,000 SHARES PAR VALUE $5

Date: February 29, 1988

This Certifies that Big Bear Municipal Water District

is the registered holder, entitled to representation, and (subject to conditions printed on reverse side hereof) No One

(If no pledge is to be registered, write "no one" in this space)

is registered as pledge of Two Hundred shares

each of the par value of Five Dollars, of the Capital Stock of

Bear Valley Mutual Water Company

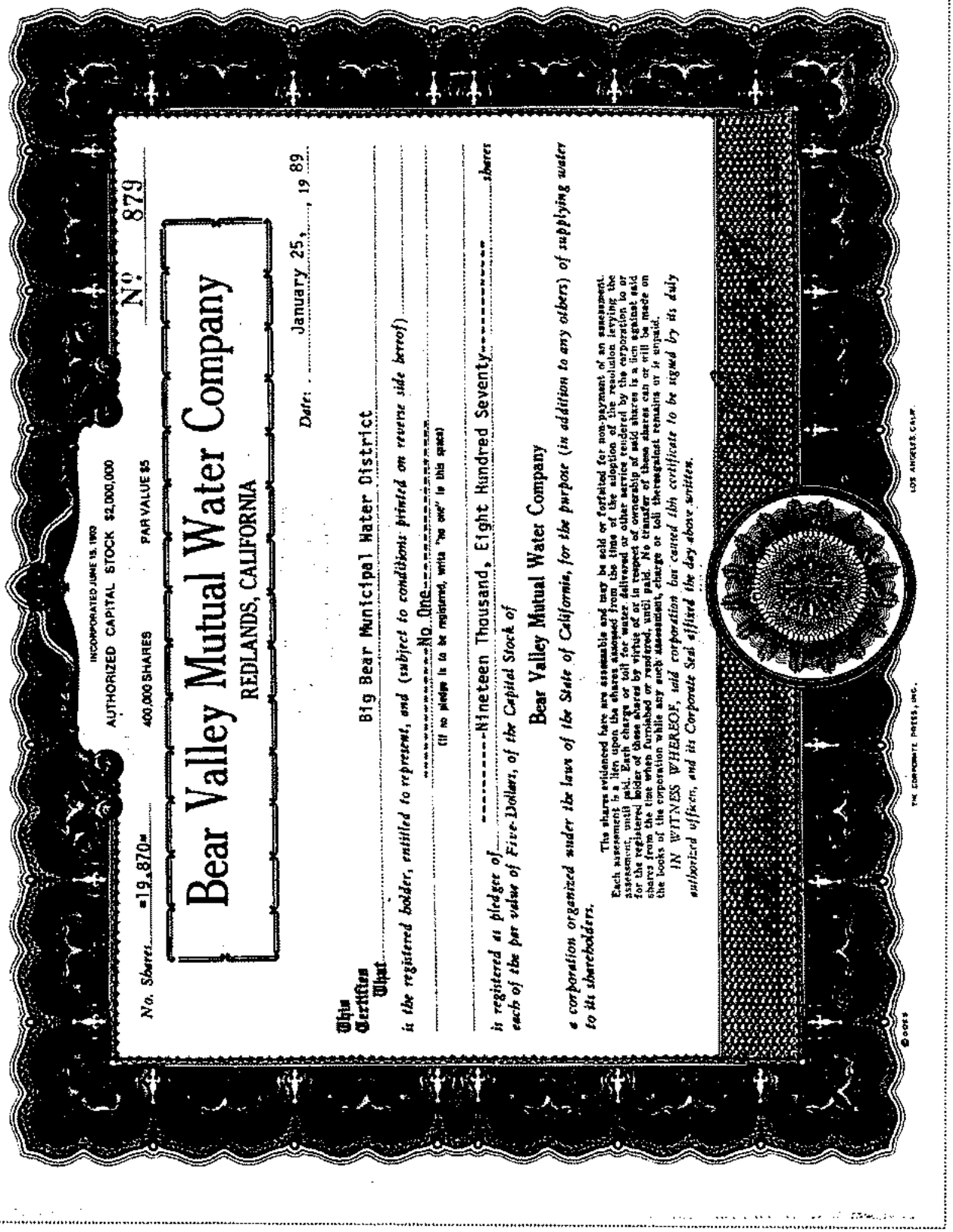
a corporation organized under the laws of the State of California, for the purpose (in addition to any others) of supplying water to its shareholders.

The shares evidenced here are assessable and may be sold or forfeited for non-payment of an assessment. Each assessment is a lien upon the shares assessed from the time of the adoption of the resolution levying the assessment, until paid. Each charge or toll for water delivered or other service rendered by the corporation to or for the registered holder of these shares by virtue of or in respect of ownership of said shares is a lien against said shares from the time when furnished or rendered, until paid. No transfer of these shares can be will be made on the books of the corporation while any such assessment, charge or toll thereagainst remains or is unpaid.

IN WITNESS WHEREOF, said corporation has caused this certificate to be signed by its duly authorized officers, and its Corporate Seal affixed the day above written.

THE CORPORATE PRESS, INC. LOS ANGELES, CALIF.

EXHIBIT "3"



INCORPORATED JUNE 15, 1900

AUTHORIZED CAPITAL STOCK $2,000,000

No. 879

No. Shares 19,870

400,000 SHARES PAR VALUE $5

Bear Valley Mutual Water Company

REDLANDS, CALIFORNIA

Date: January 25, 1989

This Certifies That Big Bear Municipal Water District

is the registered holder, entitled to represent, and (subject to conditions printed on reverse side hereof) ..... No. One .....

(If no pledge is to be registered, write "no one" in this space)

is registered as pledgee of ----------Nineteen Thousand, Eight Hundred Seventy---------- shares each of the par value of Five Dollars, of the Capital Stock of

Bear Valley Mutual Water Company

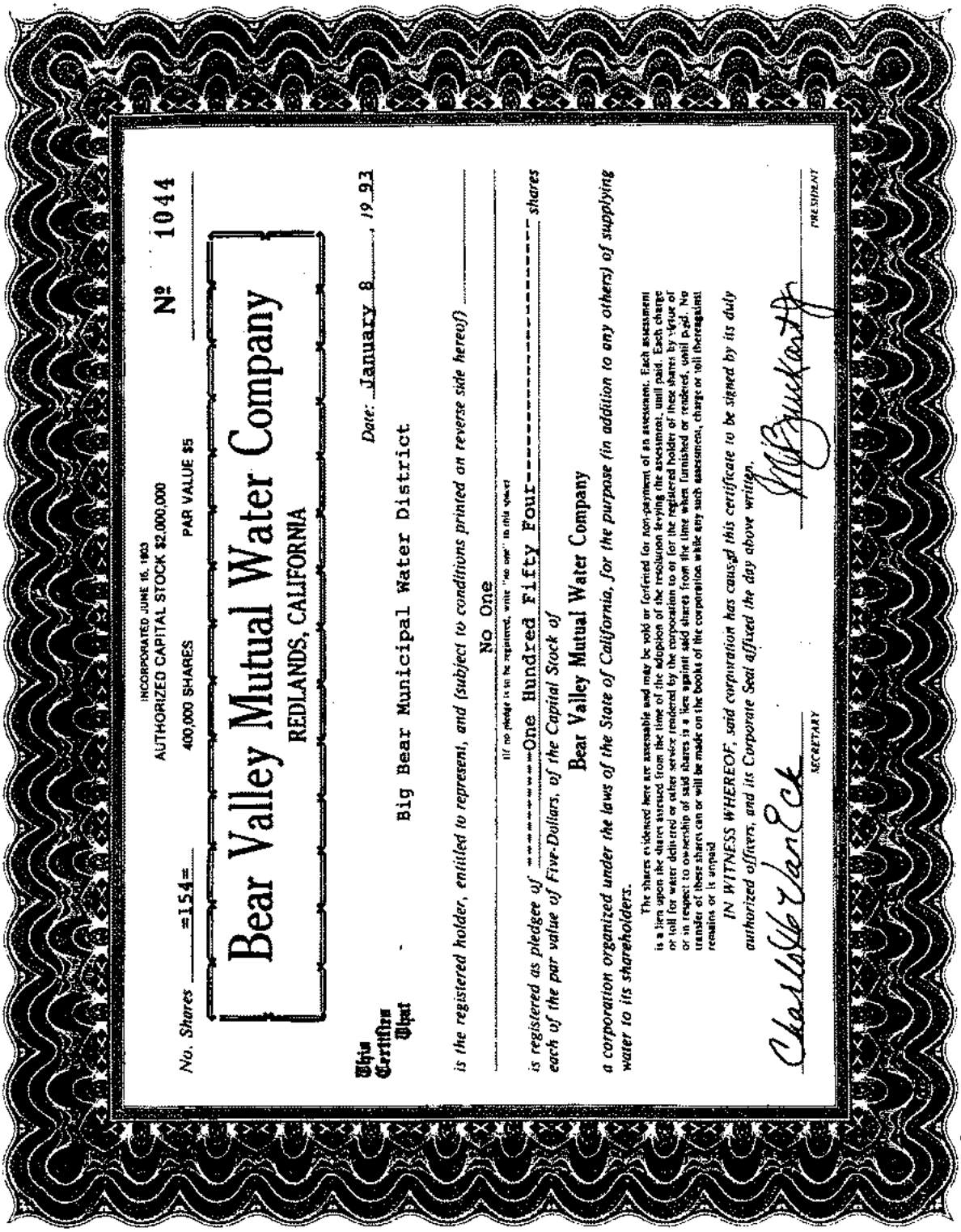
a corporation organized under the laws of the State of California, for the purpose (in addition to any others) of supplying water to its shareholders.

The shares evidenced here are assessable and may be sold or forfeited for non-payment of an assessment. Each assessment is a lien upon the shares assessed from the time of the adoption of the resolution levying the assessment, until paid. Each charge or toll for water delivered or other service rendered by the corporation, to or for the registered holder of these shares by virtue of or in respect of ownership of said shares is a lien against said shares from the time when furnished or rendered, until paid. No transfer of these shares can or will be made on the books of the corporation while any such assessment, charge or toll thereagainst remains or is unpaid.

IN WITNESS WHEREOF, said corporation has caused this certificate to be signed by its duly authorized officers, and its Corporate Seal affixed the day above written.

THE CORPORATE PRESS, INC. LOS ANGELES, CALIF.

EXHIBIT "3"



Bear Valley Mutual Water Company

REDLANDS, CALIFORNIA

INCORPORATED JUNE 16, 1903

AUTHORIZED CAPITAL STOCK $2,000,000

No. Shares =154= 400,000 SHARES PAR VALUE $5

№ 1044

This Certifies That Big Bear Municipal Water District

Date: January 8, 19 93

is the registered holder, entitled to represent, and (subject to conditions printed on reverse side hereof) No One

(If no pledge is to be registered, write "no one" in this space)

is registered as pledgee of One Hundred Fifty Four shares each of the par value of Five Dollars, of the Capital Stock of

Bear Valley Mutual Water Company

a corporation organized under the laws of the State of California, for the purpose (in addition to any others) of supplying water to its shareholders.

The shares evidenced here are assessable and may be sold or forfeited for non-payment of an assessment. Each assessment is a lien upon the shares assessed from the time of the adoption of the resolution levying the assessment, until paid. Each charge or toll for water delivered or other service rendered by the corporation to or for the registered holder of these shares by virtue of or in respect to ownership of said shares is a lien against said shares from the time when furnished or rendered, until paid. No transfer of these shares can or will be made on the books of the corporation while any such assessment, charge or toll thereagainst remains or is unpaid

IN WITNESS WHEREOF, said corporation has caused this certificate to be signed by its duly authorized officers, and its Corporate Seal affixed the day above written.

Charlotte VanEck — SECRETARY

[signature] — PRESIDENT

SURPLUS WATER SALE AGREEMENT

This Surplus Water Sale Agreement ("Agreement") is made and entered into as of 6th day of June, 2018, by and between the SAN GORGONIO PASS WATER AGENCY ("Agency") and SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT ("District"). Agency and District are sometimes individually referred to herein as a "Party" and collectively as the "Parties".

RECITALS

A. Agency and District are state water contractors and regional water agencies that provide water on a wholesale basis to retail water providers and other public agencies within their respective service areas. There are two retail water providers that are within the service areas of both Agency and District. Those retailers are the Yucaipa Valley Water District and the South Mesa Water Company (collectively referred to as "Retailers"); and

B. Agency desires additional water supplies of all kinds to improve its water supply reliability, including wet year yield; and

C. Agency and District have a long history of cooperative efforts to serve water to their respective service areas, including water exchanges and sharing capacity in the East Branch Extension; and

D. District anticipates that from time to time, it may have surplus State Water Project water ("Surplus Water") that is surplus to the needs of its retail customers; and

E. District has adopted its Ordinance 79 which establishes procedures for the surplus and sale of surplus State Water Project Water; and

F. District desires to provide Agency the first right of refusal to purchase up to 5,000 acre-feet of District's Surplus Water per calendar year; and

G. Agency desires to purchase Surplus Water from District under the terms and conditions set forth in this Agreement and in a manner that is consistent with Ordinance 79.

NOW THEREFORE, in consideration of the foregoing recitals and the promises and covenants contained herein, the Parties agree as follows:

1. **Term of Agreement.**

The term of this Agreement shall commence on January 1, 2018 and end on December 31, 2032. ("Term").

2. **Purchase and Sale of Surplus Water.**

(a) District may determine, in its sole discretion, the amount of Surplus Water that will be available for purchase during each calendar year of the term of this Agreement. Notwithstanding the foregoing, if District determines that Surplus Water is available, District shall provide Agency the right of first refusal to purchase up to the first 5,000 acre feet of said Surplus Water.

(b) On or before June 15 of each year during the Term, District shall provide notice to Agency of the amount of Surplus Water that is available for purchase for that calendar year. Agency shall then have 30 days from the date of said notice to notify District of the amount of said Surplus Water that it wishes to purchase for that applicable year.

3. **Purchase Price for Surplus Water.**

The purchase price for Surplus Water delivered by District to Agency shall be the sum of the costs as calculated in subsections (a) and (b) below.

(a) The cost of the water shall be based on the State Water Project Table A allocation as determined for the applicable year as follows:

Final SWP Allocation	Cost Per Acre-Foot
0 - 20%	$400
21 - 40%	$300
41 - 60%	$200
61 - 100%	$100

(b) The power cost to move the Surplus Water through the State Water Project facilities, District facilities, and then to the Point of Delivery as defined herein, shall be paid as follows: (i) Agency shall pay to District power costs at the power cost rate established for the State Water Project for the applicable year. The actual power costs shall be reconciled on or before the end of the calendar year following the year of the delivery. In the event it is determined that Agency has underpaid power costs, Agency shall make payment for the amount owed to District within 30 days of said determination. In the event it is determined that Agency has overpaid power costs, Agency may elect to either receive payment from District within 30 days from the date of said determination or to apply said amount as a credit toward power costs for a subsequent year.

(c) On or before expiration of each 5-year period during the Term, the Parties shall meet and confer in good faith in regard to whether the amount and/or calculation of the purchase price should be changed. In the event the Parties cannot agree as to a new or different amount or calculation, then either Party shall have the right to terminate this Agreement. Unless a Party elects to so terminate this Agreement, the purchase price then in effect shall remain in effect unless or until the Parties reach an agreement to make any such change.

4. **Delivery of Water.**

(a) **Point of Delivery.** The physical point of delivery ("Point of Delivery") of Surplus Water pursuant to this Agreement includes, but is not limited to, the following locations:

Delivery Location	Reach Number
Various locations in the San Bernardino Basin	EBX – 1, 2A, 2B, 2C
Various locations in the Yucaipa Basin	EBX – 3B
Various locations in the Beaumont Basin;	EBX – 4A, 4B

(b) **Delivery Schedule.** District will cooperate with Agency to coordinate for the delivery at the Point of Delivery upon a mutually agreeable delivery schedule.

5. **Use of Water in the San Gorgonio Pass Water Agency Service Area.** Agency shall only purchase the amount of Surplus Water that it is able to put to beneficial use within its service area.

6. **Resale of Surplus Water.** During the applicable year, Agency shall first offer to sell fifty percent (50%) of any Surplus Water to the Retailers, per the current pricing policy of Agency.

The Retailers share of Surplus Water described in this Section will be equally divided up to a Retailer share of two thousand (2,000) acre-feet. Any Retailer share more than 2,000 acre-feet will be offered to the Retailers in proportion to the amount of imported water each Retailer has purchased from Agency over the previous 3 calendar years.

Each Retailer shall notify Agency within 30 days of said offer as to whether, and to what extent, each Retailer desires to purchase Surplus Water. If one Retailer elects not to purchase any share, or elects to purchase less than its share, then the balance shall be made available to the other Retailer.

In the event the Retailers elect not to purchase all of the water described in this Section, Agency may purchase the remainder of the water.

7. **Regulatory Requirements**. The implementation of this Agreement shall be subject to satisfaction by District and Agency of applicable legal and regulatory requirements.

8. **Default and Termination**. In the event either Party fails to make any payment under this Agreement when due, or fails to perform any obligation otherwise required by this Agreement, the non-defaulting Party shall demand in writing that the defaulting Party cure such non-performance. The defaulting Party shall have ninety (90) days after receipt of such demand to cure. In the event the defaulting Party fails to cure a default within the ninety (90) day period, the non-defaulting Party may pursue any applicable action in law or equity including, but not limited to, termination, specific performance and/or damages for breach of this Agreement.

9. **Entire Agreement**. This Agreement contains the entire understanding between the Parties with respect to its subject matter, and supersedes all prior agreements, oral or written, and all prior or contemporaneous discussions or negotiations between the Parties. This Agreement cannot be amended except in writing signed by both Parties.

10. **No Waiver**. Any failure or delay on the part of either Party to exercise any right under this Agreement shall not constitute a waiver of the right, and shall not preclude such Party from exercising or enforcing the right, or any other provision of this Agreement, on any subsequent occasion.

11. **Notices**. All notices or other communications required or desired to be given pursuant to this Agreement shall be in writing and shall be hand-delivered or sent by a reputable overnight courier service providing delivery confirmation. Each such notice or communication shall be deemed to be duly given when hand-delivered or one (1) day after being deposited for next day delivery with an overnight courier. Each such notice or communication shall be

addressed to the Parties at their respective addresses set forth next to their signatures below, or such other address as a Party notifies the other in writing.

12. **Severability**. If any provision of this Agreement is finally determined by a court to be invalid or unenforceable as written, the provision shall, if possible, be enforced to the extent reasonable under the circumstances and otherwise shall be deemed deleted from this Agreement. The other provisions of this Agreement shall remain in full force and effect so long as the material purposes of the Agreement and understandings of the Parties are not impaired.

IN WITNESS WHEREOF, the Parties have executed this agreement as of the date first written above.

DISTRICT:

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: Douglas D. Headrick

Name: Douglas D. Headrick

Title: General Manager

Address: 380 E. Vanderbilt Way
San Bernardino, CA 92408

AGENCY:

SAN GORGONIO PASS WATER AGENCY

By: Jeffrey W Davis

Name: Jeff Davis

Title: General Manager

Address: 1210 Beaumont Ave
Beaumont, CA 92223

EXHIBIT A

Resale of Surplus Water Examples

			Amount to Each Retailer	
Amount of Surplus Water	SGPWA	Total Retailer Share	SMWC	YVWD
1,000 AF	500 AF	500 AF	250 AF	250 AF
2,000 AF	1,000 AF	1,000 AF	500 AF	500 AF
5,000 AF	2,500	2,500 AF	1,000 AF + PROPORTION OF 500	1,000 AF + PROPORTION OF 500

PROPORTION OF 500: The remaining 500 AF will be proportioned per Section 6 of this agreement, in proportion to the amount of SWP water each retailer purchased over the previous three (3) years

FOUR PARTY IMPLEMENTATION AGREEMENT

This Implementation Agreement ("Agreement") is made and entered into on the Effective Date (as defined herein) by and between Emhart Industries, Inc. ("Emhart"), the City of Rialto and the Rialto Utility Authority (collectively, "Rialto"), the City of Colton, ("Colton"), and the County of San Bernardino ("County"). Emhart, Rialto, Colton and the County are referred to individually herein as a "Party" and collectively as the "Parties."

RECITALS

The Purpose of this Agreement

A. This Agreement facilitates implementation of the interim remedial action required by the Consent Decree (Dkt. No. 1820) entered on July 2, 2013, by the United States District Court for the Central District of California (the "District Court"), in *City of Colton v. American Promotional Events, Inc.-West, et al.*, Case No. ED CV 09-01864 PSG (SSx), and related consolidated actions (the "Work Consent Decree").

B. The remedial action required by the Work Consent Decree was selected and approved, and will be overseen, by the United States Environmental Protection Agency ("USEPA" or "EPA") pursuant to its authority under the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), 42 U.S.C. § 9601, *et seq*. (the "EPA Remedy," as defined below). The EPA Remedy is designed to capture and remove perchlorate and trichloroethylene ("TCE") in groundwater in the Rialto-Colton Groundwater Basin ("Basin") emanating from a 160-acre parcel located in Rialto, California (the "160-Acre Parcel").

C. As set forth herein and in the County/Emhart Implementation Agreement, the EPA Remedy will be combined with an existing groundwater extraction and treatment remedy designed and constructed by the County to capture and remove perchlorate and TCE in the Basin as required by the California Regional Water Quality Control Board, Santa Ana Region (the "Regional Board Remedy," as defined below).

D. Upon Emhart's completion of construction and permitting necessary to combine the EPA Remedy and the Regional Board Remedy ("Combined

Remedies," as defined below), Rialto will operate the Combined Remedies to provide potable drinking water to Rialto's and, if necessary, Colton's municipal water supply systems.

The Regional Board Remedy

E. In January 2003, the Regional Water Quality Control Board, Santa Ana Region ("Regional Board") adopted Cleanup and Abatement Order No. R8-2003-0013, which required the County to develop and implement a remedial action to abate perchlorate in groundwater in the Basin allegedly migrating from County property ("Cleanup Order"). In September 2004, the Regional Board adopted Order No. R8-2004-0072, amending the Cleanup Order to require the County to provide Rialto with replacement water for City of Rialto Well No. 3 ("CR-3") ("Water Replacement Order"). The Cleanup Order and the Water Replacement Order are collectively referred to herein as the "Regional Board Order."

F. In 2005, pursuant to the Regional Board Order, the County completed a remedial investigation and feasibility study ("RI/FS") which identified a former bunker area where munitions had been stored during the Second World War ("Bunker Area") and the Stonehurst Property (which is not owned or operated by the County) as potential source areas of perchlorate subject to the Regional Board Order. The RI/FS and subsequent studies by the County concluded that current and past disposal units of the Mid-Valley Sanitary Landfill ("MVSL") were not sources of perchlorate contamination. The RI/FS concluded that perchlorate and VOC impacts to groundwater near CR-3 likely originated in source areas located in the vicinity of Unit 5 of the MVSL and/or the Stonehurst Property.

G. In 2005, the County and Rialto entered into an agreement titled "Water Replacement Order Implementation Agreement and Water Rights Lease," effective April 1, 2005 ("County/Rialto Implementation Agreement"), which, among other things, facilitates the County's compliance with the Regional Board Order.

H. In 2006, the County commenced operation of the Regional Board Remedy under the oversight of the Regional Board pursuant to the Regional Board Order. In December 2007, the County issued an updated design report that proposed to install two additional groundwater extraction wells, now known as

Miro-2 and Miro-3, to be connected to the treatment plant at CR-3. In February 2008, the Regional Board approved this plan as proposed by the County. In July 2011, the County submitted to the Regional Board an Operations, Monitoring and Maintenance Plan ("OMMP"), which among other things, proposed to vary the production rate from the Regional Board Remedy by season, to enable the output from the County's groundwater treatment plant to better match the Rialto seasonal water demand (compared to operating at a fixed rate 24 hours a day, 365 days a year). In February 2012, the Regional Board approved the OMMP pumping schedule as proposed by the County. As the permitee under its Domestic Water Supply Permit No. 71-009, Rialto operates the County's groundwater treatment plant located on Linden Avenue adjacent to CR-3 as set forth in the County/Rialto Implementation Agreement.

I. In August 2010, the County, Colton, and Rialto entered into a Standby Agreement whereby the County leased certain water rights from Colton ("County/Colton/Rialto Standby Agreement"), which, among other things, further facilitates the County's compliance with the Regional Board Order.

The EPA Remedy

J. In January 2009, USEPA commenced its RI/FS process for the 160-Acre Parcel, which is located immediately north and east of the County's MVSL. In September 2009, USEPA listed the 160-Acre Parcel on the National Priorities List ("NPL") as the B.F. Goodrich Superfund Site. By placing the B.F. Goodrich Superfund Site on the NPL, USEPA assumed jurisdiction and control over its cleanup. On December 11, 2013, USEPA changed the name of the B.F. Goodrich Superfund Site to the Rockets, Fireworks, and Flares Superfund Site.

K. In September 2010, the USEPA issued the *Interim Action Record of Decision* for the Source Area Operable Unit ("SAOU") of the B.F. Goodrich Superfund Site ("2010 ROD"), requiring the installation, operation, and maintenance of a groundwater pump-and-treat system to intercept and control the spread of contaminated groundwater from the 160-Acre Parcel.

Federal Court Actions

L. In 2004, Rialto filed an action in the District Court, known as *City of Rialto v. United States Department of Defense et al.*, Civil Action No. ED CV 04-00079-PSG-SSx. In early 2005, Colton filed a similar action in the District Court,

known as *City of Colton v. American Promotional Events, Inc.-West, et al.*, Civil Action No. ED CV 05-01479 PSG (SSx). Rialto and Colton brought their respective actions against a number of defendants, including the County and Emhart, seeking response costs and injunctive relief to, among other things, ensure that perchlorate and TCE in the Basin would be cleaned up.

M. In February 2010, the United States, on behalf of USEPA, filed an action in the District Court under CERCLA and the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. § 6901, *et seq*., known as *United States of America v. Goodrich Corporation et al.*, CV 10-8245 PSG (SSx), seeking, among other things, from a number of defendants, including Emhart but not the County, response costs and performance of the necessary response actions at the B.F. Goodrich Superfund Site (the "United States Action"). Emhart and other defendants sued by the United States then filed Third-Party Complaints and Cross-Claims against the County and others.

N. In June 2010, the District Court consolidated the United States Action with actions which had been re-filed by: Rialto, Case No. 09-07501 PSG (SSx) in October 2009; Colton, Case No. CV 09-01864 PSG (SSx) in October 2009; Emhart, Case No. 09-07508 PSG (SSx) in October 2009, the County, Case No. 09-06632 PSG (SSx) in September 2009, and two additional cases related to groundwater contamination in the Basin, also re-filed in late 2009, as *City of Colton v. American Promotional Events, Inc.-West, et al.*, Case No. 09-01864 (SSx) (the "Consolidated Actions").

O. Between 2011 and 2014, the claims, which had been brought by and against the United States, the County, Rialto, Colton, Emhart, and most other parties in the Consolidated Actions, were resolved by settlements memorialized in the Work Consent Decree, the County Consent Decree entered in January 2012, the PSI Consent Decree entered in March 2013, the Goodrich/UTC Consent Decree entered in July 2013, and other settlements.

The Combined Remedies

P. In June 2013, the USEPA approved Emhart's proposal for a Combined Capture System. In May 2014, the USEPA approved the final design of the Combined Remedies including a Combined Treatment Plant.

Q. In accordance with Paragraphs 10 and 12 of the Work Consent Decree, this Agreement sets forth the Parties' respective rights and obligations regarding implementation of the Combined Remedies. The Parties have separately entered into additional agreements (e.g., the County/Rialto Implementation Agreement, the County/Colton/Rialto Standby Agreement, the County/Emhart Implementation Agreement, and the County Consent Decree) which address, among other things, certain rights and obligations among the parties to those agreements related to the Regional Board Remedy, the EPA Remedy, and/or the Combined Remedies.

Recitals A through Q, above, are not intended to and do not create any rights or obligations among the Parties to this Agreement.

AGREEMENT

NOW, THEREFORE, the Parties agree as follows:

I. Definitions

A. "1961 Decree" means the Decree entered on December 22, 1961, in *The Lytle Creek Water and Improvement Co. v. Fontana Ranchos Water Co. et al.,* San Bernardino County Superior Court Case No. 81264, as it may be modified.

B. "Basin" means the Rialto-Colton Groundwater Basin.

C. "Claims" means any third-party claim for losses, damages, actions or liability.

D. "Closure" means, for Emhart, EPA's determination that the Performance Standards set forth in the Work Consent Decree have been met so that Emhart has no further obligation to operate any portion of the Combined Remedies; and, for the County, the Regional Board's determination that the County has met its remedial obligations so that the County has no further obligation to operate any portion of the Combined Remedies.

E. "Colton Water Budget" means a document, detailing Colton's anticipated month-by-month minimum needs and maximum capacity to accept water generated by the Combined Remedies for the upcoming Water Year, subject to the Colton Water Rights, that Colton will provide annually to Rialto, the

County, and Emhart to assist the Parties in their development of the annual Water Management Plan for the Combined Remedies.

F. "Colton's DDW Permit" means domestic water supply Permit No. 03-13-96P-001 issued to Colton by DDW on June 28, 1996, as it has been and may be amended in the future.

G. "Colton Water Rights" means Colton's water rights in the Basin under the 1961 Decree.

H. "Combined Capture System" means the extraction wells and associated conveyance piping connected to the Combined Treatment Plant necessary for operation of the Combined Remedies. There are currently three existing extraction wells (Miro-2, Miro-3, and CR-3) and one planned extraction well (EW-1) that will be connected to the Combined Treatment Plant; the locations of these wells and associated piping are shown on Exhibit C (Conceptual Diagram of Combined Capture System). This definition includes any additional extraction wells and associated piping that may be added in the future, as necessary or appropriate to comply with the Work Consent Decree or Regional Board Order.

I. "Combined Remedies" means the Combined Capture System and the Combined Treatment Plant, but does not include groundwater monitoring wells.

J. "Combined Treatment Plant" or "CTP" means a system of groundwater treatment components, consisting of (1) the County treatment plant at CR-3, in place as of the Effective Date, constructed by the County to comply with the Regional Board Order; (2) the expansion of the County treatment plant constructed by Emhart, after the Effective Date, to comply with the Work Consent Decree (as described in detail in the final design approved by EPA on May 19, 2014); and (3) any future expansion of such treatment plant as necessary or appropriate to comply with the Work Consent Decree or the Regional Board Order.

K. "Combined Treatment Plant Lease Area" means the Combined Treatment Plant Lease Area as defined in Exhibit J hereto.

L. "County Consent Decree" means the Consent Order and Judgment entered by the United States District Court for the Central District of California on

January 31, 2012 in *City of Colton v. American Promotional Events, Inc-West et al.*, Case No. 09-1864 PSG (SSx) (Dkt. No. 1258).

M. "County/Emhart Implementation Agreement" means the separate Implementation Agreement entered into between the County and Emhart in accordance with Paragraph 12 of the Work Consent Decree concurrently with this Agreement.

N. "County/Rialto Implementation Agreement" means the agreement titled "Water Replacement Order Implementation Agreement and Water Rights Lease," entered by Rialto, the Rialto Utility Authority, and the County, effective April 1, 2005.

O. "CR-3" means City of Rialto well No. 3.

P. "DDW" means the California State Water Resources Control Board Division of Drinking Water, formerly, the California Department of Public Health Division of Drinking Water.

Q. "Effective Date" means the date the last Party executes this Agreement.

R. "EPA" or "USEPA" means the United States Environmental Protection Agency.

S. "EPA Remedy" means the system of extraction wells, conveyance pipelines, and the expansion of the County's groundwater treatment plant to be constructed by Emhart required by the Work Consent Decree.

T. "Regional Board Order" means Cleanup and Abatement Order No. R8-2003-0013, adopted by the Regional Water Quality Control Board, Santa Ana Region ("Regional Board"), on January 17, 2003, as amended by Order No. R8-2004-0072, adopted by the Regional Board, on September 17, 2004, and as Order No. R8-2003-0013 may be amended in the future.

U. "Regional Board Remedy" means the system of extraction wells, conveyance pipelines, and groundwater treatment plant operated by the County in compliance with the Regional Board Order.

V. "Replacement Water" means potable water acquired from a water purveyor other than Rialto holding a DDW domestic water supply permit and delivered to Rialto, or the acquisition of additional water rights in the Basin, by the County for use by Rialto.

W. "Rialto Water Budget" means a document, detailing Rialto's anticipated month-by-month minimum needs and maximum capacity to accept water generated by the Combined Remedies for the upcoming Water Year, subject to the Rialto Water Rights, that Rialto will provide annually to Colton, the County, and Emhart to assist the Parties in their development of the annual Water Management Plan for the Combined Remedies.

X. "Rialto Water Rights" means certain water rights in the Basin that Rialto has leased to the County as set forth in the County/Rialto Implementation Agreement.

Y. "Rialto's DDW Permit" means domestic water supply Permit No. 71-009 issued to Rialto by DDW on January 8, 1971, as amended by Permit Amendment No. 05-13-06PA-005 issued on May 8, 2006, Permit Amendment No. 05-13-09PA-042 issued on January 4, 2010, and as permit No. 71-009 may be amended in the future.

Z. "SOW" means the Statement of Work attached as Appendix F to the Work Consent Decree.

AA. "Summer Months" means May through September, inclusive.

BB. "Water Year" means October 1 through the following September 30.

CC. "Winter Months" means October through the following April, inclusive.

DD. "Work" means all activities and obligations Emhart is required to perform under the Work Consent Decree, except the activities required under Section XXIII (Retention of Records) of the Work Consent Decree.

EE. "Work Consent Decree" means the Consent Decree entered by the United States District Court for the Central District of California on July 2, 2013 in *City of Colton v. American Promotional Events, Inc-West et al.*, Case No. 09-1864 PSG (SSx) (Dkt. No. 1820) as it may be amended in the future.

II. The Remedial Objectives of the Combined Remedies

A. Emhart is responsible for meeting the remedial action objectives set forth in the Work Consent Decree.

B. The County is responsible for complying with the Regional Board Order, including meeting the remedial action objectives developed pursuant thereto.

C. If, in the future, in connection with their respective responsibilities to meet the remedial action objectives the Regional Board Order or the Work Consent Decree, the County or Emhart needs to modify or expand the Combined Remedies, associated conveyance pipelines, monitoring wells, or any part thereof, the Parties shall meet and confer in good faith to discuss any such necessary expansion or modification in accordance with their obligations under the Work Consent Decree, the County Consent Decree and the County/Rialto Implementation Agreement. Nothing in this Paragraph limits or expands the rights and obligations of the Parties under such agreements.

III. The Design, Permitting, Installation, and Construction of the Work

A. Emhart's Responsibilities

1. Emhart shall ensure that knowledgeable representatives are available, as reasonably necessary, to consult with Rialto, Colton, and the County during the design, permitting, installation, and construction phases of the Work.

2. Subject to the terms of the Work Consent Decree, Emhart is responsible for the cost of the design, permitting, installation, and/or construction of:

a. the new extraction well(s) necessary to perform the Work;

b. the expansion of the County's groundwater treatment plant at CR-3 necessary to perform the Work;

c. the additional piping and infrastructure necessary to:

i. connect the new extraction well(s) to the Combined Treatment Plant;

ii. connect the Combined Treatment Plant to the existing Rialto municipal water supply system;

iii. deliver water to the Colton municipal water supply system pursuant to Emhart's lease of Colton Water Rights either through the existing Rialto municipal water supply system or by some other means agreed to by the Parties in writing; and

iv. deliver water to a water purveyor (other than Colton) which is to receive water pursuant to a lease of water rights to Emhart, either through the existing Rialto municipal water supply system or by some other means agreed to by the Parties;

d. obtaining modification of Colton and Rialto's DDW Permits as necessary for operation of the Combined Remedies to satisfy Emhart's obligations under the Work Consent Decree; and

e. any expansion or modification of the Combined Remedies required to satisfy Emhart's obligations under the Work Consent Decree.

3. During the design, permitting, installation, construction, startup and shakedown phases of the Work, and prior to obtaining modification of Colton and Rialto's DDW Permits as necessary for operation of the Combined Remedies, Emhart shall not interfere with the County's ability to operate the Regional Board Remedy in a manner consistent with and without degradation to the County's obligations under the Regional Board Order and the County/Rialto Implementation Agreement.

4. During the design, permitting, installation, and construction phases of the Work within the jurisdiction of Rialto or Colton, Emhart shall comply with the applicable permitting and approval processes required by the Rialto or Colton municipal codes, as applicable, as set forth in Paragraphs VII. A and B, below.

B. Colton's Responsibilities

1. During the design, permitting, installation, and construction phases of the Work, Colton shall (a) ensure that knowledgeable representatives

are available, as reasonably necessary, to work with Emhart, Rialto, and the County; and (b) provide Emhart access as set forth in Paragraph VII.A, below.

C. Rialto's Responsibilities

1. During the design, permitting, installation, and construction phases of the Work, Rialto shall ensure that knowledgeable representatives are available, as reasonably necessary, to work with Colton and the County.

2. During the design, permitting, installation, and construction phases of the Work, Rialto shall ensure that knowledgeable representatives are available, as reasonably necessary, to work with Emhart, provided that Emhart reimburses Rialto for:

a. the cost of time incurred by Rialto's consultant Peter Fox (or Rialto's designated alternate consultant, West Yost Associates) reasonably required to provide information, evaluate information provided, or attend meetings, as needed, during the design, permitting and construction phases of the Work, except for the first 10 hours of the consultant's time, on a "time and materials" basis (the procedure for reimbursement of these costs is set forth in Exhibit A); and

b. any other Rialto personnel or consultant costs, including, but not limited to, costs to conduct any required plan checks, engineering checks, and/or reviews associated with permits issued by Rialto which are necessary during the design, permitting, and construction phases of the Work, up to a total amount not to exceed $20,000, which, as of the Effective Date, Emhart has paid to Rialto.

3. During the design, permitting, installation and construction phase of the Work, Rialto shall provide Emhart access as set forth in Paragraph VII.B, below.

D. County Responsibilities

During the design, permitting, installation, and construction phases of the Work, the County shall: (a) not unreasonably deny the availability of knowledgeable representatives to work with Rialto, Colton, and Emhart; and (b) provide Emhart with access to the County's groundwater treatment plant at CR-3 as necessary to expand the treatment plant consistent with the

County/Emhart Implementation Agreement. Upon the effective date of the lease attached hereto as Exhibit J, Rialto consents to the County's grant of such access to Emhart in accordance with Paragraph 10.a.v of the County/Rialto Implementation Agreement and Paragraph 36 of Exhibit K thereto.

IV. Operation and Maintenance of the Combined Remedies

A. Commencement of Rights and Obligations in Paragraph IV

1. The Parties' rights and obligations in this Paragraph IV shall be effective upon approval by DDW of the amendment of Colton and Rialto's DDW Permits necessary to allow water generated by the Combined Remedies to be delivered to Rialto and Colton customers.

2. Prior to issuance of the amendment of Rialto's DDW Permit to operate the Combined Remedies, Emhart is required by DDW to demonstrate effective operation of the new treatment components of the Combined Treatment Plant. Emhart shall be responsible for all costs of energy used by Emhart as a result of that demonstration. Following completion of the demonstration period, Emhart, the County and Rialto shall meet and confer to determine the costs of energy, for which Emhart and the County shall reimburse Rialto consistent with the cost allocation methodology set forth in Paragraphs IV.F.2.d.ii and iii.

B. Party Coordination During the Operation and Maintenance of the Combined Remedies

Emhart, the County, Rialto, and Colton shall not unreasonably deny the availability of knowledgeable representatives to consult with each other during the operation and maintenance of the Combined Remedies.

C. Operation and Maintenance of the Combined Treatment Plant

1. Rialto, as the operator of the Combined Treatment Plant and permitee under Rialto's DDW Permit, shall, in its sole discretion, operate and maintain the Combined Treatment Plant.

2. Rialto shall employ or contract with a qualified person or persons who is/are authorized by law to operate the Combined Treatment Plant.

3. The Anticipated Combined Remedies Operation and Maintenance Activities are set forth in Exhibit B, hereto.

4. As set forth in Paragraph IV.F, below, Emhart and the County shall pay to Rialto the cost to operate and maintain the Combined Treatment Plant.

D. Operation, Maintenance, and Management of the Combined Capture System

1. Rialto shall, in its sole discretion, operate and maintain the Combined Capture System, except that Emhart and the County shall determine the pump rates for each extraction well necessary to achieve the remedial objectives of the Combined Remedies.

2. As set forth in Paragraph IV.F, below, Emhart and the County shall pay to Rialto the cost to operate and maintain the Combined Capture System.

3. Unless otherwise agreed to in writing between Rialto, the County and Emhart (at the sole discretion of each), Rialto shall be responsible for collecting and analyzing all groundwater samples as required under Rialto's DDW Permit; provided, however, as of the Effective Date (and until otherwise agreed in writing by Rialto and the County), the County shall be responsible for collecting and analyzing groundwater samples from County-installed monitoring wells, as required by Rialto's DDW Permit, and providing that data to Rialto.

4. As between Rialto and the County, this Paragraph IV and Exhibits B (Anticipated Combined Remedies Operation and Maintenance Activities) and H (Annual Allocation of CR-3/CTP Energy Costs and Reconciliation of Combined Remedies Energy Costs) supersede and supplant Paragraphs 4, 5.a.i and 5.b and Exhibit I of the County/Rialto Implementation Agreement.

E. Transport and Distribution of Water

1. The treated water generated by the Combined Remedies shall be delivered to the Rialto municipal water supply system. Rialto shall transport water through its existing municipal water supply system: (a) for distribution to Rialto's customers pursuant to County's lease of Rialto Water Rights; (b) to Colton's municipal water supply system pursuant to Emhart and the County's

leases of Colton Water Rights (to the extent the piping and infrastructure for such transport exist or are constructed by Emhart pursuant to Paragraph IV.E.2); and (c), if necessary, to a water purveyor other than Colton, if the piping and infrastructure exists for such transport and if such water purveyor agrees to accept such water at no increased cost to Rialto. Nothing in this Paragraph precludes the Parties from arranging, by written agreement, for the transportation of water to Colton or any other water purveyor by other means, in accordance with the requirements in Paragraph V.B.1.a.

2. To the extent that Rialto's existing piping and infrastructure are insufficient to allow transport of the volume of water necessary to meet Emhart's remedial obligations under the Work Consent Decree to the Colton municipal water supply system, or, if necessary, the municipal water supply system of a water purveyor other than Colton, and the Parties do not otherwise arrange for delivery of water to Colton or another water purveyor by other means, Emhart shall install reasonably necessary additional piping and infrastructure to allow such transport (between Rialto and Colton or between Rialto and another water purveyor, at locations within the jurisdictional boundaries of Rialto approved by Rialto in its sole discretion).

3. Nothing in this Agreement alters, limits, or otherwise affects Rialto's authority to properly and safely operate and maintain, in its sole discretion, the Rialto municipal water supply system. Nothing in this Agreement, including the preceding sentence, alters, limits, or otherwise affects Rialto's obligation to deliver water as set forth in the Work Consent Decree.

4. **Water Quality Requirements**

a. Rialto Resolution No. 5248 (June, 21, 2005), attached as Exhibit E, requires Rialto groundwater production wells to be shut down and prohibits water from entering Rialto's municipal water supply system when standard water testing techniques show any detectable levels of perchlorate in such water.

b. Treated water generated by the Combined Remedies: (i) shall meet all federal and state statutory and regulatory requirements governing municipal drinking water; (ii) shall be non-detect for perchlorate under the California state detection limit for purposes of reporting ("DLR") set forth in Title 17 of the California Code of Regulations, Section 64432(d), Table 64432-A,

which is currently 0.004 mg/L; and (iii) shall not be blended with any water in which perchlorate was detected in a test using the DLR.

c. The Parties recognize that the DLR for perchlorate may change. If such a change occurs and the treated water from the Combined Remedies is unable to satisfy the requirements of Paragraph IV.E.4.b.ii, above, the Parties shall meet and confer in good faith to discuss whether any potential modification to the Combined Treatment Plant is feasible in order to meet the requirements in Paragraph IV.E.4.b.ii, above and, if not, whether any potential modification to Paragraph IV.E.4.b.ii, above, is appropriate. Nothing in this Paragraph IV.E.4.c affects Paragraph IV.E.4.f., below.

d. If the Parties are unable to reach an agreement on any dispute arising under Paragraph IV.E.4.c, above, that dispute shall be resolved in accordance with the dispute resolution provisions set forth in Paragraph 10.2 of the County Consent Decree. While Emhart is not a party to the County Consent Decree, it hereby agrees, with regard to disputes arising under Paragraph IV.E.4.c, above, to be bound by the dispute resolution process set forth in Paragraph 10.2 of the County Consent Decree.

e. Notwithstanding the requirements of Paragraph IV.E.4.b.ii, or the outcomes of the processes described in Paragraphs IV.E.4.c or d, above, the water generated by the Combined Remedies shall be treated to obtain a water quality consistent with (but not greater than) the level of the water quality obtained by other treatment systems used by Rialto to treat water produced from its other groundwater production wells impacted by perchlorate.

f. Nothing in this Paragraph IV.E.4 modifies the rights of the County, Rialto, or Colton in Paragraphs 4.2 and 10.2 of the County Consent Decree.

F. Cost of Operating and Maintaining the Combined Remedies

1. Governing Principles

a. As provided for in Paragraphs IV.C.1 and IV.D.1, above, Rialto shall operate and maintain the Combined Remedies as described in Exhibit B, hereto, subject to Emhart's and the County's responsibility for the actual costs of such operation and maintenance as set forth in this Paragraph IV.F.

Exhibit B describes the anticipated activities for operation and maintenance of the Combined Remedies and is for illustration and budgeting purposes only and does not create any legal rights, obligations, responsibilities or duties, contractual or otherwise, among the Parties or any third party.

b. Emhart is responsible, as set forth in the Work Consent Decree, for the costs to operate and maintain the Combined Remedies to meet the remedial action objectives described in Paragraph 3.1 of the SOW.

c. The County is responsible, as set forth in the Regional Board Order, for the costs to operate and maintain the Combined Remedies to meet the remedial action objectives set forth in the Regional Board Order.

d. The County and Emhart have agreed to allocate the costs of operation and maintenance of the Combined Remedies as set forth in the County/Emhart Implementation Agreement. Nothing in the County/Emhart Implementation Agreement supersedes, abrogates or modifies Emhart's or the County's responsibility for the costs to operate and maintain the Combined Remedies as set forth herein.

2. **Billing and Payment of Operation and Maintenance Costs**

a. **Administrative Costs:** Following the submission of an invoice by Rialto, Emhart and the County shall pay Rialto for its annual administrative staff costs on the first business day following October 1 of each year, or within sixty days of receipt of the invoice from Rialto, whichever occurs later. This payment is to compensate Rialto for its annual administrative staff costs incurred in implementing this Agreement.

i. For the first five years of operation of the Combined Remedies, the amount of the administrative cost shall be $25,000.

ii. The administrative cost shall be adjusted annually by the percentage change, if any, in the fully burdened rate for Rialto's Director of Public Works/City Engineer.

iii. After the first five years of operation of the Combined Remedies, and every five years thereafter, the County, Emhart, and Rialto shall meet and confer in good faith to determine whether the administrative cost shall be modified to more accurately reflect actual annual

administrative staff costs incurred by Rialto in implementing this Agreement. If the County, Emhart, and Rialto are unable to agree, the payment for Rialto's administrative staff costs set forth in Paragraphs IV.f.2.a.i. and ii shall not change.

iv. Upon termination of participation in the Combined Remedies by either the County or Emhart pursuant to Paragraph XIII. A., the non-terminating Party and Rialto shall meet and confer to determine an appropriate administrative cost to accurately reflect Rialto's administrative staff costs to implement this Agreement thereafter. If Rialto and the non-terminating Party are unable to agree, the dispute shall be resolved pursuant to the Dispute Resolution provisions of Paragraph XII.

b. **Operation and Maintenance Costs:** Emhart and the County shall pay Rialto the cost to operate and maintain the Combined Remedies, as follows:

i. By August 1 of each year, Rialto (or its third party contractor) shall prepare and submit to Emhart and the County a budget for the work necessary to operate and maintain the Combined Remedies in a cost-effective manner ("Annual O&M Budget"). The form to be used for the Annual O&M Budget is attached hereto as Exhibit F.

ii. If no changes are proposed, the Annual O&M Budget for the prior year shall continue in effect for the coming year.

iii. Within 10 business days of Emhart's and the County's receipt of the Annual O&M Budget from Rialto, the County and Emhart shall submit their joint comments on the Annual O&M Budget in good faith, which Rialto shall review and consider in good faith. Within 10 business days of submission of the joint comments, Emhart, the County, and Rialto shall, if necessary, meet and confer to discuss those comments. Any disputes regarding the appropriateness of the Annual O&M Budget shall be raised within 10 business days of that meeting and shall be subject to the Dispute Resolution provisions of Paragraph XII.

iv. Upon resolution of the Annual O&M Budget, Rialto shall send a single invoice to both Emhart and the County for 50% of the total budgeted amount set forth therein. Within 60 days of receipt of Rialto's invoice, Emhart and the County shall pay Rialto that invoiced amount. On or after

February 1 of the following year, Rialto shall invoice Emhart and the County for the balance of the total budgeted amount set forth in the Annual O&M Budget. Within 60 days of Rialto's invoice, Emhart and the County shall pay Rialto that invoiced amount. Rialto shall deposit and maintain the monies paid in these installments in a separate restricted fund that is committed to be used only for the purpose of paying for items set forth in the Annual O&M Budget.

v. Rialto shall timely pay invoices for the costs of operation and maintenance of the Combined Remedies.

vi. For purposes of tracking the monthly costs incurred pursuant to the Annual O&M Budget, Rialto shall submit to the County and Emhart, on or before the fifth day of each month, copies of invoices for the costs of work paid in the preceding month in accordance with the Annual O&M Budget, along with any supporting documentation reasonably requested by Emhart and/or the County.

vii. On or before October 1 of each year, Rialto, the County, and Emhart shall meet and confer to reconcile any variance between actual costs of operation and maintenance of the Combined Remedies incurred and paid by Rialto and the Annual O&M Budget and corresponding payments made by Emhart and the County for the preceding year.

1. If, pursuant to Paragraph IV.F.2.b.vii, Rialto, the County, and Emhart agree that the actual costs of operation and maintenance of the Combined Remedies incurred and paid by Rialto were *greater* than the Annual O&M Budget and corresponding payments made by Emhart and the County, Emhart and the County shall, within 45 days of such determination, make an additional payment equal to the amount by which the actual costs incurred and paid by Rialto exceeded the Annual O&M Budget.

2. If, pursuant to Paragraph IV.F.2.b.vii, Rialto, the County, and Emhart agree that the actual costs of operation and maintenance of the Combined Remedies incurred and paid by Rialto were *less* than the Annual O&M Budget and corresponding payments made by Emhart and the County, Emhart and the County shall reduce the next installment payment due under Paragraph IV.F.2.b.iv by an amount equal to the amount by which the actual costs incurred and paid by Rialto were less than the Annual O&M Budget.

3. To the extent Rialto, the County, and Emhart are unable to agree as provided for in Paragraph IV.F.2.b.vii.1 and 2, above, any undisputed amount shall be paid as provided above, and the disputed amount shall be resolved pursuant to Paragraph XII, below. If, upon resolution of the dispute, a payment is due to Rialto, the County and Emhart shall pay Rialto the amount due within 45 days. If, upon resolution of the dispute, a credit is due to the County and Emhart, that credit shall be applied against the next installment payment due under Paragraph IV.F.2.b.iv.

c. **Vendor Costs:** Operation and maintenance of the Combined Remedies will require, from time to time, materials, services, and equipment repair or replacement provided by third-party vendors ("Vendor Services"). Rialto, or its third party contractor, as operator of the Combined Remedies, shall have authority to approve or reject any contracted Vendor Services in its sole discretion. Prior to DDW's issuance of the amendments to Rialto and Colton's DDW Permits necessary for operation of the Combined Remedies and Rialto's commencement of such operation, the County and Emhart shall contract (either together or separately) with Rialto, Rialto's third party contractor, or another third-party contractor to obtain, pay for, and bill the County and Emhart directly for such Vendor Services.

d. **Energy Costs:** The Parties shall allocate the energy costs to operate the Combined Remedies as set forth in this Paragraph IV.F.2.d, as follows:

i. **Combined Capture System Lifting Costs**

1. Colton shall reimburse Emhart for the lifting cost of each acre foot of water delivered to Colton (pursuant to Emhart's lease of Colton Water Rights under Paragraph V.B) at the rate of the electrical costs that Colton would otherwise incur to lift an acre foot of water when operating its extraction wells in the Basin ("Colton's Baseline Lifting Cost"). The procedure for determining Colton's Baseline Lifting Cost is set forth in Exhibit G.

2. Colton shall reimburse the County for the lifting cost of each acre foot of water delivered to Colton (pursuant to the County's lease of Colton Water Rights under Paragraph V.A) at the rate of Colton's Baseline Lifting Cost.

3. Because Rialto pays the energy costs metered at CR-3, the County shall reimburse Rialto for all costs to lift water pumped at CR-3 and delivered to Colton for compliance with the Regional Board Order.

4. Because Rialto pays the energy costs metered at CR-3, Emhart shall reimburse Rialto for all costs to lift water pumped at CR-3 and delivered to Colton for compliance with the Work Consent Decree.

5. Emhart shall reimburse the County for the cost of lifting water pumped at Miro-2 and/or Miro-3 and delivered to Colton for compliance with the Work Consent Decree, if any, equal to the actual lifting costs for such water.

6. The County shall reimburse Rialto for the net incremental cost of lifting water pumped at CR-3 for compliance with the Regional Board Order and delivered to Rialto, which is intended to represent the additional cost of lifting groundwater at CR-3 for compliance with the Regional Board Order during Southern California Edison's peak demand period when Rialto would not normally operate, as partially offset by the reduced electrical costs that are related to pumping groundwater from CR-3 to an open reservoir rather than to Rialto's pressurized pipeline.

7. Rialto shall reimburse the County for the cost of lifting water that Rialto receives for its use from wells for which the County initially pays the lifting costs (i.e., Miro-2 and Miro-3) pursuant to the County's lease of Rialto Water Rights equal to (a) the cost Rialto would otherwise incur to lift such water at CR-3 absent the Combined Remedies, or (b) the actual costs to the County, whichever is less.

ii. **Combined Treatment Plant Energy Costs:** Because Rialto initially pays the energy costs metered at CR-3, which include both energy used to operate the Combined Treatment Plant components and energy used to pump groundwater at CR-3, the County and Emhart shall reimburse Rialto for all energy costs to operate the Combined Treatment Plant.

iii. **Procedures for Reimbursement of Energy Costs**

1. Exhibit H sets forth the procedures for reimbursement of the energy costs identified in Paragraphs IV.F.2.d.i. and ii, above.

2. The energy cost allocations in this Paragraph VI.F.2.d and Exhibit H are not intended to affect or impair the ability of the County and Emhart to agree on a different allocation between themselves.

e. **Dispute Resolution Regarding Costs of Operation and Maintenance of the Combined Remedies:** If the County and/or Emhart believe that any cost of operation and/or maintenance of the Combined Remedies as provided in this Paragraph IV.F incurred by Rialto is unnecessary, the County, Emhart, and Rialto shall meet and confer in good faith to resolve the dispute. If the Parties are unable to agree, Emhart and the County shall nevertheless pay the disputed amount, subject to any reimbursement or credit from Rialto upon a determination, pursuant to the Dispute Resolution provisions in Paragraph XII, that such work was unnecessary.

V. The Lease of Colton and Rialto Water Rights Necessary for the Combined Remedies

A. Rialto and Colton Water Rights Leased to the County

1. Rialto has leased its water rights in the Basin to the County to the extent set forth in the County/Rialto Implementation Agreement.

2. Colton has leased 200 acre-feet (AF) per Water Year of its water rights in the Basin to the County as set forth in the County/Colton/Rialto Standby Agreement.

3. To the extent Emhart does not use all Colton Water Rights leased to Emhart as described below, in a given Water Year, the County may, in that Water Year, utilize such rights on the same terms that Colton leases those rights to Emhart as set forth in this Paragraph V so long as an equivalent volume of water is delivered to Colton in that Water Year consistent with the WMP.

B. Colton Water Rights Leased to Emhart

1. Colton hereby leases to Emhart its water rights in the Basin necessary to perform the Work to the maximum extent Colton has such rights

under the 1961 Decree, less the 200 AF leased to the County in the County/Colton/Rialto Standby Agreement, as follows:

a. In each Water Year, Colton shall receive an amount of potable water, either from the Rialto municipal water supply system or by some other means agreed to by the Parties in writing, equal to the amount of water rights utilized by Emhart in that Water Year as provided in this Paragraph V.

b. Colton shall, at Emhart's request, take all reasonable actions to manage its municipal water supply system, including, if necessary, curtailing production at other Colton-owned water production wells in the Basin, to ensure that its water rights leased to Emhart as provided in this Paragraph V can be utilized for the Work.

c. To the extent that the County does not use all of the 200 AF of Colton Water Rights leased to the County in a given Water Year, Emhart may utilize the remainder to pump and treat water for compliance with the Work Consent Decree so long as an equivalent volume of water is delivered to Colton in that Water Year consistent with the WMP.

C. General Terms Related to County and Emhart Leases of Colton Water Rights

1. In any given Water Year, Emhart and the County may deliver water to Colton, pursuant to their respective water rights leases on a schedule designed to maximize the efficiency and minimize the cost of the operation of the Combined Remedies subject to Colton's seasonal water demands and the WMP in accordance with Paragraph VI.

2. In any given Water Year, to the extent that Emhart and the County do not utilize all of Colton's available water rights in the Basin pursuant to their respective water rights leases and this Agreement, Colton shall have the right to use or sell any of its remaining water rights in the Basin as it sees fit.

3. If Emhart terminates its participation in this Agreement pursuant to Paragraph XIII and the County continues to operate the Combined Remedies, or any portion thereof, the County shall, at its option, succeed to Emhart's lease of Colton water rights.

VI. Management and Distribution of Treated Water

A. Recitals

1. This Paragraph VI.A provides background to guide the Parties' in their development of an ongoing water management plan that balances the extraction requirements of the Combined Remedies, the Rialto and Colton Water Rights, and the water supply needs of Colton and Rialto ("Water Management Plan" or "WMP").

2. The County believes that delivery of water leased by the County and Emhart from Rialto and Colton on a coordinated schedule may reduce the need for the County to provide Replacement Water to Rialto as provided in the County/Rialto Implementation Agreement while meeting Rialto's water demands as set forth in the Rialto Water Budget.

3. The County desires to minimize the use of Rialto Water Rights in the low demand Winter Months by prioritizing distribution of the Combined Treatment Plant output to Colton during the Winter Months, thereby maximizing the availability of Rialto Water Rights in the Summer Months.

4. Emhart, Colton, and Rialto support including the County's desired prioritized distribution of water in the WMP, as set forth in this Paragraph VI. A and subject to the provisions in this Paragraph VI.

5. Nothing in this Paragraph VI. A. creates any rights or obligations among the Parties.

B. The Water Management Plan

The Water Management Plan (WMP) is the Microsoft Excel file contained in the compact disc (CD) attached as Exhibit I. To assist and guide the Parties in their annual preparation of the WMP, Exhibit I also includes a paper copy of a WMP with sample inputs and a paper copy of the WMP displaying the spreadsheet formulas used in the file.

1. **Information Exchange**

a. On or about April 15 of each year, Colton, Rialto, the County, and Emhart shall meet and confer to develop the WMP for the upcoming

Water Year. At least one week prior to this meeting, the Parties shall exchange the following information for input into the WMP (Exhibit I) as follows:

i. Step 1: the County and Emhart shall provide the Parties with their planned month-by-month water output from the Combined Remedies (i) by well and (ii) allocated between the volume of water required to achieve the remedial obligations of Emhart and the County, respectively, as provided in the County/Emhart Implementation Agreement.

ii. Step 2: Colton shall provide the Parties with the Colton Water Rights that Colton anticipates will be available. Rialto shall provide the Parties with the Rialto Water Rights that Rialto anticipates will be available.

iii. Step 3: Colton shall provide the Parties with its anticipated month-by-month minimum needs for water generated by the Combined Remedies during the Summer Months and maximum ability to accept water from the Combined Remedies during the Winter Months ("Colton Water Budget") as follows:

1. In determining its minimum needs for water generated by the Combined Remedies during the Summer Months, Colton shall consider the availability and cost of utilizing its out-of-Basin resources during the Summer Months. To the extent such utilization does not, in a material way, increase costs or administrative burdens, or otherwise restrict Colton's ability to manage its water resources, Colton will endeavor to utilize those resources during the Summer Months.

2. If Colton determines that its use of out-of-Basin resources would result in such material costs, burdens, or restrictions, Colton and the County shall meet and confer, if the County so requests, to provide the County with the opportunity to compensate Colton for such costs, burdens, and/or restrictions in exchange for Colton's use of those resources to facilitate the County's desired water distribution schedule. If the County elects not to so compensate Colton, Colton shall have no obligation to use its out-of-Basin resources pursuant to this Paragraph.

iv. Step 4: Rialto shall provide the Parties with the (1) the monthly maximum volume of water deliverable to the Rialto municipal water supply system from the Combined Remedies; and (2) the maximum

monthly operational flow rate for delivery of water to Colton through the Rialto municipal water supply system unless the Parties agree in writing for delivery of water to Colton by some other means. If the Parties agree in writing for delivery of water to Colton by some other means, the Parties shall provide the maximum monthly operational flow rate for delivery of water to Colton by those means.

v. Step 5: Rialto shall provide the Parties with its anticipated month-by-month minimum needs for water generated by the Combined Remedies, subject to the Rialto Water Rights that Rialto anticipates will be available ("Rialto Water Budget").

b. During the period of demonstration required for amendment of Rialto's DDW Permit necessary for operation of the Combined Remedies, the Parties shall meet and confer to discuss initiation of the WMP commencing with the issuance of such amendment.

2. **Prioritization of Water Production and Distribution**

a. Step 6: Emhart and the County shall seek to prioritize production of water in the Summer Months over production in the Winter Months, and the Parties shall seek to prioritize distribution of that produced water to Colton during the Winter Months, to the extent that such prioritization:

i. does not exceed the total necessary annual output of the Combined Remedies for the Water Year as determined in Step 1 of the WMP;

ii. meets Colton's minimum water needs as set forth in Step 3 of the WMP;

iii. does not exceed Colton's maximum water needs during the Winter Months as set forth in Step 3 of the WMP;

iv. does not exceed the maximum operational flow rates set forth in Step 4 of the WMP;

v. meets Rialto's minimum water needs during the Winter Months, as set forth in Step 5 of the WMP;

vi. does not require Emhart, Colton, or Rialto to incur additional material costs it would not otherwise incur;

vii. does not impair Emhart's ability to comply with the terms of the Work Consent Decree; and

viii. provides that Emhart has priority to deliver water associated with its pumping to Colton, up to the maximum operational flow rate for delivery of water to Colton as set forth in Step 4 of the WMP to the extent such operational flow rate exists as a result of infrastructure improvements funded by Emhart.

ix. provides that, in any month, to the extent that water pumped by Emhart does not meet Colton's minimum water needs as set forth in Step 3 of the WMP, the County shall preferentially utilize the Colton Water Rights it has leased from Colton and an equivalent amount of water shall be delivered to Colton, provided such a shift does not require the County to incur additional material costs it would not otherwise incur.

b. Step 7: The Parties shall make any necessary modifications to the WMP as required by the limitations of Paragraph VI.B.2.a.

c. If the Parties agree upon a prioritized production and distribution schedule for the WMP, that plan shall be memorialized in Table 1 of Exhibit I and water shall be produced and distributed as set forth therein, subject to any modifications made pursuant to the Parties' monthly review described in Paragraph VI.C.

3. **Default Distribution and Production of Water**

a. If, after completing the process described in Paragraph VI.B.2, the Parties are unable to agree upon a prioritized distribution and production schedule for the WMP for the upcoming Water Year, the WMP shall default to the schedule provided in Table 2 of Exhibit I (Default Water Delivery Schedule), as follows:

i. During the Winter Months, Colton shall receive, in each month: (a) a volume of water equivalent to that pumped by Emhart to achieve its remedial obligations during that month as set forth in Step 1 of the WMP, subject to Colton's seasonal water needs; and (b) 28.6 AF (200 AF divided

by seven Winter Months) of Colton Water Rights leased to the County, as pumped to achieve the County's remedial obligations, subject to the limitations in Paragraph VI.B.3.b. To the extent that such 28.6 AF cannot be delivered in a Winter Month, the balance of such water shall be distributed to Colton in Summer Months, subject to the limitations in Paragraph VI.B.3.b;

ii. During the Winter Months, Rialto shall receive, in each month, a volume of water equivalent to that pumped by the County to achieve its remedial obligations during that month as set forth in Step 1 of the WMP, minus the amount delivered to Colton for the County as set forth in Paragraph VI.B.3.a.i;

iii. During the Summer Months, Colton shall receive, in each month, a volume of water equivalent to that pumped by Emhart to achieve its remedial obligations during that month as set forth in Step 1 of the WMP;

iv. During the Summer Months, Rialto shall receive, in each month, a volume of water equivalent to that pumped by the County to achieve its remedial obligations during that month; and

v. If Emhart does not use all of the Colton Water Rights in a Water Year, the County may pump and treat that unused water for delivery to Colton if needed for the County remedial obligations or negotiate with Colton regarding other use of such water.

b. Any default WMP shall:

i. not exceed the total necessary annual output of the Combined Remedies for the Water Year as determined in Step 1 of the WMP;

ii. meet Colton's minimum water needs as set forth in Step 3 of the WMP;

iii. not exceed Colton's maximum water needs during the Winter Months as set forth in the Colton Water Budget;

iv. not exceed the maximum operational flow rates set forth in Step 4 of the WMP;

v. meet Rialto's minimum water needs during the Winter Months, as set forth in the Rialto Water Budget; and

vi. provide that Emhart has priority to deliver water associated with its pumping to Colton, up to the maximum operational flow rate for delivery of water to Colton set forth in Step 4 of the WMP to the extent such operational flow rate exists as a result of infrastructure improvements funded by Emhart.

c. For Step 7 of the WMP, the Parties shall make any necessary modifications to the WMP as required by the limitations of Paragraph VI.B.3.b.

d. If the Parties have not agreed upon a production and distribution schedule, the default production and distribution schedule for the WMP shall be memorialized in Table 2 of Exhibit I and water shall be produced and delivered according to that schedule for that Water Year until an alternative schedule is agreed upon by the Parties.

4. **Other Limitations Applicable to All WMPs**

a. The Combined Remedies shall not produce more water than is required to meet the County's and Emhart's respective remedial obligations, absent an agreement of the Parties to do so.

b. The amount of water delivered to Rialto for use by and distribution to Rialto customers from the Combined Remedy in each Winter Month shall not exceed the volume of water pumped for compliance with the Regional Board Order in that month.

5. **Effect of Rialto Water Budget on Replacement Water Obligations Under County/Rialto Implementation Agreement**

a. As between Rialto and County: If the Rialto Water Budget, subject to Rialto Water Rights, in a given Water Year will not be satisfied by treated water from the Combined Remedies on a per month basis, then the requirements and procedures relating to Replacement Water as set forth in the County/Rialto Implementation Agreement shall apply as between the County and Rialto to the extent those provisions require the County to provide Replacement Water to Rialto. In the event Rialto's Water Budget requires more than 100 AF

per month in the Winter Months, then the County will not have a Replacement Water obligation for the water Rialto receives pursuant to Rialto's Water Budget in excess of 100 AF per month in the Winter Months. In the event that Rialto receives 100 AF per month or less in a Winter Month consistent with the Rialto Water Budget, the County shall not have a Replacement Water obligation to Rialto associated with those water rights.

b. As between Rialto and the County: The annual planning meeting required pursuant to Paragraph VI.B.1.a of this Agreement shall occur in conjunction with the annual planning meeting required pursuant to Paragraph 2.a of the County/Rialto Implementation Agreement and that all references to "annual planning meeting" in the County/Rialto Implementation Agreement shall mean the annual planning meeting required pursuant to Paragraph VI.B.1.a. This Agreement hereby supersedes subparts (a), (b), and (c) of the first sentence of Paragraph 2.a, at page 9, of the County/Rialto Implementation Agreement.

C. Monthly Review of WMP

1. On or about the fifth day of each month (other than the one in which the annual planning meeting occurs), the Parties shall meet and confer in good faith to review the WMP for the balance of the Water Year and determine whether any adjustments to the WMP are needed based on any changes in (a) anticipated output from the Combined Remedies; (b) the Rialto Water Budget; (c) the Colton Water Budget; (d) available Rialto Water Rights; or (e) available Colton Water Rights.

2. In the event that a change in the anticipated output of the Combined Remedies would result in the Combined Remedies not meeting Colton's minimum water needs, Emhart and the County shall provide Colton with at least four (4) months' notice prior to implementing such change in output.

3. If pursuant to Paragraph VI.C.1. the Parties determine that adjustments to the WMP, consistent with Paragraphs VI.B.2.a. (for prioritized delivery) or VI.B.3.a. (for default delivery), are necessary, the Parties shall modify the WMP for that Water Year accordingly.

4. If the Parties are unable to agree upon a requested modification to the WMP for that Water Year under this Paragraph VI.C, such dispute shall be resolved pursuant to the dispute resolution provisions of

Paragraph XII. Until any such dispute is resolved, water shall be delivered, to the extent feasible, pursuant to the most recently agreed upon WMP.

5. As between Rialto and the County, the monthly planning meeting required pursuant to Paragraph 2.c of the County/Rialto Implementation Agreement shall occur in conjunction with the monthly meeting required pursuant to Paragraph VI.C.1 of this Agreement. This Paragraph IV.C.5 does not otherwise modify Paragraph 2.c of the County/Rialto Implementation Agreement.

D. Delivery and Acceptance of Treated Water

1. The water generated by the Combined Remedies shall be delivered to the Rialto municipal water supply system in volumes and at times in accordance with the WMP. Rialto shall meter and record the volume of water extracted from the Combined Capture System in accordance with the WMP and report those metered totals to the Parties at the monthly meetings described in Paragraph VI.C.1.

2. If its municipal water supply system has sufficient capacity, Rialto shall accept the total output delivered from the Combined Remedies to the Rialto municipal water supply system in volumes and at times in accordance with the WMP.

3. Subject to Paragraph IV.E, Rialto shall deliver water from its municipal water supply system to the Colton municipal water supply system in volumes and at times in accordance with the WMP, provided that Rialto receives the necessary volume of water from the Combined Remedies as provided for in the WMP. Rialto shall meter and record the volume of water delivered to Colton and report those metered totals to the Parties at the monthly meetings described in Paragraph VI.C.1. Alternatively, the Parties may agree in writing for some other means of delivering some or all of such water to Colton.

4. Colton shall accept, in each Water Year, water delivered from the Rialto municipal water supply system to the Colton municipal water supply system, or by some other means agreed to by the Parties in writing, in volumes and at times in accordance with the WMP.

5. Rialto shall receive, in each Water Year, a volume of water from the Combined Remedies equivalent to the Rialto Water Rights utilized by the County for the Combined Remedies in accordance with the WMP. If, in any Water

Year, Rialto receives less water from the Combined Remedies than the Rialto Water Rights, the County shall notify Rialto that it may pump a volume of water equivalent to those remaining Rialto Water Rights from its other wells in the Basin.

6. Colton shall receive, in each Water Year, a volume of water from the Combined Remedies equivalent to the Colton Water Rights utilized by the County and Emhart for the Combined Remedies in accordance with the WMP. If, in any Water Year, Colton receives less water from the Combined Remedies than the Colton Water Rights, the County and Emhart shall notify Colton that it may pump a volume of water equivalent to those remaining Colton Water Rights from its other wells in the Basin.

7. Nothing in this Agreement supersedes, abrogates or modifies the County's obligation to provide Replacement Water to Rialto as provided in the County/Rialto Implementation Agreement, except as provided in Paragraph VI.B.5.

8. As between the County and Rialto, water delivered to Colton pursuant to this Agreement is not subject to Paragraph 3.c of the County/Rialto Implementation Agreement.

VII. Access to Colton and Rialto Property

A. Emhart Access to Colton Property

1. Colton shall provide Emhart with access to and use of Colton real property and/or public rights of way for construction (at Emhart's cost) of the piping and infrastructure necessary to provide for delivery of water to the Colton municipal water supply system as set forth in Paragraph VI. This access shall be provided in the form of a Right-of-Way Permit issued by Colton in accordance with Chapter 12.12 of the Colton Municipal Code.

2. As provided for in Paragraph 10. a. 1) of the Work Consent Decree, Colton shall provide Emhart access to the Colton real property and/or rights-of-way as described in Paragraph VII. A. 1. for no fee, cost, or charge of any kind that would otherwise be required by the Colton Municipal Code.

B. Emhart Access to Rialto Property; Rialto Permitting, Review and Approvals

1. Rialto shall provide Emhart with access to certain real property and public rights of way owned and/or controlled by Rialto to be used for the following:

a. Up to two groundwater extraction wells (EW-1 and EW-2) to be reviewed and approved pursuant to Rialto's "Conditional Development Permit" in accordance with Chapter 18.66 of the Rialto Municipal Code and "Precise Plan of Design" approval process as provided in Rialto City Council Resolution No. 2507, dated April 5, 1983. This access shall be documented in an encroachment permit issued by Rialto in accordance with Chapter 11.04 of the Rialto Municipal Code and a lease agreement to be executed following the foregoing approval in the form attached hereto as Exhibit J.

b. Conveyance piping connecting the extraction well(s) to the Combined Treatment Plant, to be reviewed and approved pursuant to Rialto's "Conditional Development Permit" in accordance with Chapter 18.66 of the Rialto Municipal Code and "Precise Plan of Design" approval process as provided in Rialto City Council Resolution No. 2507, dated April 5, 1983. Upon such approval, this access shall be documented in an Encroachment License Agreement in accordance with Chapter 11.05 of the City of Rialto Municipal Code. The conveyance piping connecting EW-1 to the Combined Treatment Plant shall be installed (i) prior to, or (ii) at the same time and in coordination with Rialto's project to widen Ayala Drive from Baseline Road to Renaissance Parkway.

c. Development and/or future modification of the Combined Treatment Plant, within the footprint depicted in Exhibit K, to be reviewed and approved pursuant to Rialto's "Conditional Development Permit" in accordance with Chapter 18.66 of the Rialto Municipal Code and "Precise Plan of Design" approval process as provided in Rialto City Council Resolution No. 2507, dated April 5, 1983. This access shall be documented in a lease agreement to be executed following the foregoing approval in the form attached hereto as Exhibit J.

d. Distribution piping and any necessary valves connecting the Combined Treatment Plant to Rialto's municipal water supply system, to be reviewed and approved pursuant to Rialto's "Conditional Development Permit" in

accordance with Chapter 18.66 of the Rialto Municipal Code and "Precise Plan of Design" approval process as provided in Rialto City Council Resolution No. 2507, dated April 5, 1983. Upon such approval, this access shall be documented in an Encroachment Permit issued by Rialto in accordance with Chapter 11.04 of the City of Rialto Municipal Code. The location of the currently anticipated new pipeline needed to connect the Combined Treatment Plant to Rialto's municipal water supply system shall be consistent with the location/alignment of the piping depicted in the conceptual diagram included as Exhibit D.

e. If needed, distribution piping (including sampling station) and infrastructure necessary for the delivery of water to Colton's municipal water supply system to be reviewed and approved pursuant to Rialto's "Conditional Development Permit" in accordance with Chapter 18.66 of the Rialto Municipal Code and "Precise Plan of Design" approval process as provided in Rialto City Council Resolution No. 2507, dated April 5, 1983. Upon such approval, this access shall be documented in an Encroachment Permit issued by Rialto in accordance with Chapter 11.04 of the City of Rialto Municipal Code.

f. If needed, and as reasonably necessary, distribution piping and infrastructure necessary for the delivery of water to a water purveyor other than Colton, to be reviewed and approved pursuant to Rialto's "Conditional Development Permit" in accordance with Chapter 18.66 of the Rialto Municipal Code and "Precise Plan of Design" approval process as provided in Rialto City Council Resolution No. 2507, dated April 5, 1983. Upon such approval, this access shall be documented in an Encroachment Permit issued by Rialto in accordance with Chapter 11.04 of the City of Rialto Municipal Code.

g. Up to seven monitoring wells, two piezometers required by DDW for EW-1, one piezometer required by DDW for CR-3, and additional piezometers as may be required by DDW upon installation of EW-2; installation of these wells and piezometers shall be reviewed and approved pursuant to encroachment permits issued by Rialto in accordance with Chapter 11.04 of the City of Rialto Municipal Code.

2. All wells, pipelines, and other facilities described above and within the jurisdictional boundaries of Rialto, shall: (a) be located, to the maximum extent feasible, in public rights of way; (b) be consistent with Rialto's land use and development plans and entitlements for such properties; and (c) be in locations approved by Rialto in its sole discretion.

3. Costs of Access, Permitting, Review, and Approvals:

a. Because Emhart has paid Rialto $20,000 as described in Paragraph III.C.2.b., Rialto shall not charge Emhart any additional fee or cost in providing the access, review, and approvals described in Paragraph VII.B.1.

b. Access for monitoring and sampling of wells and piezometers located on Rialto real property or rights of way shall be documented in an Encroachment License Agreement in accordance with Chapter 11.05 of the City of Rialto Municipal Code; provided that Rialto shall not charge Emhart any fee or cost associated with such agreement or sampling.

c. Nothing in this Agreement modifies Rialto's and Emhart's rights and obligations under the Work Consent Decree regarding access, permitting, review, and approvals necessary to perform the Work beyond that identified in Paragraph VII.B.1.

4. Emhart shall pay Rialto, within 60 days of the Effective Date, $50,000 to (a) un-encumber the land within the Combined Treatment Plant Lease Area that is subject to Rialto's agreements with Lewis-Hillwood Rialto Company, LLC ("LHR"); and (b) satisfy all aesthetic requirements of Rialto and/or LHR (or any subsequent developer) for the Combined Treatment Plant Lease Area.

C. County Access to Rialto Property

1. Rialto shall provide the County access to certain Rialto property as set forth in the County/Rialto Implementation Agreement, the lease executed pursuant to that agreement, and any amendment to that lease.

2. The County shall pay Rialto, within 60 days of the Effective Date of the Agreement, $50,000 to (a) un-encumber the land within the Combined Treatment Plant Lease Area that is subject to Rialto's agreements with LHR; and (b) satisfy all aesthetic requirements of Rialto and/or LHR (or any subsequent developer) for the Combined Treatment Plant Lease Area.

VIII. Ownership of Combined Remedies Components

A. Ownership of the components of the Regional Board Remedy by Rialto and the County is controlled by the County/Rialto Implementation Agreement.

B. Upon DDW issuance of the amendment to Rialto's DDW Permit required by this Agreement:

1. Rialto shall own (i) the conveyance pipelines connecting the Combined Treatment Plant to the Rialto municipal water supply system; and (ii) that portion of any conveyance pipeline and infrastructure, constructed by Emhart within the jurisdictional boundaries of Rialto, connecting the Rialto and Colton municipal water supply systems. By owning such components, Rialto does not assume any of Emhart's obligations under this Agreement for the costs to operate and maintain such components.

2. Colton shall own that portion of any conveyance pipeline and infrastructure, constructed by Emhart within the jurisdictional boundaries of Colton, connecting the Rialto and Colton municipal water supply systems. By owning such components, Colton does not assume any of Emhart's obligations under this Agreement for the costs to operate and maintain such components.

3. In the event the Parties agree in writing to deliver water to Colton by means other than a connection between the Rialto and Colton municipal water supply systems, that agreement shall control ownership of any pipelines, valves or other components constructed pursuant thereto.

4. All other components of the Combined Remedies installed and/or constructed by Emhart, including but not limited to extraction well EW-1, the conveyance pipeline from EW-1 to the Combined Treatment Plant, and the Combined Treatment Plant expansion components, shall be owned by Emhart.

IX. Indemnification

A. Emhart's Indemnification Obligations

1. Emhart shall indemnify, defend, and hold harmless Rialto, Colton, and the County, and their officials, agents, employees, contractors, subcontractors, and representatives from any and all Claims arising out of any negligent or wrongful acts or omissions of Emhart and its officers, agents, employees, consultants, contractors, subcontractors, and representatives in performing any activities under this Agreement.

2. Emhart shall indemnify, defend, and hold harmless Rialto and its officials, agents, employees, contractors, subcontractors, and representatives,

from any Claims against Rialto, based solely on Rialto's status as an owner of real property or its status as an operator of the Combined Treatment Plant or the Combined Capture System, arising out of the release of a hazardous substance caused by Emhart or its officers, agents, employees, consultants, contractors, subcontractors, and representatives in performing any activities under this Agreement, after the Effective Date of this Agreement, brought under any federal or state environmental law.

3. Emhart shall indemnify, defend, and hold harmless Rialto, Colton, and the County from mechanics' liens and other liens levied against property owned by Rialto, Colton, or the County for any labor or material furnished to Emhart, its agents, or contractors in connection with Emhart's performance of any activities under this Agreement. In the event any such liens are recorded, then upon written demand by Rialto, Colton, or the County, Emhart shall promptly obtain and record releases of any such liens.

4. Emhart shall indemnify, defend, and hold harmless the County, Colton, and Rialto, and their elected officials, employees, and agents, from any Claims arising out of the failure of Emhart, its agents, or contractors to comply with any federal or state prevailing wage law in performing any activities under this Agreement. For purposes of this Paragraph, Colton, Rialto, and the County are not contractors or agents of Emhart.

B. The County's Indemnification Obligations

1. The County shall indemnify, defend, and hold harmless Rialto, Colton, and Emhart, and their officials or officers, agents, employees, contractors, subcontractors, and representatives from any and all Claims arising out of any negligent or wrongful acts or omissions of the County and its officials, agents, employees, consultants, contractors, subcontractors, and representatives in performing any activities under this Agreement.

2. The County shall indemnify, defend, and hold harmless Rialto, Colton, and Emhart from mechanics' liens and other liens levied against property owned by Rialto, Colton, or Emhart for any labor or material furnished to the County, its agents, or contractors in connection with the County's performance of any activities under this Agreement. In the event any such liens are recorded, then upon written demand by Rialto, Colton, or Emhart, the County shall promptly obtain and record releases of any such liens.

3. The County shall indemnify, defend, and hold harmless Colton, Rialto, and Emhart, and their elected officials or officers, employees, and agents, from any Claims arising out of the failure of the County, its agents, or contractors to comply with any federal or state prevailing wage law in performing any activities under this Agreement. For purposes of this Paragraph, Colton, Rialto, and Emhart are not contractors or agents of the County.

4. Paragraph 11 of the County/Rialto Implementation Agreement sets forth existing defense and indemnification obligations of the County to Rialto. Nothing in this Agreement supersedes, abrogates, or modifies those obligations as to activities covered therein.

C. Rialto's Indemnification Obligations

1. Rialto shall indemnify, defend, and hold harmless Colton and Emhart and their officials or officers, agents, employees, contractors, subcontractors, and representatives from any and all Claims arising out of any negligent or wrongful acts or omissions of Rialto and its officers, agents, employees, consultants, contractors, subcontractors, and representatives in performing any activities under this Agreement.

2. Rialto shall indemnify, defend, and hold harmless the County, and its officials, agents, employees, contractors, subcontractors, and representatives, from any and all Claims arising out of any negligent or wrongful acts or omissions of Rialto and its officials, agents, employees, consultants, contractors, subcontractors, and representatives in performing any activities under this Agreement not covered by the defense and indemnity obligations in Paragraph 11 of the County/Rialto Implementation Agreement.

3. Rialto shall indemnify, defend, and hold harmless Colton, the County, and Emhart from mechanics' liens and other liens levied against property owned by Colton, the County, or Emhart for any labor or material furnished to Rialto, its agents, or contractors in connection with the Rialto's performance of any activities under this Agreement. In the event any such liens are recorded, then upon written demand by Colton, the County, or Emhart, Rialto shall promptly obtain and record releases of any such liens.

4. Rialto shall indemnify, defend, and hold harmless Colton, the County, and Emhart and their elected officials or officers, employees, and agents,

from any Claims arising out of the failure of Rialto, its agents, or contractors to comply with any federal or state prevailing wage law in performing any activities under this Agreement. For purposes of this Paragraph, Colton, the County, and Emhart are not contractors or agents of Rialto.

5. Paragraph 11 of the County/Rialto Implementation Agreement sets forth existing indemnification obligations of the County to Rialto. Nothing in this Agreement supersedes, abrogates, or modifies those obligations as to activities covered therein.

D. Colton's Indemnification Obligations

Colton shall indemnify, defend, and hold harmless Rialto, Emhart, and the County, and their officials, agents, employees, contractors, subcontractors, and representatives, from any and all Claims arising out of any negligent or wrongful acts or omissions of Colton and its officials, agents, employees, consultants, contractors, subcontractors, and representatives in performing any activities under this Agreement.

E. Defense of Claims

1. Any Party seeking to enforce any indemnification right or obligation under Paragraph IX (the "Indemnified Party") shall give prompt written notice of the Claim to the Party against which it seeks to enforce such rights (the "Indemnifying Party").

2. Upon receipt of such notice, the Indemnifying Party shall, within 30 days, provide written notice of its acceptance or rejection of the tendered defense. If the Indemnifying Party rejects the tendered defense, it shall provide a detailed explanation for the rejection. If the tendered defense is accepted, the Indemnifying Party shall defend the Claim.

3. The Indemnified Party shall be entitled, at its own expense, to participate in the defense of the Claim.

4. The Indemnifying Party shall obtain written approval from the Indemnified Party prior to entering into any settlement agreement regarding the Claim that imposes any obligation, duty, limitation or restriction of any kind on the Indemnified Party.

5. An Indemnified Party will not admit any liability or agree to settle or compromise any Claim without the written consent of the Indemnifying Party.

6. In the event an Indemnifying Party rejects or fails to act upon a tendered defense as provided for in Paragraph IX, the dispute shall be resolved pursuant to the Dispute Resolution provisions in Paragraph XII without any obligation to comply with any governmental tort claim procedure.

F. Released Claims

The indemnification rights and obligations of the Parties under Paragraph IX do not extend to any Claims released or the subject of a covenant not to sue in the Work Consent Decree or the County Consent Decree.

X. Insurance Requirements

A. Emhart's Insurance Obligations

Emhart shall secure insurance coverage, to the extent comparable insurance is not already in place, as follows:

1. Occurrence-based Commercial General Liability insurance coverage:

a. to be secured no later than 15 days following the Effective Date and maintained until the first anniversary of Emhart's termination of its participation in this Agreement;

b. with limits of $5,000,000 in the aggregate;

c. that includes each other Party as an additional insured (including coverage within the products-completed operations hazard);

d. under which the insurer waives any right to subrogation as to claims against each other Party; and

e. which applies on a primary and non-contributory basis.

2. Occurrence-based Automobile Liability insurance coverage:

a. to be secured no later than 15 days following the Effective Date and maintained until the first anniversary of Emhart's termination of its participation in this Agreement;

b. with a per occurrence combined single limit of $2,000,000;

c. with each other Party included as an additional insured;

d. under which the insurer waives any right to subrogation as to claims against each other Party; and

e. which applies on a primary and non-contributory basis.

3. Worker's Compensation insurance: To be secured and maintained as required by all applicable laws and regulations.

4. Occurrence-Based Contractor's Pollution Liability insurance:

a. to be secured at least 15 days prior to the commencement, by Emhart, of construction, operation, and/or maintenance activities on any portion of the Combined Remedies, and maintained until the completion of such activities; and

b. with a per-occurrence combined single limit of $1,000,000.

5. Professional Liability insurance. In the event Emhart or its agents uses professional engineering or land surveyor services in connection with the design, permitting, construction, and physical modification of the Combined Remedies, Emhart or its agents shall require the providers of such services to secure and maintain professional liability insurance with limits of $1,000,000 per claim covering negligent acts, errors, or omissions in the performance of such services. For a period of three years after the completion of its services, the professional engineering or land surveying contractor shall either maintain coverage or purchase an extended reporting period on the policy required by this Paragraph.

6. First-Party Property insurance:

a. to be secured upon EPA's Certification of Completion of Construction as provided in the Work Consent Decree and maintained until the first anniversary of the Emhart's termination of its participation in this Agreement;

b. covering equipment and facilities owned by Emhart (as set forth in Paragraph VIII) in sufficient amounts to cover replacement value of the property involved.

B. County's Insurance Obligations

The County shall secure insurance coverage, to the extent comparable insurance not already in place, as follows:

1. Occurrence-based Commercial General Liability insurance coverage:

a. to be secured no later than 15 days following the Effective Date and maintained until the first anniversary of the County's termination of its participation in this Agreement

b. with limits of $5,000,000 in the aggregate;

c. that includes each other Party as an additional insured (including coverage within the products-completed operations hazard);

d. under which the insurer waives any right to subrogation as to claims against each other Party; and

e. which applies on a primary and non-contributory basis.

2. Occurrence-based Automobile Liability insurance coverage:

a. to be secured no later than 15 days following the Effective Date and maintained until the first anniversary of the County's termination of its participation in this Agreement;

b. with a per occurrence combined single limit of $2,000,000;

c. with each other Party included as an additional insured;

d. under which the insurer waives any right to subrogation as to claims against each other Party; and

e. which applies on a primary and non-contributory basis.

3. Worker's Compensation insurance:

To be secured and maintained as required by all applicable laws and regulations.

4. Occurrence-Based Contractor's Pollution Liability insurance:

a. to be secured, in the event that the County performs construction, operation, and/or maintenance activities on any portion of the Combined Remedies, at least 15 days prior to the commencement of such activities, and maintained until the completion of such activities; and

b. with a per-occurrence combined single limit of $1,000,000.

5. Professional Liability insurance: In the event the County or its agents uses professional engineering or land surveyor services in connection with the design, permitting, construction, and physical modification of the Combined Remedies, the County or its agents shall require the providers of such services to secure and maintain professional liability insurance with limits of $1,000,000 per claim covering negligent acts, errors, or omissions in the performance of such services. For a period of three years after the completion of its services, the professional engineering or land surveying contractor shall either maintain coverage or purchase an extended reporting period on the policy required by this Paragraph.

6. First-Party Property insurance:

a. to be secured no later than 15 days following the Effective Date and maintained until the first anniversary of the County's termination of its participation in this Agreement;

b. covering equipment and facilities owned by the County (as set forth in Paragraph VIII) in sufficient amounts to cover replacement value of the property involved.

C. Rialto's Insurance Obligations

Rialto shall secure insurance coverage, to the extent comparable insurance is not already in place, as follows:

1. Occurrence-based Commercial General Liability insurance coverage:

a. to be secured, at least 15 days prior to commencement of Rialto's operation of the Combined Treatment Plant and Combined Capture System, and maintained until the first anniversary of Rialto's termination of its participation in this Agreement;

b. with limits of $5,000,000 in the aggregate;

c. that includes each other Party as an additional insured (including coverage within the products-completed operations hazard);

d. under which the insurer waives any right to subrogation as to claims against each other Party; and

e. which applies on a primary and non-contributory basis.

2. Occurrence-based Automobile Liability insurance coverage:

a. to be secured, prior to commencement of Rialto's operation of the Combined Treatment Plant and Combined Capture System, and maintained until the first anniversary of Rialto's termination of its participation in this Agreement;

b. with a per occurrence combined single limit of $2,000,000;

c. with each other Party included as an additional insured;

d. under which the insurer waives any right to subrogation as to claims against each other Party; and

e. which applies on a primary and non-contributory basis.

3. Worker's Compensation insurance: To be secured and maintained as required by all applicable laws and regulations.

4. Occurrence-Based Pollution Liability insurance:

a. to be secured, at least 15 days prior to commencement of Rialto's operation of the Combined Treatment Plant and Combined Capture System and maintained until Rialto's termination of its participation in this Agreement; and

b. with a per-occurrence combined single limit of $1,000,000.

5. Professional Liability insurance. In the event Rialto or its agents uses professional engineering, consulting or land surveyor services in connection with Rialto's operation and maintenance of the Combined Remedies, Rialto or its agents shall require the providers of such services to secure and maintain professional liability insurance with limits of $1,000,000 per claim covering negligent acts, errors, or omissions in the performance of such services. For a period of three years after the completion of its services, the professional engineering or land surveying contractor shall either maintain coverage or purchase an extended reporting period on the policy required by this Paragraph.

6. First-Party Property insurance:

a. to be secured upon EPA's Certification of Completion of Construction as provided in the Work Consent Decree and maintained until the first anniversary of the termination of this Agreement;

b. covering equipment and facilities owned by Rialto (as set forth in Paragraph VIII) in sufficient amounts to cover replacement value of the property involved.

D. Colton's Insurance Obligations

Colton shall secure insurance coverage, to the extent comparable insurance is not already in place, as follows:

1. Professional Liability insurance. In the event Colton or its agents uses professional engineering, or land surveyor services in connection with the design, permitting, construction, and physical modification of the Combined Remedies, Colton or its agents shall require the providers of such services to secure and maintain professional liability insurance with limits of $1,000,000 per

claim covering negligent acts, errors, or omissions in the performance of such services. For a period of three years after the completion of its services, the professional engineering or land surveying contractor shall either maintain coverage or purchase an extended reporting period on the policy required by this Paragraph.

2. First-Party Property insurance:

a. to be secured upon EPA's Certification of Completion of Construction as provided in the Work Consent Decree and maintained until the first anniversary of the termination of this Agreement;

b. covering equipment and facilities owned by Colton (as set forth in Paragraph VIII) in sufficient amounts to cover replacement value of the property involved.

E. General Terms Applicable to Insurance as Required by this Agreement

1. The insurance company or companies with which the Parties contract (either directly or, for governmental entities, indirectly through a joint powers authority) for insurance as required by this Paragraph X shall: (1) be legally authorized to engage in the business of furnishing insurance in the State of California; and (2) have a current A.M. Best Rating not less than "A-VIII" and "BBB" in Standard & Poor's.

2. In the event that a Party concludes the limits or terms of the coverage identified above are no longer adequate or the policies as described herein are no longer available under then-existing market conditions or, for government entities, no longer available through a joint powers insurance authority, that Party shall so notify the other Parties and the Parties shall meet and confer to discuss the need to adjust such insurance coverage requirements. In the event the Parties are unable to agree, the dispute shall be resolved pursuant to the Dispute Resolution provisions of Paragraph XII.

3. Each Party may satisfy its obligations in Paragraph X by demonstrating that any contractor or subcontractor it engages to perform the activities for which it is responsible under this Agreement maintains the appropriate types and amounts of required insurance coverage for those activities including, if required above, additional insured certificates.

4. Upon request, each Party shall provide any other Party with certificates of insurance, or other documentation, necessary to evidence the existence and maintenance of the insurance coverage required in this Agreement. The responding Party shall include information regarding deductibles and self-insurance, if any. If a Party is satisfying an insurance coverage obligation in this Agreement using (1) a self-insured retention ("SIR") of $500,000 or greater or (2) a deductible of $500,000 or greater, any other Party may request documentation that the insured Party has dedicated funds or another financial assurance that demonstrates the ability of such Party to pay such deductible or SIR. Unless agreed to in writing by the other Parties, which agreement shall not be unreasonably withheld, a Party may not satisfy an insurance coverage requirement of this Agreement solely through self-insurance without an excess insurance policy in place over the self-insurance. Disputes arising under this Paragraph shall be subject to the Dispute Resolution provisions of Paragraph XII.

XI. Record Retention

A. Emhart shall reimburse Rialto for costs it incurs for record retention relating to the Work, and the copying or production of such records to EPA as may be required from time to time under the Work Consent Decree. To the extent it incurs such costs, Rialto shall annually submit an invoice for such costs to Emhart. Emhart shall pay such invoices within 30 days of receipt.

XII. Dispute Resolution

A. Except as provided in Paragraph B, below, any dispute arising under this Agreement shall be resolved pursuant to Paragraph 86 of the Work Consent Decree, which provides:

> 86. Dispute Resolution By or Between Settling Work Defendant [Emhart], Rialto, Colton, and or the County of San Bernardino Regarding Implementation Agreements Entered Pursuant to Paragraphs 10 and 12.
>
> a. Informal Dispute Resolution. Any dispute regarding the implementation agreements entered into by and between Rialto, Colton, the County of San Bernardino, and Settling Work Defendant as provided for in Paragraphs 10 and 12 initially shall be the subject

of informal negotiations between the parties to the dispute. The period for informal negotiations shall not exceed twenty (20) Days from the time the dispute arises, unless it is modified by written agreement of the parties to the dispute. The dispute shall be considered to have arisen when one party send the other parties a written Notice of Dispute, a copy of which shall be provided to EPA, Rialto, Colton, the County of San Bernardino, the Settling Federal Agencies, and the Settling Work Defendant.

b. Resolution by this Court. If the parties are unable to resolve their dispute through informal dispute resolution, any party to the dispute may commence a proceeding in this action [the Consolidated Federal Actions] before this Court [the United States District Court for the Central District of California] by motion as provided for in the Local Rules of the Central District of California.

c. Standard for Dispute Resolution. This Court shall resolve any dispute brought before it under this Paragraph under California contract law.

B. As set forth in Paragraph IV.E.4.d, disputes regarding application of Rialto's water quality standards arising under Paragraph IV.E.4.c shall be resolved pursuant to the dispute resolution provisions set forth in Paragraph 10.2 of the County Consent Decree.

XIII. Termination

A. Duration of the Agreement

1. This Agreement will continue in effect until both the County and Emhart have terminated their participation in this Agreement under this Paragraph XIII.

2. If the County believes it has met the requirements for Closure, it shall, at least 60 days prior to seeking Regional Board approval of such Closure, provide written notice to Emhart, Rialto, and Colton of its intention to do so.

Within 30 days after such notice, the Parties shall meet and confer to discuss the steps, following the Regional Board's approval of the County's request for Closure, to be taken to effectuate the County's termination of participation in this Agreement, including, but not limited to, the requirements of Paragraph XIII.B.1 and B.2, and, as necessary, what, if any, provisions of this Agreement should continue in effect to address any ongoing post-Closure requirements (e.g., groundwater monitoring). If the Parties are unable to so agree, the dispute shall be resolved pursuant to the Dispute Resolution provisions of Paragraph XII.

3. If Emhart believes it has met the requirements for Closure, it shall, at least 60 days prior to seeking EPA approval of such Closure, provide written notice to the County, Rialto, and Colton of its intention to do so. Within 30 days after such notice, the Parties shall meet and confer to discuss the steps, following EPA's approval of Emhart's request for Closure, to be taken to effectuate Emhart's termination of participation in this Agreement, including, but not limited to, the requirements of Paragraph XIII.B.1 and B.3. and, as necessary, what, if any, provisions of this Agreement should continue in effect to address any ongoing post-Closure requirements (e.g., groundwater monitoring). If the Parties are unable to so agree, the dispute shall be resolved pursuant to the Dispute Resolution provisions of Paragraph XII.

4. If either the County or Emhart obtains approval for Closure, provided that it has notified the Parties as set forth above, all of its obligations under this Agreement shall terminate 30 days after receipt of such approval, except its obligations set forth in Paragraphs IX (Indemnification), X (Insurance) XIII.A.2. and 3. (ongoing post-closure requirements), XIII.B. (termination by either Emhart or the County), and XIII.C (termination by both Emhart and the County). Unless otherwise agreed, the meet and confer process referenced in Paragraphs XIII.A.2. and 3. shall conclude by this date.

5. Nothing in this Agreement supersedes, modifies, or abrogates the rights and obligations of the County and Emhart to each other set forth in the termination provisions of the County/Emhart Implementation Agreement.

6. As between the County and Rialto, this Paragraph XIII supersedes Paragraph 7.b of County/Rialto Implementation Agreement and Paragraph 11.b of Exhibit K of the County/Rialto Implementation Agreement.

B. Effect of Termination by Either Emhart or the County

1. **Termination by the County or Emhart:** From the date either the County or Emhart terminates its participation in this Agreement as provided in Paragraph XIII.A.3, while the other (the "Non-Terminating Party") continues to participate:

a. The Non-Terminating Party shall have the right to continue to use the Combined Remedies and any distribution piping and infrastructure constructed to allow delivery of water to Colton's municipal water supply system, as necessary; and

b. The Non-Terminating Party shall assume all rights, responsibilities, and obligations under this Agreement associated with the operation and maintenance of the Combined Remedies, including the costs to operate and maintain the Combined Remedies as provided in Paragraph IV.F.

2. **County Termination Before Emhart:** If the County terminates its participation in this Agreement before Emhart terminates its participation:

a. Disposition and/or use of components of the Combined Remedies owned by the County that are located on real property owned by Rialto shall be addressed as follows:

i. Emhart may, at its option, assume ownership of some or all of such components.

ii. To the extent Emhart does not elect to assume ownership of some or all of such components, the County shall have the right to remove such components. If the County so elects, the County shall remove at its expense such components of the Combined Remedies and restore such ground surface to pre-construction conditions.

iii. To the extent that Emhart does not elect to assume such ownership and the County does not elect to remove such components, Rialto, at its option, may elect to assume ownership of such components. Upon transfer of ownership, Rialto shall be responsible for the use, costs, operation, maintenance, and/or subsequent abandonment of all such components for which it has assumed ownership.

iv. To the extent that Emhart and Rialto do not elect to assume such ownership pursuant to Paragraphs XIII.B.2.a.i and XIII.B.2.a.iii, the County shall remove such components at the County's expense, and restore the ground surface to pre-construction conditions.

v. As part of the meet and confer pursuant to Paragraph XIII.A.1, the Parties shall discuss any transfer of ownership provided for in this Paragraph XIII.B.2, and execute any documents necessary to effectuate such transfer. Unless otherwise agreed, any removal of components and restoration shall be completed within one year of the County's termination. In connection with the removal and restoration required by this paragraph, the Parties shall cooperate in good faith to minimize the impact on the Combined Remedies and the components to be left in place.

b. Disposition and/or use of components of the Combined Remedies owned by the County that are located on real property owned by the County shall be addressed as follows:

i. Emhart may, at its option, elect to use some or all of such components. This election shall be made during the meet and confer process provided for in Paragraph XIII.A.1. The County and Emhart shall thereafter negotiate appropriate terms for access to County-owned land to permit Emhart to use such components, including standard terms for security, insurance, maintenance, repair, termination and other reasonable terms. Such access shall be provided without the need for payment of rent or other similar monetary consideration.

ii. If Emhart does not elect to use some or all of such components, the County shall have the right to use, or grant the right to use, such components at its discretion.

c. Emhart shall not succeed to the County's lease of Rialto Water Rights.

3. **Emhart Termination Before County:** If Emhart terminates its participation in this Agreement before the County terminates its participation:

a. The County may, at its option, succeed to Emhart's lease of Colton Water Rights. Such election shall be discussed as part of the meet and confer pursuant to Paragraph XIII.A.2; and

b. The County may, at its option, assume ownership of some or all of the components of the Combined Remedies owned by Emhart. To the extent the County does not elect to assume such ownership, Rialto may, at its option, elect to assume ownership of remaining components of the Combined Remedies previously owned by Emhart, and shall thereafter be responsible for the use, operation, maintenance, and/or subsequent abandonment of such components for which it has assumed ownership. To the extent neither the County nor Rialto elects to assume such ownership, Emhart shall remove such components, at its expense, and restore the ground surface to pre-construction conditions.

c. As part of the meet and confer pursuant to Paragraph XIII.A.2, the Parties shall discuss any transfer of ownership provided for in this Paragraph XIII.B.3., and execute any documents necessary to effectuate such transfer. Unless otherwise agreed, any removal of components and restoration shall be completed within one year of the Emhart's termination. In connection with the removal and restoration required by this paragraph, the Parties shall cooperate in good faith to minimize the impact on the Combined Remedies and the components to be left in place.

C. Ownership/Removal of Infrastructure Upon Termination by Both County and Emhart

1. Once both the County and Emhart have terminated their respective participation in this Agreement, the owner of any portion of the Combined Remedies (i.e., Emhart and/or the County), at its sole expense as provided in the County/Emhart Implementation Agreement and the County/Rialto Implementation Agreement, shall have the right to remove any and all components of the Combined Remedies within one year and to restore the ground surface to pre-construction conditions.

2. To the extent that the County and/or Emhart do not elect to exercise such right to remove any component of the Combined Remedies as provided in Paragraph XIII.C.1, Rialto shall either (a) require Emhart, at Emhart's sole expense, to remove any remaining component of the Combined Remedies and restore the ground surface to pre-construction conditions, or (b) elect to take possession of all such remaining components of the Combined Remedies which shall thereupon become the property of Rialto. Thereafter, Rialto shall be

responsible for the use, operation, maintenance, and/or subsequent abandonment of such components for which it has assumed ownership.

3. In removing components of the Combined Remedies, Emhart and the County shall comply with all applicable provisions of the Rialto Municipal Code.

XIV. Notice

Whenever, under the terms of this Agreement, written notice is required to be given or a document is required to be sent by one Party to another, it shall be directed to the individuals at the addresses specified below, unless those individuals or their successors give notice of a change to the other Parties in writing. All notices and submissions shall be considered effective upon receipt, unless otherwise provided.

As to Colton:

City Manager
Attn: Bill Smith
City of Colton
650 North LaCadena Dr.
Colton, CA 92324

-and-

City Attorney
Attn: Carlos Campos
Best Best & Krieger LLP
74760 Highway 111, Suite 200
Indian Wells, CA 92210

As to the County:

Director, Department of Public Works
825 East Third Street
San Bernardino, CA 92415-0835

-and-

County of San Bernardino
Office of County Counsel
385 North Arrowhead Avenue, 4th Floor
San Bernardino, CA 92415-0140

-and-

The Gallagher Law Group, a Professional Corporation (for notice only, not for service of process)
1875 Century Park East, Suite 1550
Los Angeles, CA 90067
Attn: Timothy V.P. Gallagher

As to Emhart: Joseph W. Hovermill, Esq.
Miles & Stokbridge PC
100 Light Street
Baltimore, MD 21202

As to Rialto: City Attorney for City of Rialto
Attn: Fred Galante
Aleshire & Wynder, LLP
3880 Lemon St., Suite 520
Riverside, CA 92501

-and-

Paul Hastings LLP (for notice only, not for service of process)
55 Second Street
Twenty-Fourth Floor
San Francisco, CA 94105
Attn: Peter H. Weiner

XV. Miscellaneous Terms

A. Headings.

All paragraph headings in this Agreement are for convenience of reference only and shall have no effect on the interpretation of any paragraph or provision of this Agreement.

B. Exhibits.

All exhibits to in this Agreement are incorporated as binding parts of this Agreement unless otherwise stated in the exhibit. The documents labeled "example" in Exhibits F, H, and I are for illustration purposes only and are not binding parts of this Agreement. The notes in italic and underline format in the spreadsheets attached as parts of Exhibits H and I are for guidance only and are not intended to be binding parts of this Agreement. To the extent any notes in those spreadsheets conflict with the terms of the body of this Agreement, the terms of the body of this Agreement shall control. The formulas in those spreadsheets are intended to be binding parts of this Agreement.

C. Construction.

This Agreement shall be interpreted and construed as drafted by all Parties with equal participation in its drafting.

D. Force Majeure.

1. For purposes of this Agreement, "Force Majeure" means any event arising from causes beyond the control of a Party or its contractors that delays or prevents the performance of any obligation under this Agreement despite that Party's best efforts to fulfill the obligation or avoid the event. Force Majeure includes, but is not limited to: acts of God; fire, flood, windstorm, or earthquake; explosion, riot, or sabotage; war, terrorism, threat of terrorism, or any resulting security measures; strikes, lockouts, or other concerted work stoppages; injunctions; inability to obtain raw material, supplies, or energy; or unscheduled outages, shutdowns, or other loss of any necessary utility.

2. The Party whose performance is delayed or prevented by Force Majeure shall inform the other Parties: (1) orally as soon as possible but no later than 48 hours of learning of the possible delay; and (2) in writing no more than five working days from the commencement of the Force Majeure.

3. The Party whose performance is delayed or prevented by Force Majeure shall use best efforts to minimize the effect and duration of such Force Majeure.

4. Any delay in or failure to perform any obligation under this Agreement by a Party caused by Force Majeure shall not constitute a breach of this Agreement or give rise to any claim for damages.

E. Assumption of Certain Emhart Obligations by Black & Decker Inc.

Black & Decker Inc. agrees to assume Emhart's obligations set forth in Paragraphs IV.F, IX.A, X.A. and XIII of this Agreement in the event Emhart defaults on those responsibilities or obligations.

F. Good Faith and Fair Dealing.

The Parties shall deal with each other in good faith and fairly in all matters arising under this Agreement. The presence or absence of a specific reference to good faith in any paragraph of this Agreement does not affect the obligation of the Parties to deal with each other in good faith and fairly in all matters arising under this Agreement.

G. Governing Law.

This Agreement should be construed in accordance with the laws of the State of California.

H. Signatories.

Each signatory of this Agreement represents that s/he is authorized to execute this Agreement on behalf of the Party for which s/he executes this Agreement. Each Party represents that it has the legal authority to enter into this Agreement.

I. Multiple Counterparts.

This Agreement may be executed in counterparts, each of which shall be deemed an original.

J. Effect of this Agreement on Other Existing Agreements Among the Parties.

1. Nothing in this Agreement supersedes, abrogates, amends, or modifies the provisions of the County/Rialto Implementation Agreement, the terms of which are preserved, except as expressly set forth herein.

2. As between Rialto and the County, Rialto and the County agree that execution of this Agreement does not implicate Paragraph 10.a.vi of the County/Rialto Implementation Agreement.

3. Rialto and Colton are not parties to, nor are they bound in any way by, the County/Emhart Implementation Agreement.

4. To the extent that this Agreement conflicts with the Rialto/Emhart Cost Agreement dated October 4, 2013, this Agreement shall control.

K. Amendment.

This Agreement may be amended at any time, but only by written agreement executed by all Parties then participating in the Agreement.

FOR EMHART INDUSTRIES, INC.:

By: _____

Theodore Morris
Vice President
Emhart Industries, Inc.

Date: August 4, 2015

FOR THE CITY OF RIALTO AND THE RIALTO UTILITY AUTHORITY:

By: _____

Deborah Robertson
Mayor, City of Rialto
Chair, Rialto Utility Authority

Date: 8/26/15

ATTEST:

By: _____

Barbara McGee
City Clerk/Authority Secretary

Approved as to Legal Form:

By: _____

Fred Galante
City Attorney/Authority Counsel

FOR THE CITY OF COLTON:

By: _____

Richard A. DeLaRosa
Mayor, City of Colton

Date: 8/20/15

ATTEST:

By: _____

Carolina R. Padilla
City Clerk

Approved as to Form:

BEST BEST & KRIEGER

By: _____

Danielle G. Sakai
City Attorney

FOR COUNTY OF SAN BERNARDINO:

By: _____
James Ramos
Chairman, Board of Supervisors

Date: SEP 01 2015

SIGNED AND CERTIFIED THAT A COPY OF THIS DOCUMENT HAS BEEN DELIVERED TO THE CHAIRMAN OF THE BOARD

Laura H. Welch
Clerk of the Board of Supervisors
Of the County of San Bernardino

By: _____
Deputy

Approved as to form:

JEAN-RENE BASLE, COUNTY COUNSEL

By: _____
Penny Alexander-Kelley
Principal Assistant County Counsel

Date: 8-26-2015

Exhibit A

Procedure for Reimbursement of Rialto Consultant Costs Under Paragraph III.C.2.a

The procedure for Rialto to submit requests for reimbursement of Rialto consultant costs as provided for in Paragraph III.C.2.a incurred during the design, permitting, and construction phases of the Work, ("Reimbursement Request") shall be as follows:

1. Peter Fox and West Yost Associates Costs: No more frequently than once per quarter, Rialto shall submit its Reimbursement Request to Emhart for costs of time incurred by Peter Fox or West Yost Associates as reasonably required to provide information, evaluate information provided, or attend meetings, as needed, during the design, permitting, and construction phases of the Work, at the ordinary and customary hourly rates charged by Peter Fox and West Yost Associates to perform other such work for Rialto, and supporting documentation. The Reimbursement Request shall include:

    a. A written summary of the tasks performed, the time and costs associated with each task, and supporting documentation;

    b. Confirmation of Rialto's payment of the invoices described in Paragraph 1, above; and

    c. But, in no event, shall Rialto seek payment for (i) the cost of the first 10 hours of time incurred by Peter Fox or West Yost Associates; (ii) the next $8,057.20 of such costs beyond those addressed in Paragraph 1.c.(i); or (iii) costs resolved by the Agreement for Resolution of Emhart/Rialto Cost Issues entered on October 4, 2013, by Emhart and Rialto.

2. Within 30 days after Emhart's receipt of a Reimbursement Request, Emhart shall pay the appropriate reimbursement amount to Rialto.

Exhibit B

Anticipated Combined Remedies Operation and Maintenance Activities
San Bernardino County, California

I. Introduction

This document describes the anticipated activities for operation and maintenance of the Combined Remedies. This document is for illustration and budgeting purposes only and does not create any legal rights, obligations, responsibilities or duties, contractual or otherwise, among the Parties to the Four Party Implementation Agreement or any third party. To assist in preparation of an Annual O&M Budget for the Combined Remedies, this document will be evaluated annually and updated as necessary.

The design and operation of the Combined Remedies merge the existing Regional Board Remedy with the planned groundwater extraction well and treatment plant expansion. Emhart Industries, Inc. ("Emhart") and the County of San Bernardino (the "County") anticipate that the operation and maintenance of the Combined Remedies will achieve the remedial objectives of: (1) the Work Consent Decree, which Emhart is required to meet; and (2) the Regional Board Order, which the County is required to meet.

The activities to operate and maintain the Combined Remedies as described herein, are: (1) operation and maintenance of the Combined Capture System; (2) operation and maintenance of the Combined Treatment Plant; (3) assisting the Parties in implementation of the Water Management Plan; (4) compliance with Rialto's DDW Permit (including compliance sampling monitoring and compilation and distribution of monthly reports in accordance with the DDW permit); and (5) overall project management and oversight of all of the above.

II. Definitions

A. "Annual O&M Budget" means the budget prepared Rialto (or its third party contractor) and submitted to Emhart and the County by August 1 of each year shall for the work necessary to operate and maintain the Combined Remedies in a cost-effective manner.

B. "Combined Capture System" means the extraction wells and associated conveyance piping connected to the Combined Treatment Plant necessary for operation of the Combined Remedies. There are currently three existing extraction wells (Miro-2, Miro-3, and Rialto-3) and one planned extraction well (EW-1) that will be connected to the Combined Treatment Plant; the locations of these wells and associated piping are shown on Attachment B-1 (Locations of Combined Treatment Plant and Combined Capture System). This definition includes any additional extraction wells and associated piping that may be added in the future, as needed.

C. "Combined Remedies" means the Combined Capture System and the Combined Treatment Plant, but does not include groundwater monitoring wells.

D. "Combined Treatment Plant" means a system of groundwater treatment components, consisting of (1) the County treatment plant at CR-3, in place as of the Effective Date, constructed by the County to comply with the Regional Board Order; (2) the expansion of the County treatment plant constructed by Emhart, after the Effective Date, to comply with the Work Consent Decree (as described in detail in the final design approved by EPA on May 19, 2014); and (3) any future expansion of such treatment plant as necessary or appropriate to comply with the Work Consent Decree or the Regional Board Order.

E. "DDW" means the California State Water Resources Control Board Division of Drinking Water, formerly, the California Department of Public Health Division of Drinking Water.

F. "Parties" means the County, Rialto, Colton, and Emhart.

G. "Rialto-3" means City of Rialto Well No. 3, also referred to as "CR-3."

H. "Rialto's DDW Permit" means domestic water supply Permit No. 71-009 issued to Rialto by DDW on January 8, 1971, as amended by Permit Amendment No. 05-13-06PA-005 issued on May 8, 2006, Permit Amendment No. 05-13-09PA-042 issued on January 4, 2010, and as Permit No. 71-009 may be amended in the future.

I. "Water Management Plan" or "WMP" means the water management plan developed by the Parties pursuant to Paragraph VI of the Four Party Implementation Agreement.

III. Background Information

A. Site Setting

The locations of the Combined Remedies facilities are displayed in **Attachment B-1**. A Process Flow Diagram is included as **Attachment B-2**.

B. Combined Treatment Plant Operational Information

As designed, the Combined Remedies will consist of the following equipment:

- Four groundwater extraction well pumps with variable frequency drives (at extraction wells Rialto-3, Miro-2, Miro-3, and EW-1);
- 100,000-gallon steel bolted reservoir (equalization tank);
- Desander unit (for Rialto-3);
- Six bag filter units (for all influent water);
- An ultraviolet (UV) system (for Rialto-3);
- Two booster pumps – 250 horsepower (hp), 150 pounds per square inch (psi) rated at 2,250 gpm each;
- Sulfuric acid injection unit (pH adjustment) – this unit is not operational at this time and there is no requirement to resume its operation;
- Six ion exchange resin (IX) vessels;
- Eight granular activated carbon (GAC) vessels; and
- Hypochlorination injection system.

C. Untreated Groundwater Constituents of Concern

The Combined Treatment Plant is designed to remove the following constituents of concern from extracted groundwater:

- Perchlorate; and

- VOCs, including trichloroethene (TCE)

The influent stream of the Combined Treatment Plant is expected to contain VOCs and perchlorate. The influent from CR-3 may also contain coliform bacteria on an intermittent basis, which if present is treated prior to the water entering the equalization tank to protect the downstream treatment vessels.

IV. Anticipated Operation and Maintenance Activities

A. Combined Capture System

Operation of the Combined Capture System includes, but is not limited to, regulating extraction rates as directed by Emhart and the County to (1) achieve Emhart's and the County's respective remedial requirements; and (2) ensure that the volume of water extracted does not exceed the water rights leased to the County by Rialto and Colton, and to Emhart by Colton. Attachment B-3 identifies routine (daily) and non-routine (periodic) operation, maintenance, and monitoring activities.

B. Combined Treatment Plant

Operation of the Combined Treatment Plant includes, but is not limited to, those routine (daily) and non-routine (periodic) activities identified in Attachment B-3.

C. DDW Permit Compliance

Operation of the Combined Remedies shall, at all times, be in compliance with Rialto's DDW Permit (including compliance sampling monitoring and compilation and distribution of monthly reports in accordance with Rialto's DDW Permit). Compliance with Rialto's DDW Permit is anticipated to include, at a minimum, compliance monitoring and sampling at the following locations:

- The influent stream from operating extraction wells (Attachment B-2);
    - Rialto-3 – Location 1A;
    - Miro-2 – Location 1B;
    - Miro-3 – Location 1C; and

- EW-1 - Location 1D.

- The effluent point of the UV system (Attachment B-2, Location 2);
- The effluent point of each of the two lead perchlorate removal (IX) vessels (Attachment B-2, Location 4) (two sample locations);
- The effluent point of each of the first lag IX vessels (Attachment B-2, Location 5) (two sample locations);
- The effluent point of each of the second lag IX vessels (Attachment B-2, Location 6) (two sample locations);
- The midpoint between each of the four pairs of GAC vessels (Attachment B-2, Location 7) (four sample locations);
- The post-treatment effluent stream (Attachment B-2, Location 9) (two sample locations); and
- Near-field monitoring wells (as identified by Rialto to be sampled by the Operator upon issuance of the amendment to Rialto's DDW Permit).

D. Assisting in Implementation of the Water Management Plan

During operation of the Combined Remedies, the operator will attend meetings to assist in the development and documentation of the WMP as directed by the Parties and to thereafter implement the WMP.

E. Overall Management and Oversight

Operation of the Combined Remedies includes overall management and oversight of the activities described in Paragraphs IV.A through D, above.

F. Excluded Activities

The following activities are excluded from operation and maintenance of the Combined Remedies:

- Determination of extraction well pump rates required for the County and Emhart to meet their respective remedial objectives of the

Regional Board Order (for the County) and the Work Consent Decree (for Emhart) and the corresponding interaction with the Regional Board and USEPA;

- Collection of groundwater monitoring data from County-installed monitoring wells and piezometers pursuant to Paragraph IV.D.3 of the Four Party Implementation Agreement;
- Collection of groundwater monitoring data from Emhart-installed monitoring wells and piezometers that Emhart may, in the future, elect to collect itself as provided for in Paragraph IV.D.3 of the Four Party Implementation Agreement;
- Preparation of quarterly monitoring reports to the Regional Board on behalf of the County;
- Preparation of compliance reporting to USEPA on behalf of Emhart; and
- Major equipment replacement and/or capital improvements.

G. Contractor Qualifications

It is anticipated that the Combined Treatment Plant will be classified as a T3 or T4 treatment facility. The operator must be authorized by law to operate and maintain the Combined Remedies including all operator and shift operator qualification requirements set forth in Rialto's DDW Permit. The operator also must be 40-Hour HAZWOPER-trained, excluding subcontractors, and all operator personnel must possess valid drivers' licenses at the appropriate levels as necessary to perform essential job functions.

V. Attached Support Documents and Reports

The following are attached as referenced herein:

- Attachment B-1 – Locations of Combined Treatment Plant and Combined Capture System
- Attachment B-2 – Process Flow Diagram

- Attachment B-3 Combined Remedies Operation and Maintenance Activities

ATTACHMENT B-1

Legend

- Proposed Extraction Well Location
- City of Rialto Production Well
- Miro Wells
- Pipeline Connecting EW-1 to Combined Treatment Plant
- Pipeline Connecting Miro-2 and Miro-3 to the Combined Treatment Plant

Source: Image courtesy of USGS © 2013 Microsoft Corporation.

N

0 400

Scale in Feet

SOURCE AREA OPERABLE UNIT
ROCKETS, FIREWORKS, AND FLARES SITE

Attachment B-1
LOCATIONS OF COMBINED TREATMENT PLANT AND COMBINED CAPTURE SYSTEM

ERM

PREPARED BY:
AJP (ERM)

JOB NO. 0179962
FILE: Attachment B1.mxd

M:\Projects\Emhart_Rialto\Portland\GIS\AA\Attachment B1.mxd AJP 5/6/2015

ATTACHMENT B-2

1B From Miro-2 (0 gpm)
1C From Miro-3 (0 gpm)
At Treatment Plant

At EW-1 Wellhead

EW-1 Discharge to Waste

1D

10

T-1
100,000 Gallon
RESERVOIR TANK
(Existing)

INFILTRATION POND
(Existing)

2

UV-1
UV Disinfection
(Proposed, to be determined pending water quality)

EW-1
(Proposed)

3

BAG FILTERS
F-201/202
(Proposed)

BOOSTER PUMP
BP-2
(Proposed)

BOOSTER PUMP
BP-1
(Existing)

BAG FILTERS
F-100A/B
(Proposed)

UV SYSTEM - 1
(Existing)

5 4

IX TANK
T-301C
(Proposed)

IX TANK
T-301B
(Proposed)

IX TANK
T-301A
(Proposed)

11

6 7

GAC TANKS
T-401A/B
(Proposed)

IX TANK
T-103
(Proposed)

IX TANK
T-102
(Existing)

IX TANK
T-101
(existing)

CARBON VESSELS - 1
(Existing)

CHLORINE INJECTION
(Proposed)

9 8

DISCHARGE to WATER DISTRIBUTION SYSTEM

GAC TANKS
T-402A/B
(Proposed)

CHLORINE INJECTION
(Existing)

CARBON VESSELS - 2
(Existing)

BAG FILTERS
(Existing)

DE-SANDER
(Existing)

At Treatment Plant

1A

Rialto - 3
(Existing)

LEGEND:

gpm	=	Gallons per Minute
°F	=	Degrees Fahrenheit
psig	=	Pounds per Square Inch
TCE	=	Trichloroethylene
µg/L	=	Micrograms per Liter
IX	=	Ion Exchange

SOURCE AREA OPERABLE UNIT
Rockets, Fireworks, and Flares Superfund Site

ATTACHMENT B-2

PROCESS FLOW DIAGRAM

ERM

PREPARED BY:
B.SWENSON (ERM)

JOB NO. 0179962
FILE: Rialto 0- Process Flow.dwg

G:\DWGS\0179962--Rialto\01\D\Rialto Fig 2 Process Flow.dwg May 29, 2015.

Anticipated Average Flow and Concentration Conditions

	flowrate	service	temperature	pressure	maximum concentration (µg/L)	
	(gpm)		(F)	(psig)	TCE	Perchlorate
1A	1700	EW-1 Groundwater Extraction	70	5-10	10	239
1B	1300	Rialto-3 Groundwater Extraction	70	5-10	4	25
2	200 - 2400	Discharge to Waste - EW-1	70	5-10	10	239
3	1500	IX Influent	70	5-10	7	146
4	1500	IX Midpoint 1	70	5-10	7	<4 - 146
5	1500	IX Midpoint 2	70	5-10	7	<4
6	750	Carbon Influent	70	5-10	7	<4
7	750	Carbon Midpoint	70	5-10	<2.5	<4
8	1500	Carbon Effluent	70	5-10	<2.5	<4
9	1500	Groundwater Treated Discharge	70	5-10	<2.5	<4
10	200 - 2400	Influent EW-1 Development and Testing	70	5-10	10	239
11	200 - 2400	Effluent EW-1 Development and Testing	70	5-10	<2.5	<4

Maximum or Worst Case Concentration Conditions

	flowrate	service	temperature	pressure	maximum concentration (µg/L)	
	(gpm)		(F)	(psig)	TCE	Perchlorate
1A	1700	EW-1 Groundwater Extraction	70	5-10	10	239
1B	0	Rialto-3 Groundwater Extraction	-	-	-	-
2	200 - 2400	Discharge to Waste - EW-1	70	5-10	10	239
3	850	IX Influent	70	5-10	10	239
4	850	IX Midpoint 1	70	5-10	10	<4 - 239
5	850	IX Midpoint 2	70	5-10	10	<4
6	425	Carbon Influent	70	5-10	10	<4
7	425	Carbon Midpoint	70	5-10	<2.5	<4
8	850	Carbon Effluent	70	5-10	<2.5	<4
9	850	Groundwater Treated Discharge	70	5-10	<2.5	<4
10	200 - 2400	Influent EW-1 Development and Testing	70	5-10	10	239
11	200 - 2400	Effluent EW-1 Development and Testing	70	5-10	<2.5	<4

Maximum or Worst Case Flow Conditions

	flowrate	service	temperature	pressure	maximum concentration (µg/L)	
	(gpm)		(F)	(psig)	TCE	Perchlorate
1A	2040	EW-1 Groundwater Extraction	70	5-10	10	239
1B	1850	Rialto-3 Groundwater Extraction	70	5-10	4	25
2	200 - 2400	Discharge to Waste - EW-1	70	5-10	10	239
3	1945	IX Influent	70	5-10	7	137
4	1945	IX Midpoint 1	70	5-10	7	<4 - 137
5	1945	IX Midpoint 2	70	5-10	7	<4
6	972	Carbon Influent	70	5-10	7	<4
7	972	Carbon Midpoint	70	5-10	<2.5	<4
8	1945	Carbon Effluent	70	5-10	<2.5	<4
9	1945	Groundwater Treated Discharge	70	5-10	<2.5	<4
10	200 - 2400	Influent EW-1 Development and Testing	70	5-10	10	239
11	200 - 2400	Effluent EW-1 Development and Testing	70	5-10	<2.5	<4

NOTES:
1. ACTUAL EFFLUENT DISCHARGE LIMITS WILL BE BASED UPON FUTURE AMENDMENT OF THE EXISTING CALIFORNIA DEPARTMENT OF PUBLIC HEALTH (CDPH) PERMIT 71-009 TO PROVIDE FOR THE EXISTING COUNTY CR-3 SYSTEM, EXTRACTION FROM NEW WELLS, AND EXPANSION OF THE TREATMENT SYSTEM.

SOURCE AREA OPERABLE UNIT
Rockets, Fireworks, and Flares Superfund Site

ATTACHMENT B-2

PROCESS FLOW DIAGRAM

ERM

PREPARED BY: B.SWENSON (ERM)

JOB NO. 0179962
FILE: Rialto 2 Process Flow.dwg

Plot Date: 12/04/14 - 5:42pm, Plotted by:Luke, Drawing Path: N:\Swap\AcPublish_9320\Drawing Name:Rialto Fig 2 Process Flow.dwg

ATTACHMENT B-3

COMBINED REMEDIES OPERATION AND MAINTENANCE ACTIVITIES

Daily Activities

	Description	Standard in-house operations to be performed by Operator Per Fixed Price Contract	Third Party Contractor Cost to be reimbursed as Needed	Notes
D1	Check operational status.	Operator to perform work. Third party not needed.	None	
D2	Visually inspect and record reservoir level and verify that level does not exceed high-high or low-low levels.	Operator to perform work. Third party not needed.	None	
D3	Check control panel for any alarms.	Operator to perform work. Third party not needed.	None	
D4	Verify that pump motors in Rialto 3, EW-1, Miro-2 and Miro-3 are or have recently been operating (to the extent such wells are being utilized for the Combined Remedies).	Operator to perform work. Third party not needed.	None	
D5	Visually inspect and record totalized flow immediately downstream of all operating wells.	Operator to perform work. Third party not needed.	None	
D6	Meter and record the volume of water delivered to Colton.			
D7	Visually inspect and record pressure drop across the Krebbs Desander. Verify that Krebbs Desander is functioning and that water is not overflowing its waste pit. (if Rialto-3 is operating)	Operator to perform work. Third party not needed.	None	
D8	Visually inspect and record pressure readings on either side of the six bag filters. If pressure is equal to or greater than allowable pressure rating for the filter	Operator to perform work. Third party not needed.	None	

	Description	Standard in-house operations to be performed by Operator Per Fixed Price Contract	Third Party Contractor Cost to be reimbursed as Needed	Notes
	bags, arrange for bag filter change-out.			
D9	Visually inspect and record lamp status for the Ultra-Violet (UV) system(s).	Operator to perform work. Third party not needed.	None	
D10	Visually inspect Booster Pumps (BP-1 and BP-2) status and record totalized flow immediately downstream	Operator to perform work. Third party not needed.	None	
D11	Visually inspect ion-exchange (IX) vessels and verify absence of leaks. Verify proper valve alignment. Record pressure drop across each vessel. Record totalized flow immediately downstream of IX vessels.	Operator to perform work. Third party not needed.	None	
D12	Visually inspect granular activated-carbon (GAC) vessels and verify absence of leaks. Verify proper valve alignment. Record pressure drop across each vessel. Record totalized flow immediately downstream of each GAC vessel.	Operator to perform work. Third party not needed.	None	
D13	Visually inspect and verify proper operation of Chlorination Systems.	Operator to perform work. Third party not needed.	None	
D14	Combined Treatment Plant monitoring to comply with DDW permit.	Operator should collect samples and manage logistics of sampling and analysis.	Third party laboratory charges to be reimbursed.	

Non-Daily Duties

ND1	Monthly reporting to DDW and other appropriate agencies regarding treatment plant operations, throughput, contaminant mass removal, daily amount of water treated, water	Operator should prepare and submit monthly reports in accordance with Rialto's DDW permit.	None.	

	Description	Standard in-house operations to be performed by Operator Per Fixed Price Contract	Third Party Contractor Cost to be reimbursed as Needed	Notes
	quality monitoring results, and a summary of alarms and shutdowns experienced at the treatment plant and any corrective actions taken.			
ND2	Combined Treatment Plant and near-field monitoring well (identified by Rialto) sampling and analyses to comply with DDW permit.	Operator should collect samples and manage logistics of sampling and analysis.	Third party laboratory charges to be reimbursed.	
ND3	Monthly shaft rotation for all inactive pump motor equipment (e.g., Miro-2 and Miro-3)	Operator to perform work. Third party not needed.	None	
ND4	Assure proper lubrication of operating pumps and motors (e.g., Rialto-3, EW-1, BP-1, and BP-2).	Operator to perform work. Third party not needed.	None.	
ND5	Assure proper lubrication of inactive pumps and motors (e.g., Miro-2 and Miro-3).	Operator to perform work. Third party not needed.	None	
ND6	Trouble-shooting when operational status is inconsistent with expectations.	Operator to (1) perform initial troubleshooting to determine appropriate action; (2) oversee logistics of hiring third party contractors as needed; and (3) oversee work as it is completed.	Third party contractors as needed (e.g., programmer, electrician, manufacturer's rep) to be reimbursed.	
ND7	Trouble-shooting when reservoir levels are inconsistent with programming.	Operator to (1) perform initial troubleshooting to determine appropriate action; (2) oversee logistics of hiring third party contractors as needed; and (3) oversee work as it is completed.	Third party contractors as needed (e.g., programmer, electrician, manufacturer's rep) to be reimbursed.	
ND8	Trouble-shooting to determine cause of control panel alarms.	Operator to (1) perform initial troubleshooting to determine appropriate action; (2) oversee logistics of hiring third party contractors as	Third party contractors as needed (e.g., programmer, electrician, manufacturer's rep) to be reimbursed..	

	Description	Standard in-house operations to be performed by Operator Per Fixed Price Contract	Third Party Contractor Cost to be reimbursed as Needed	Notes
		needed; and (3) oversee work as it is completed.		
ND9	Trouble-shooting to determine cause for non-operational pump motors.	Operator to (1) perform initial troubleshooting to determine appropriate action; (2) oversee logistics of hiring third party contractors as needed; and (3) oversee work as it is completed.	Third party contractors as needed (e.g., programmer, electrician, manufacturer's rep) to be reimbursed.	
ND10	Trouble-shooting to determine cause for malfunctioning flow totalizers and motorized valves (including valves on conveyance lines).	Operator to (1) perform initial troubleshooting to determine appropriate action; (2) oversee logistics of hiring third party contractors as needed; and (3) oversee work as it is completed.	Third party contractors as needed (e.g., programmer, electrician, manufacturer's rep) to be reimbursed.	
ND11	Trouble-shooting to determine cause of excess pressure across the Krebbs Desander or for excess water overflowing its waste pit.	Operator to perform work. Third party not needed.	None	
ND12	Bag filter change-outs when pressure is equal to or greater than allowable bag pressure rating, arrange for bag filter change-out.	Operator to perform work. Third party not needed.	Cost of replacement bag filters to be reimbursed.	
ND13	Manual and/or chemical cleaning of quartz sleeves in the UV unit when coliform is detected downstream of the UV unit. Bulb replacement may also be required.	Operator handles logistical issues of identifying problem, hiring third party contractors to repair as needed, overseeing repairs and confirming repairs were successful.	Costs of third party experts on UV systems or other third party contractors as needed to be reimbursed.	
ND14	Manual cleaning and/or chemical cleaning of quartz sleeves in the UV unit when UV bulb intensity is less than 400 J/m2. Bulb replacement may also be required.	Operator handles logistical issues of identifying problem, hiring third party contractors to repair, overseeing repairs and confirming repairs were successful.	Costs of third party experts on UV systems or other third party contractors as needed to be reimbursed.	

	Description	Standard in-house operations to be performed by Operator Per Fixed Price Contract	Third Party Contractor Cost to be reimbursed as Needed	Notes
ND15	Arrange for IX and GAC vessel seal repair/replacement when leaks are observed.	Operator handles logistical issues of identifying problem, developing and processing RFP, selecting contractor, overseeing work and confirming work completed successfully.	Costs of third party contractors to be reimbursed.	
ND16	Arrange for and supervise media replacement when lead vessel IX or GAC "break-through" occurs.	Operator handles logistical issues of identifying problem, developing and processing RFP, selecting contractor, overseeing work and confirming work completed successfully.	Costs of third party contractors to be reimbursed.	
ND17	Arrange for media inspection/replacement if problematic differential pressure conditions are identified at the treatment vessels.	Operator handles logistical issues of identifying problem, developing a solution, selecting contractor, overseeing work and confirming work completed successfully.	Costs of third party contractors to be reimbursed.	
ND18	Trouble-shooting to resolve problematic conditions at the chlorination system.	Operator to perform work. Third party not needed.	None	
ND19	Reprogramming the control panel to adjust for seasonal pumping rates or otherwise.	Operator handles logistical issues of identifying problem, hiring experts as needed, and overseeing work and confirming work completed successfully.	Costs of third party programmer to be reimbursed.	
ND20	Pump and/or motor removal, service, and re-installation when required.	Operator handles logistical issues of identifying problem, hiring experts as needed, and overseeing work and confirming work completed successfully.	Costs of third party contractors to be reimbursed.	
ND21	Housekeeping, weed abatement in and around	Operator to perform work. Third party not needed.	None.	

	Description	Standard in-house operations to be performed by Operator Per Fixed Price Contract	Third Party Contractor Cost to be reimbursed as Needed	Notes
	treatment system and wells.			

Exhibit C

Conceptual Diagram of Combined Capture System

Legend

- Proposed Extraction Well Location
- City of Rialto Production Well
- Miro Wells
- Pipeline Connecting EW-1 to Combined Treatment Plant
- Pipeline Connecting Miro-2 and Miro-3 to the Combined Treatment Plant

Source: Image courtesy of USGS © 2013 Microsoft Corporation.

N

0 400

Scale in Feet

SOURCE AREA OPERABLE UNIT
ROCKETS, FIREWORKS, AND FLARES SITE

EXHIBIT C
CONCEPTUAL DIAGRAM OF
COMBINED CAPTURE SYSTEM

ERM

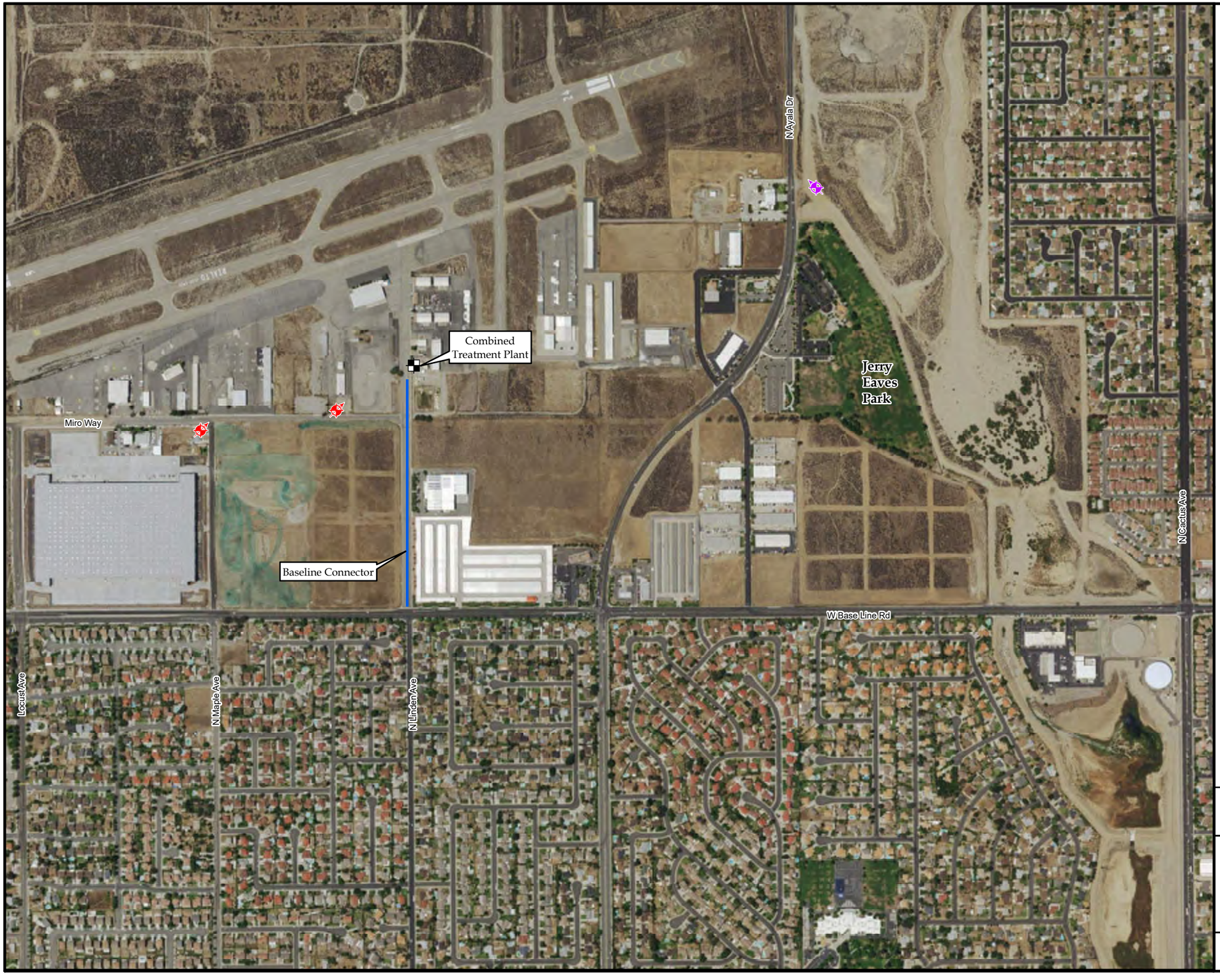
PREPARED BY:
AJP (ERM)

JOB NO. 0179962
FILE: Exhibit C.mxd

M:\Projects\Emhart_Rialto\Portland\GIS\AIExhibit C.mxd AJP 5/6/2015

Exhibit D

Conceptual Diagram of Distribution Piping



Legend

- Miro Wells
- Proposed Extraction Well Location
- City of Rialto Production Well
- Conveyance Pipeline

Source: ESRI Aerial Imagery Webservice, USDA, June 3, 2014.

N

0 1,400 Feet

SOURCE AREA OPERABLE UNIT
ROCKETS, FIREWORKS, AND FLARES SITE

EXHIBIT D
CONEPTUAL DIAGRAM OF
DISTRIBUTION PIPING

ERM

PREPARED BY:
AJP (ERM)

JOB NO. 0179962.08.B1
FILE: ExhibitD_ConceptualDiagram_ConveyancePipelinesRev1.mxd

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Exhibit E

Rialto Resolution 5248

RESOLUTION NO. 5248

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF RIALTO, CALIFORNIA RECONFIRMING ITS ZERO TOLERANCE POLICY REGARDING PERCHLORATE CONTAMINATION

WHEREAS, perchlorate is a strong oxidizing agent and is used extensively in explosives, fireworks and rocket fuel; and

WHEREAS, perchlorate has been found in the environment as a result of spills, leaks, improper disposal and accidental release to soil followed by infiltration into the ground water drinking supply, food and milk; and

WHEREAS, perchlorate can disrupt the thyroid gland and its production of hormones that regulate metabolism and growth; and

WHEREAS, infants and pregnant women are particularly at risk to the health effects caused by the disruption of thyroid and growth; and

WHEREAS, exposure to perchlorate during key windows of time in the growth and development of babies could lead to health complications and intellectual limitations; and

WHEREAS, perchlorate is a clear threat to public health and the environment; zero exposure is the only strategy that truly protects public health; and perchlorate exposure affects all residents of the City of Rialto and Inland Counties; and

WHEREAS, an independent study conducted by the Press Enterprise found 13 of 18 samples of lettuce grown in Inland Counties contained levels of perchlorate two (2) to three (3) times greater than four (4) to nine (9) parts per billion found in the Colorado River; and

WHEREAS, three hundred sixty-five (365) perchlorate contaminated drinking water wells have been identified in California, eighty-two (82) of which are located in San Bernardino County, and twenty-two (22) wells have been shut down in the cites of Rialto, Fontana, Bloomington and Colton; and

WHEREAS, the chemical perchlorate (a rocket fuel ingredient used in the manufacture of military rockets, pistol flares, fireworks and munitions) has been detected in significant concentrations in the Rialto/Colton Basin; and

WHEREAS, five of the City's twenty-two water wells have been shut down due to perchlorate contamination; and

WHEREAS, The City Council has previously announced a "zero tolerance" policy towards perchlorate; and

WHEREAS, the City of Rialto wishes to follow the Regional Water Quality Control Board's orders issued regarding perchlorate contamination and cleanup;

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF RIALTO DOES HEREBY FIND, DETERMINE AND RESOLVE AS FOLLOWS:

Section 1. The recitals to this resolution are true and correct and are incorporated herein by this reference, and relied upon by the City Council in adopting this resolution.

Section 2. The City Council finds that there is significant disagreement within the scientific community regarding the long term health effects of the regular ingestion of perchlorate. Because of this disagreement, the fact that scientists on both sides appear credible, and the fact that the whole perchlorate phenomenon has come to light only within the last decade, and only as a result of improved testing technologies, the City Council has concluded that until there is substantially greater agreement within the scientific community as to what, if any, levels or amounts of perchlorate are unquestionably safe for regular human ingestion, the City of Rialto will continue with its "zero tolerance" policy for perchlorate. When standard water testing techniques show any detectible levels of perchlorate in City water wells, those wells will be shut down, and no water therefrom is to be put into the Rialto Water System unless and until those wells can be treated back down to "non-detect" levels.

Section 3. The City Council urges its state elected officials to concur in this policy and authorize Regional Water Quality Control Boards throughout this state to issue clean-up and abatement orders and water replacement orders based upon the detection of <u>any</u> perchlorate found in public drinking water supplies.

///

///

///

(Original printed on acid-free paper)

WHEREFORE, this Resolution is passed, approved and adopted by a four-fifth vote this 21st day of June, 2005.

GRACE VARGAS, Mayor

ATTEST:

BARBARA A. McGEE, City Clerk

APPROVED AS TO FORM:

ROBERT A. OWEN, City Attorney

(Original printed on acid-free paper)

STATE OF CALIFORNIA)
COUNTY OF SAN BERNARDINO)ss
CITY OF RIALTO)

I Barbara A. McGee, City Clerk of the City of Rialto, do hereby certify that the foregoing Resolution No. 5248 was duly passed and adopted at a regular meeting of the City Council of the City of Rialto held on the 21st day of June, 2005.

Upon motion of Councilmember Robertson, seconded by Councilmember Scott, the foregoing Resolution No. 5248 was dully passed and adopted.

Vote on the motion:

AYES: Mayor Vargas, Council Members Robertson, Hanson, Sampson & Scott

NOES: None

ABSENT: None

IN WITNESS WHEREOF, I have hereunto set my hand and the Official Seal of the City of Rialto this 20th day of July, 2005.

Barbara A McGee

BARBARA A. McGEE, CITY CLERK

(Original printed on acid-free paper)

Exhibit F

Combined Remedies Annual O&M Budget Form

(Example)

Task No.	Description	Annual Hours	Hourly Rate	Total	Comments
D1-D14	Daily Observation and Recordings				___ hours per day
ND1	Monthly Reporting				___ hours per month
ND2	DDW WQ Sampling				___ hours per month
ND3	Shaft Rotation				___ hours per month
ND4-ND5	Well Lubrication				___ hours per month
ND6-ND11	Trouble-shooting				___ hours per month
ND12	Bag Filter Change-out				___ hours per quarter
ND13-ND14	UV Maintenance				___ hours per month
ND15	Coordinate the Repair and Maintenance of IX and GAC				___ hours per month
ND16-ND17	Coordinate the change-out of resin or GAC				___ hours per quarter
ND18	Chlorine System Maintenance				___ hours per week
ND19	Adjust Control Panel and Programming				___ hours per year
ND20	Pump Motor Service				___ hours per year
ND21	House Keeping Weed Abatement				___ hours per month

ANNUAL LABOR SUBTOTAL	_____
ADMINISTRATIVE FEE	_____
ANNUAL LABOR TOTAL	_____

MATERIALS/EXPENSES

Materials, expenses and supplies to be billed at cost.

Exhibit G

Procedure for Calculating Colton's Baseline Lifting Cost

As set forth in Paragraph V of this Agreement, Colton has leased certain of its water rights in the Basin to Emhart and the County to be utilized to meet the objectives of the Combined Remedies. Colton, Emhart, and the County shall use the following procedure set forth this Exhibit G to calculate the baseline electrical costs that Colton would incur to lift an acre foot of water when operating its extraction wells in the Basin ("Colton's Baseline Lifting Cost").

The Colton Baseline Lifting Cost is used to calculate the amount Colton shall reimburse Emhart and the County for water pumped by Emhart and the County and delivered to the Colton municipal water supply system pursuant to Emhart and the County's respective leases of Colton Water Rights.

1. Within 30 days following DDW issuance of the amendment of Colton and Rialto's DDW Permits necessary for operation of the Combined Remedies, Emhart, the County, and Colton shall meet and confer to calculate Colton's Baseline Lifting Cost using the following formula: Colton's Baseline Lifting Cost = (the total electrical costs ($) incurred to lift water at Colton wells C-15 and C-17 to the surface in the three years immediately prior to the calculation) ÷ (the total volume of water pumped at C-15 and C-17 (AF) in that same three year period). Colton's Baseline Lifting Cost shall be stated in dollars per acre foot of water ($/AF).

2. If: (1) a change in groundwater levels materially impacts lifting costs in the Basin; or (2) a change in electrical energy costs materially impacts lifting costs in the Basin; Colton, the County, and Emhart shall meet and confer to re-assess whether Colton's Baseline Lifting Cost fairly and adequately represents the cost Colton would otherwise incur to lift an acre foot of water at its extraction wells in the Basin.

Exhibit H

Annual Allocation of CR-3/CTP Energy Costs and Reconciliation of Combined Remedies Energy Costs

This Exhibit H sets forth the procedures for annually (1) allocating the energy costs to operate CR-3 and the CTP ("CR-3/CTP Energy Costs"); and (2) allocating and reconciling all energy costs to operate the Combined Remedies.

Attached hereto is a compact disc (CD) containing a Microsoft Excel Workbook titled "Tables H-1 and H-2.XLSX." That file contains monthly spreadsheets for allocation of CR-3/CTP Energy Costs (Table H-1) and an annual reconciliation spreadsheet (Table H-2). To assist in the preparation of the annual allocation of CR-3/CTP Energy Costs and reconciliation of Combined Remedies energy costs, attached are paper copies of Tables H-1 and H-2 with sample inputs and Tables H-1 and H-2 displaying the spreadsheet formulas used in the file.

I. Allocation of CR-3/CTP Energy Costs (Table H-1)

CR-3/CTP Energy Costs include (1) the cost of energy used to operate the Combined Treatment Plant; and (2) the cost of energy used to extract groundwater at CR-3. Southern California Edison ("SCE") bills Rialto for CR-3/CTP Energy Costs. CR-3/CTP Energy Costs shall be allocated annually using the following procedure:

1. As the service customer on the monthly invoices from SCE for CR-3/CTP Energy Costs, Rialto shall pay those invoices, subject to reimbursement as set in Paragraph II, below.

2. To facilitate allocation of CR-3/CTP Energy Costs, the County and Emhart shall annually request that SCE perform the following energy efficiency tests:

    a. A test to determine the energy required to pump an acre foot of groundwater at CR-3 to the 100,000-gallon equalization tank at the Combined Treatment Plant which shall be reported as "EQ Tank kWh/AF";

    b. A test to determine the energy that Rialto would otherwise use, absent the Combined Remedies, to pump an acre foot of

groundwater from the groundwater table to its municipal water supply system which shall be reported as "Rialto Baseline kWh/AF". To perform this test, groundwater shall be pumped from CR-3 to the infiltration pond at the Combined Treatment Plant through conveyance piping which shall be partially closed to simulate the pressure conditions in adjacent pipelines in Rialto's domestic water supply system.

3. Following the end of the Water Year, Rialto shall prepare the initial draft of Table H-1 for each monthly invoice paid by Rialto. Table H-1 is used to allocate CR-3/CTP Energy Costs on each monthly SCE invoice for reimbursement of Rialto by the County and Emhart in accordance with Paragraph IV.F.2.d of the Agreement. Table H-1 contains the following five data entry steps:

STEP 1: Enter the EQ Tank kWh/AF value determined under Paragraph 2.a, above.

STEP 2: Enter the Rialto Baseline kWh/AF value determined under Paragraph 2.b, above.

STEP 3: Enter the metered volume of water pumped from CR-3 during the monthly billing period ("CR-3 AF").

STEP 4: Enter the energy use values from the monthly SCE invoice.

STEP 5: Based on the numbers entered in Steps 1 through 4, Table H-1 automatically calculates the allocation of CR-3/CTP Energy Costs for each monthly SCE invoice.

II. Reconciliation of Paid and Projected Combined Remedies Energy Costs (Table H-2)

1. In conjunction with the annual preparation of Table H-1, Rialto shall collect and input the data necessary to complete Table H-2. Table H-2 is used to reconcile the previous Water Year's payments for energy costs associated with operation and maintenance of the Combined Remedies, on an annual basis and set the projected quarterly payments for the next Water Year, as follows:

STEP 1: Input monthly water production for each well.

STEP 2: Input monthly delivery of water to Rialto and Colton.

STEP 3: Table H-2 automatically calculates the annualized allocation of CR-3/CTP Energy Costs among the Parties based on the data in Table H-1.

STEP 4: Input percent of pumping at CR-3, Miro-2 and Miro-3 pumped for compliance with the Work Consent Decree and delivery to Colton (to be supplied by County/Emhart).

STEP 5: Input Colton's Baseline Lifting Cost ($/AF) as determined pursuant to Exhibit G; Actual Miro-2 and Miro-3 Lifting Costs ($/AF) as provided by County; and Actual EW-1 Lifting Cost ($/AF) as provided by Emhart.

STEP 6: Input allocation between Emhart and County of Regional Board Remedy Driven Incremental Lifting Costs (CR-3)[1] as provided by County and Emhart.

STEP 7: Input Quarterly Payments made for past Water Year (i.e. the year for which energy costs are being reconciled). In the first Water Year, or any portion thereof, during which the Combined Remedies operate, the Parties shall use available information to estimate the projected quarterly payments.

2. Rialto shall circulate the draft Tables H-1 and H-2 to Emhart, County and Colton, along with the monthly energy bills used to generate the tables, for review by the Parties at the next monthly meeting.

3. The Parties shall meet and confer at the monthly meeting following distribution of the draft Tables H-1 and H-2, and review the documents. Once Tables H-1 and H-2 are finalized and agreed to by the Parties , Rialto shall circulate the approved tables to the Parties, and each Party shall use

[1] Regional Board Remedy Driven Incremental Lifting Costs (CR-3) represent the incremental costs that SCE bills Rialto for energy used to extract groundwater at CR-3 for the County to meet the remedial action objectives of the Regional Board Order. Emhart and the County allocate such costs between them pursuant to the County/Emhart Implementation Agreement.

the tables to invoice other Parties for net amounts estimated to be paid during the next Water Year in quarterly payments, as set forth in Table H-2, with the first payment reflecting a “true-up” credit or debit for the prior year per Exhibit H-2.

4. Payments shall be made quarterly on November 1, February 1, May 1, and August 1, or 60 days from receipt of an invoice for the amount due, whichever is later.

Table H-1

Allocation of CR-3/CTP Energy Costs
(Example)

Table H-1
Allocation of CR-3/CTP Energy Costs
(Example)
Based on SCE August 14 - September 1, 2014 Bill to Rialto

STEP 1	Enter EQ Tank kWh/AF based on SCE testing	878	*This value changes **annually** based on SCE testing*	*Annual Input*
STEP 2	Enter Rialto Baseline kWh/AF	945	*This value changes **annually** based on SCE testing*	*Annual Input*
STEP 3	Enter CR-3 AF	89.8	*This value changes **monthly** based on CR-3 metered water flow measurements*	*Monthly Input*

STEP 4 Enter energy use from monthly SCE bill — Changes ***monthly*** based on SCE bill

	kWh	Energy delivery charges	Generation Charges	*Notes*
Charges Based on kWh				
Delivery				
On peak	8,945	$0.02188	$0.09335	
Off peak	46,761	$0.02188	$0.06078	
Super Off Peak	18,452	$0.02188	$0.01768	
Off peak	39,827	$0.02188	$0.06085	
Super Off Peak	13,812	$0.02188	$0.02812	
Total	127,797			
DWR Bond		$0.00513		*Based on SCE metered total kWh*
Customer Charge		$ 193.26		
Power factor Adj		$ 73.44		
Taxes		$ 0.0003		*Based on SCE metered total kWh*
Energery Credit		$ (0.00037)		*Based on SCE metered total kWh*
Charges Based on kW				
	kW			
Facilities Demand	259	$ 7.86		*kW Based on SCE monthly metering*
On Peak	258	$ 27.31		
Ratio of peak days to billing cycle days		0.5625		*From SCE invoice showing count of peak demand days*

STEP 5

Spreadsheet Calculation of Rialto Baseline energy use as percentage of total metered energy for billling period		
Rialto Baseline energy use	84,861	*Rialto Baseline kWh/AF (from Step 2) X CR-3 AF (from Step 3)*
Rialto Baseline energy use as percentage of total Metered Energy (Rialto %)	66.4%	*Rialto Baseline energy use/Total kWh for billing period (from Step 4)*

Spreadsheet Calculation of relative energy use by CR-3 pumping and CTP operation		
kWh for CR-3 pumping (to EQ Tank)	78,844	*EQ Tank kWh/AF (from Step 1) X CR-3 AF (from Step 3)*
CR-3 pumping as percentage of total Metered Energy	61.7%	*kWh for CR-3 pumping/Total kWh for billing period (from Step 4)*
CTP operation as percentage of total Metered Energy (CTP %)	38.3%	*1 minus CR-3 pumping percentage*

EXAMPLE

Principles for allocation of CR-3/CTP Energy Costs (non-peak, peak and kW-based charges)

The formulas in this Table H-1 are based on the following principles. To the extent that these principles conflict with the provisions of Paragraph IV.F.2.d of the Agreement, the langage of the Agreement shall control.

Non-peak kWh Usage Charges (excludes charges above mid-peak rate)

Principle	***Allocation***	***Notes***
County/Emhart are responsible for the non-peak kWh attributable to the CTP	*CTP% (see step 5)*	*CTP% is percent of electricity used by CTP in that month (as a share of total kWh)*
Rialto is responsible for the kWh attributable to lifting CR3 Water (using the non-peak rates) to pipeline pressure	*Rialto% (see step 5)*	*Represents percent of electricity used that month (as a share of the total kWh) to lift water to the surface at CR3 to pipeline pressure*
County/Emhart are responsible for incremental lifting costs at CR3 at non-peak rates (which due to pumping into a reservoir rather than to pipeline pressure should be a credit)	*Balance (may be negative)*	*The amount of non-peak kWh charges remaining to be paid once CTP% and Rialto% are paid (non-peak charges)*
Peak kWh Usage Charges (charges above mid-peak rates)		
County/Emhart are responsbile for the peak kWh (above mid-peak rates) attributable to the CTP	*CTP% (see step 5)*	*CTP% is percent of electricity used by CTP in that month (as a share of total kWh)*
Rialto not responsible for costs above mid-peak	*Zero percent*	
County/Emhart responsible for incremental lifting costs at CR3 (due to charges above mid-peak)	*Balance of Peak kWh usage charges*	*Peak charges remaining after CTP% is paid represent peak charges of lifting water at CR3*
Charges Based on kW of equipment onsite (size of equipment at site)		
County/Emhart are responsible for electrical delivery charges for the electrical equipment associated with the CTP	*CTP% (see step 5)*	*Percent of power used by CTP is a proxy for delivery charges*
Rialto is responsible for electrical delivery charges for the CR3 pump	*Balance*	*The amount of charges based on kW of equipment onsite remaining to be paid once CTP% is paid*

EXAMPLE

SPREADSHEET ALLOCATION OF CR-3/CTP Energy Costs								
CR-3/CTP Energy Costs (populate automatically from Step 4 above)					CTP Operation (based on reservior test) (County/Emhart pay)	Baseline Lifting Costs (based on pipeline pressure test) (Rialto pays)	Incremental Lifting Costs (County/Emhart pay)	***Notes***
Source	**DELIVERY CHARGES**	**kW**	**Rate**	**Charge**	38.3%	66%		*Does not add to 100% becauase pumping to reservoir is more efficient*
SCE Bill	Facilites rel Demand	259	$7.86	$2,035.74	$779.79	$1,255.95	$0.00	*Allocate to treatment plant and Rialto only*
		kWh	**Rate**					
SCE Bill	On Peak	8945	$0.02188	$195.72	$74.97	$129.96	-$9.21	*Standard Split*
SCE Bill	Mid Peak	46761	$0.02188	$1,023.13	$391.91	$679.39	-$48.17	*Standard Split*
SCE Bill	Off Peak	18452	$0.02188	$403.73	$154.65	$268.09	-$19.01	*Standard Split*
SCE Bill	On Peak	39827	$0.02188	$871.41	$333.80	$578.65	-$41.03	*Standard Split*
SCE Bill	Mid Peak	13812	$0.02188	$302.21	$115.76	$200.67	-$14.23	*Standard Split*
SCE Bill	DWR BOND	127797	$0.00513	$655.60	$251.13	$435.34	-$30.87	*Standard Split*
SCE Bill	Customer Charge		$193.26	$193.26	$74.03	$128.33	-$9.10	*Standard Split*
SCE Bill	Power factor Adj		$73.44	$73.44	$28.13	$48.77	-$3.46	*Standard Split*
	GENERATION CHARGES							
	SERVICE DEMAND	**kW**	**Rate**					
SCE Bill	On Peak	258	$27.31	$3,963.36	$1,518.17	$0	$2,445.20	*No peak charges to Rialto*
	ENERGY DEMAND CHARGES	**kWh**	**Rate**					
SCE Bill	Peak kWh at peak rate (from SCE bill)	8,945	$0.09335	$835.02				
Calculation	Peak kWh at mid-peak rate (breakdown of SCE Bill Value)	8,945	$0.06078	$543.68	$208.26	$361.02	-$25.60	*Standard Split*
Calculation	Peak costs chageable to remedy (both CR-3 lifting and treatment plant)	8,945	$0.03257	$291.34	$111.60	$0.00	$179.74	*Allocate to combined remedy -- none to Rialto*
SCE Bill	Off Peak	46,761	$0.06078	$2,842.13	$1,088.68	$1,887.26	-$133.81	*Standard Split*
SCE Bill	Super Off Peak	18,452	$0.01768	$326.23	$124.96	$216.63	-$15.36	*Standard Split*
SCE Bill	Off Peak	39,827	$0.06085	$2,423.47	$928.31	$1,609.26	-$114.10	*Standard Split*
SCE Bill	Super Off Peak	13,812	$0.02812	$388.39	$148.77	$257.90	-$18.29	*Standard Split*
	OTHER	**kWh**	**Rate**					
SCE Bill	Taxes	127797	$0.00029	$37.06	$14.20	$24.61	-$1.74	*Standard Split*
SCE Bill	Energy Credit	127797	-$0.00037	-$47.28	-$18.11	-$31.40	$2.23	*Standard Split*
TOTAL				**$16,522.62**	**$6,328.99**	**$8,050.42**	**$2,143.22**	
				100%	**38.3%**	**48.7%**	**13.0%**	

EXAMPLE

Table H-1

Allocation of CR-3/CTP Energy Costs
(Excel Spreadsheet Formulas)

Table H-1
Allocation of CR-3/CTP Energy Costs
(Excel Spreadsheet Formulas)
Based on SCE August 14 - September 1, 2014 Bill to Rialto

STEP 1	Enter EQ Tank kWh/AF based on SCE testing		*This value changes **annually** based on SCE testing*	*Annual Input*
STEP 2	Enter Rialto Baseline kWh/AF		*This value changes **annually** based on SCE testing*	*Annual Input*
STEP 3	Enter CR-3 AF		*This value changes **monthly** based on CR-3 metered water flow measurements*	*Monthly Input*

STEP 4 Enter energy use from monthly SCE bill — Changes ***monthly*** based on SCE bill

	kWh	Energy delivery charges	Generation Charges	*Notes*
Charges Based on kWh				
Delivery				
On peak				
Off peak				
Super Off Peak				
Off peak				
Super Off Peak				
Total	=SUM(C15:C19)			
DWR Bond				*Based on SCE metered total kWh*
Customer Charge				
Power factor Adj				
Taxes				*Based on SCE metered total kWh*
Energery Credit				*Based on SCE metered total kWh*
Charges Based on kW				
	kW			
Facilities Demand				*kW Based on SCE monthly metering*
On Peak				
Ratio of peak days to billing cycle days				*From SCE invoice showing count of peak demand days*

STEP 5

Spreadsheet Calculation of Rialto Baseline energy use as percentage of total metered energy for billling period		
Rialto Baseline energy use	=C7*C9	*Rialto Baseline kWh/AF (from Step 2) X CR-3 AF (from Step 3)*
Rialto Baseline energy use as percentage of total Metered Energy (Rialto %)	=C37/C20	*Rialto Baseline energy use/Total kWh for billing period (from Step 4)*

Spreadsheet Calculation of relative energy use by CR-3 pumping and CTP operation		
kWh for CR-3 pumping (to EQ Tank)	=C5*C9	*EQ Tank kWh/AF (from Step 1) X CR-3 AF (from Step 3)*
CR-3 pumping as percentage of total Metered Energy	=C41/C20	*kWh for CR-3 pumping/Total kWh for billing period (from Step 4)*
CTP operation as percentage of total Metered Energy (CTP %)	=1-C42	*1 minus CR-3 pumping percentage*

Principles for allocation of CR-3/CTP Energy Costs (non-peak, peak and kW-based charges)

The formulas in this Table H-1 are based on the following principles. To the extent that these principles conflict with the provisions of Paragraph IV.F.2.d of the Agreement, the langage of the Agreement shall control.

Non-peak kWh Usage Charges (excludes charges above mid-peak rate)

Principle	***Allocation***	***Notes***
County/Emhart are responsible for the non-peak kWh attributable to the CTP	*CTP% (see step 5)*	*CTP% is percent of electricity used by CTP in that month (as a share of total kWh)*
Rialto is responsible for the kWh attributable to lifting CR3 Water (using the non-peak rates) to pipeline pressure	*Rialto% (see step 5)*	*Represents percent of electricity used that month (as a share of the total kWh) to lift water to the surface at CR3 to pipeline pressure*
County/Emhart are responsible for incremental lifting costs at CR3 at non-peak rates (which due to pumping into a reservoir rather than to pipeline pressure should be a credit)	*Balance (may be negative)*	*The amount of non-peak kWh charges remaining to be paid once CTP% and Rialto% are paid (non-peak charges)*
Peak kWh Usage Charges (charges above mid-peak rates)		
County/Emhart are responsbile for the peak kWh (above mid-peak rates) attributable to the CTP	*CTP% (see step 5)*	*CTP% is percent of electricity used by CTP in that month (as a share of total kWh)*
Rialto not responsible for costs above mid-peak	*Zero percent*	
County/Emhart responsible for incremental lifting costs at CR3 (due to charges above mid-peak)	*Balance of Peak kWh usage charges*	*Peak charges remaining after CTP% is paid represent peak charges of lifting water at CR3*
Charges Based on kW of equipment onsite (size of equipment at site)		
County/Emhart are responsible for electrical delivery charges for the electrical equipment associated with the CTP	*CTP% (see step 5)*	*Percent of power used by CTP is a proxy for delivery charges*
Rialto is responsible for electrical delivery charges for the CR3 pump	*Balance*	*The amount of charges based on kW of equipment onsite remaining to be paid once CTP% is paid*

	A	B	C	D	E	F	G	H	I
62	**SPREADSHEET ALLOCATION OF CR-3/CTP Energy Costs**								
63	**CR-3/CTP Energy Costs (populate automatically from Step 4 above)**					**CTP Operation (based on reservior test) (County/Emhart pay)**	**Baseline Lifting Costs (based on pipeline pressure test) (Rialto pays)**	**Incremental Lifting Costs (County/Emhart pay)**	***Notes***
64	**Source**	**DELIVERY CHARGES**	**kW**	**Rate**	**Charge**	=C43	=C38		*Does not add to 100% becauase pumping to reservoir is more efficient*
65	SCE Bill	Facilites rel Demand	=C28	=D28	=D64*C64	=E64*F63	=E64-F64	=E64-(F64+G64)	*Allocate to treatment plant and Rialto only*
66			**kWh**	**Rate**					
67	SCE Bill	On Peak	=C15	=D15	=D66*C66	=E66*F$63	=E66*G$63	=E66-G66-F66	*Standard Split*
68	SCE Bill	Mid Peak	=C16	=D16	=D67*C67	=E67*F$63	=E67*G$63	=E67-G67-F67	*Standard Split*
69	SCE Bill	Off Peak	=C17	=D17	=D68*C68	=E68*F$63	=E68*G$63	=E68-G68-F68	*Standard Split*
70	SCE Bill	On Peak	=C18	=D18	=D69*C69	=E69*F$63	=E69*G$63	=E69-G69-F69	*Standard Split*
71	SCE Bill	Mid Peak	=C19	=D19	=D70*C70	=E70*F$63	=E70*G$63	=E70-G70-F70	*Standard Split*
72	SCE Bill	DWR BOND	=C20	=$D$21	=D71*C71	=E71*F$63	=E71*G$63	=E71-G71-F71	*Standard Split*
73	SCE Bill	Customer Charge		=$D$22	=D72	=E72*F$63	=E72*G$63	=E72-G72-F72	*Standard Split*
74	SCE Bill	Power factor Adj		=$D$23	=D73	=E73*F$63	=E73*G$63	=E73-G73-F73	*Standard Split*
75		**GENERATION CHARGES**							
76		**SERVICE DEMAND**	**kW**	**Rate**					
77	SCE Bill	On Peak	=C29	=D29	=D76*C76*(D33)	=E76*F$63	$0	=E76-F76	*No peak charges to Rialto*
81		**ENERGY DEMAND CHARGES**	**kWh**	**Rate**					
82	SCE Bill	Peak kWh at peak rate (from SCE bill)	=C15	=E15	=D81*C81				
83	Calculation	Peak kWh at mid-peak rate (breakdown of SCE Bill Value)	=C15	=E16	=D82*C82	=E82*F$63	=E82*G$63	=E82-G82-F82	*Standard Split*
84	Calculation	Peak costs chageable to remedy (both CR-3 lifting and treatment plant)	=C82	=D81-D82	=D83*C83	=E83*F$63	$0.00	=E83-F83	*Allocate to combined remedy -- none to Rialto*
85	SCE Bill	Off Peak	=C16	=E16	=C84*D84	=E84*F$63	=E84*G$63	=E84-G84-F84	*Standard Split*
86	SCE Bill	Super Off Peak	=C17	=E17	=C85*D85	=E85*F$63	=E85*G$63	=E85-G85-F85	*Standard Split*
87	SCE Bill	Off Peak	=C18	=E18	=C86*D86	=E86*F$63	=E86*G$63	=E86-G86-F86	*Standard Split*
88	SCE Bill	Super Off Peak	=C19	=E19	=C87*D87	=E87*F$63	=E87*G$63	=E87-G87-F87	*Standard Split*
89									
90		**OTHER**	**kWh**	**Rate**					
91	SCE Bill	Taxes	=C20	=D24	=C90*D90	=E90*F$63	=E90*G$63	=E90-G90-F90	*Standard Split*
92	SCE Bill	Energy Credit	=C20	=D25	=C91*D91	=E91*F$63	=E91*G$63	=E91-G91-F91	*Standard Split*
93	**TOTAL**				**=SUM(E64:E90)-E81+E91**	**=SUM(F64:F91)**	**=SUM(G64:G91)**	**=SUM(H64:H91)**	
94					**=E92/$E92**	**=F92/E92**	**=G92/E92**	**=H92/E92**	

Table H-2

Reconciliation of Paid and Projected Combined Remedies Energy Costs (Example)

Table H-2
Reconciliation of Paid and Projected Combined Remedies Energy Costs
(Example)

Step 1: Input monthly water production (acre feet) for each well (from Operator/Rialto water flow meter readings)

Production Well	October	November	December	January	February	March	April	May	June	July	August	September	Total (AF)	*$ Per AF*	*Total Cost of Pumping Water (by well)*	*Source of $ per AF value*	*Initial Payee*
CR-3	102	102	102	102	102	101	101	100	100	100	100	100	1212	*$101*	*$122,324*	*Exhibit H*	*Rialto*
Miro 2	0	0	0	0	0	0	0	15	15	15	15	15	75	*$105*	*$7,875*	*From County*	*County*
Miro 3	0	0	0	0	0	0	0	100	100	100	100	100	500	*$105*	*$52,500*	*From County*	*County*
EW-1	220	220	220	220	220	220	220	220	220	220	220	220	2640	*$150*	*$396,000*	*From Emhart*	*Emhart*
Total	322	322	322	322	322	321	321	435	435	435	435	435	4427				

Step 2: Input monthly water delivery (acre feet) to Rialto and Colton (from Operator/Rialto water flow meter readings)

	October	November	December	January	February	March	April	May	June	July	August	September	Total (AF)
Delivery to Rialto	56	56	56	56	56	55	55	240	240	240	240	240	1590
Delivery to Colton	266	266	266	266	266	266	266	195	195	195	195	195	2837
Total	322	322	322	322	322	321	321	435	435	435	435	435	4427

Blue Italic Text means that delivery to Cities does not match output from CTP

Step 3: Monthly allocation of CR-3 Lifting Costs and Combined Treatment Plant Energy Costs (from Exhibit H-1 output)

	October	November	December	January	February	March	April	May	June	July	August	September	Total ($)	Per AF
Rialto base lifting costs (CR-3)	$8,050	$8,050	$8,050	$8,050	$8,050	$8,050	$8,050	$8,050	$8,050	$8,050	$8,050	$8,050	$96,605	$80
Remedy-driven incremental lifting costs (CR-3)	$2,143	$2,143	$2,143	$2,143	$2,143	$2,143	$2,143	$2,143	$2,143	$2,143	$2,143	$2,143	$25,719	$21
CTP energy costs	$6,329	$6,329	$6,329	$6,329	$6,329	$6,329	$6,329	$6,329	$6,329	$6,329	$6,329	$6,329	$75,948	$17

EXAMPLE

Red value for AF cost of Incremental CR-3 means no CR-3 lifting occurred so value should be entered manually.

Step 4: Input Pumping at County Wells Required By EPA Remedy Delivered to Colton (%) (based County/Emhart IA)

CR-3	0%
Miro-2	0%
Miro-3	0%

Step 5: Input Lifing Costs ($/AF)

Lifting Cost		Notes	
Colton's Baseline Lifting Cost	$125	*Exhibit G (should not change too often)*	*This is made up for this example.*
Rialto's Baseline Lifting Cost (CR-3)	$80	*Calculated in Step 3*	*This is made up for this example.*
Actual Miro-2 Lifting Cost	$105	*County to provide annual averages.*	*Not important unless Emhart is using part of Miro wells for its remedy.*
Actual Miro-3 Lifting Cost	$105		
Actual EW-1 Lifting Cost	$150	*Emhart to provide annual averages*	*This is made up for this example.*

Step 6: Input allocation of Regional Board Remedy-Driven Icremental Lifting Costs (CR-3) (from County/Emhart IA)

County Share of Regional Board Remedy CR-3 Pumping	80%
Emhart Share of Regional Board Remedy CR-3 Pumping	20%

EXAMPLE

TABLE 1: ANNUALIZED WATER ALLOCATION										Notes
	EW1 (AF)	CR-3 (AF)	Miro 2 (AF)	Miro 3 (AF)	Total (AF)	For Colton (AF)	Percent to Colton	For Rialto (AF)	Percent to Rialto	
Pumping for Emhart Remedy	2640	0	0	0	2640	2640	100%	0	0%	*Colton gets all water pumped for Emhart remedy on an annual basis*
Pumping for County Remedy	0	1212	75	500	1787	197	11%	1590	89%	*Colton gets from County the delta between water delivered Colton minus what Emhart pumped that water year. Rialto gets all water not delivered to Colton.*
Total	2640	1212	75	500	4427	2837	64%	1590	36%	

TABLE 2: CALCULATION OF LIFTING COST ALLOCATION (excludes electrical from Treatment Plant, addressed separately below)									
Description	**Cash flow**	**AF**	**Base Cost**	**Total Cost**	***Cost note***	**To Rialto**	**To County**	**To Emhart**	**to Colton**
Total Emhart Remedy Pumping (delivered to Colton)	Colton pays Emhart	2640	$125	$330,000	*Colton Base Lifting Costs*			$330,000	($330,000)
Total County Remedy Pumping that was Delivered to Colton	Colton pays County	197	$125	$24,625			$24,625		($24,625)
County Remedy Pumping at CR-3 that was Delivered to Colton	County pays Rialto	134	$80	$10,650	*From Exhibit H -- Rialto Base CR-3 Lifting Costs (annual average)*	$10,650	($10,650)		
Emhart Remedy Pumping at CR-3 that was delievered to Colton	Emhart pays Rialto	0	$101	$0		$0		$0	
County Remedy Pumping at Miro 2 and Miro 3 that was delivered to Rialto	Rialto Pays County	512	$80	$40,779		($40,779)	$40,779		
County share of Regional Board Remedy-driven Incremental Lifting Costs (CR-3)	County pays Rialto	1212	$17	$20,575	*80% of Remedy-driven incremental (per County/Emhart Agreement; Exhibit H)*	$20,575	($20,575)		
Emhart Share of Regional Boad Remedy-driven Incremental Lifting Costs (CR-3)	Emhart pays Rialto	1212	$4	$5,144	*20% of Remedy-driven incremental (per County/Emhart Agreement; Exhibit H)*	$5,144		($5,144)	
Emhart Remedy Pumping at Miro 2 and Miro 3 (delivered to Colton)	Emhart to County	0	$105	$0	*Actual lifting costs at Miro 2/3 (County to provide if needed)*		$0	$0	

EXAMPLE

TABLE 3: ALLOCATION OF TREATMENT PLANT ELECTRICAL COSTS			
	Percent	Annual Amount	*Notes*
County Share of CTP Energy Costs	35%	$26,499	*Per County Emhart Allocation Agreement (County share is 80% of CR-3 flow+ 100% of Miro 2 and Miro 3) (first 2 years)*
Emhart Share of CTP Energy Costs	65%	$49,449	*Per County Emhart Allocation Agreement (Emhart share is 20% of CR-3 flow plus 100% of EW1 Share)(first 2 years)*
Total		$75,948	

TABLE 4: COMBINED REMEDY SHARE OF ELECTRICAL AT CR-3 METER (CR-3 INCREMENTAL PLUS CTP)			
	To Rialto	County Share	Emhart Share
Remedy-drive Incremental lifting at CR-3	$25,719	$20,575	$5,144
CTP energy costs	$75,948	$26,499	$49,449
Total	$101,666	$47,073	$54,593

TABLE 5: END OF YEAR WATER SUMMARY (Annual Total Based on Water and Treatment Plant Use)				
	To Rialto	**To Emhart**	**To County**	***Notes***
County Owes	$57,723	NA	NA	*County pays to Rialto its share of CTP Energy, its share of remedy-driven incremental at CR-3, and for CR-3 water delivered to Colton*
Colton Owes	NA	$330,000	$24,625	*Colton pays its base lifting costs * AF of water received (to Emhart or County)*
Rialto Owes	NA	NA	$40,779	*Rialto pays its lifting costs for water it receives from Miro 2 and Miro 3*
Emhart Owes	$54,593	NA	$0	*Emhart pays to Rialto, its share of CTP Energy, its share of remedy-driven incremental at CR-3, its share of CR-3 pumped for Emhart remedy; Emhart pays to County for Miro 2 and Miro 3 water Emhart delivers to Colton (if any)*

EXAMPLE

Step 7: Annual Energy Cost Reconciliation

	Previous Water Year Payments				Reconciliation and Estimated Next Water Year Payments			
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total Previous Water Year Payments	Actual Allocated Cost	Balance Due	Estimated Quarterly Payments for Next Water Year
County to Rialto	$9,500	$9,500	$9,500	$9,500	$38,000	$16,944	($21,056)	$4,236
Colton to Emhart	$84,200	$84,200	$84,200	$84,200	$336,800	$330,000	($6,800)	$82,500
Colton to County	$4,200	$4,200	$4,200	$4,200	$16,800	$24,625	$7,825	$6,156
Emhart to Rialto	$29,000	$29,000	$29,000	$29,000	$116,000	$54,593	($61,407)	$13,648
Emhart to County	$0	$0	$0	$0	$0	$0	$0	$0
Explanatory Notes						*Use this Column to determine Annual Payments for next Water Year*	*Negative value means payee writes a check to payor. Can handle as credit on first quarterly payment*	*Current Year Actual divided by 4*

EXAMPLE

Table H-2

Reconciliation of Paid and Projected Combined Remedies Energy Costs (Excel Spreadsheet Formulas)

Table H-2
Reconciliation of Paid and Projected Combined Remedies Energy Costs
(Excel Spreadsheet Formulas)

Step 1: Input monthly water production (acre feet) for each well (from Operator/Rialto water flow meter readings)

Production Well	October	November	December	January	February	March	April	May	June	July	August	September	Total (AF)	*$ Per AF*	*Total Cost of Pumping Water (by well)*	*Source of $ per AF value*	*Initial Payee*
CR-3													=SUM(B7:M7)	*=O23+O22*	*=O7*N7*	*Exhibit H*	*Rialto*
Miro 2													=SUM(B8:M8)	*=B35*	*=O8*N8*	*From County*	*County*
Miro 3													=SUM(B9:M9)	*=B36*	*=O9*N9*	*From County*	*County*
EW-1													=SUM(B10:M10)	*=B37*	*=O10*N10*	*From Emhart*	*Emhart*
Total	=SUM(B7:B10)	=SUM(C7:C10)	=SUM(D7:D10)	=SUM(E7:E10)	=SUM(F7:F10)	=SUM(G7:G10)	=SUM(H7:H10)	=SUM(I7:I10)	=SUM(J7:J10)	=SUM(K7:K10)	=SUM(L7:L10)	=SUM(M7:M10)	=SUM(N7:N10)				

Step 2: Input monthly water delivery (acre feet) to Rialto and Colton (from Operator/Rialto water flow meter readings)

	October	November	December	January	February	March	April	May	June	July	August	September	Total (AF)
Delivery to Rialto													=SUM(B15:M15)
Delivery to Colton													=SUM(B16:M16)
Total	=SUM(B15:B16)	=SUM(C15:C16)	=SUM(D15:D16)	=SUM(E15:E16)	=SUM(F15:F16)	=SUM(G15:G16)	=SUM(H15:H16)	=SUM(I15:I16)	=SUM(J15:J16)	=SUM(K15:K16)	=SUM(L15:L16)	=SUM(M15:M16)	=SUM(N15:N16)

Blue Italic Text means that delivery to Cities does not match output from CTP

Step 3: Monthly allocation of CR-3 Lifting Costs and Combined Treatment Plant Energy Costs (from Exhibit H-1 output)

	October	November	December	January	February	March	April	May	June	July	August	September	Total ($)	Per AF
Rialto base lifting costs (CR-3)	='Table H-1 OCT'!$G$92	='Table H-1 NOV'!$G$92	='Table H-1 DEC'!$G$92	='Table H-1 JAN'!$G$92	='Table H-1 FEB'!$G$92	='Table H-1 MAR'!$G$92	='Table H-1 APR'!$G$92	='Table H-1 MAY'!$G$92	='Table H-1 JUN'!$G$92	='Table H-1 JUL'!$G$92	='Table H-1 AUG'!$G$92	='Table H-1 SEP'!$G$92	=SUM(B22:M22)	=IF(N7'=0,O8, N22/N7)
Remedy-driven incremental lifting costs (CR-3)	='Table H-1 OCT'!$H$92	='Table H-1 NOV'!$H$92	='Table H-1 DEC'!$H$92	='Table H-1 JAN'!$H$92	='Table H-1 FEB'!$H$92	='Table H-1 MAR'!$H$92	='Table H-1 APR'!$H$92	='Table H-1 MAY'!$H$92	='Table H-1 JUN'!$H$92	='Table H-1 JUL'!$H$92	='Table H-1 AUG'!$H$92	='Table H-1 SEP'!$H$92	=SUM(B23:M23)	=IF(N7'=0,0,N23/N7)
CTP energy costs	='Table H-1 OCT'!$F$92	='Table H-1 NOV'!$F$92	='Table H-1 DEC'!$F$92	='Table H-1 JAN'!$F$92	='Table H-1 FEB'!$F$92	='Table H-1 MAR'!$F$92	='Table H-1 APR'!$F$92	='Table H-1 MAY'!$F$92	='Table H-1 JUN'!$F$92	='Table H-1 JUL'!$F$92	='Table H-1 AUG'!$F$92	='Table H-1 SEP'!$F$92	=SUM(B24:M24)	=N24/N11

Red value for AF cost of Incremental CR-3 means no CR-3 lifting occurred so value should be entered manually.

	A	B	C	D	E	F	G	H
26	**Step 4: Input Pumping at County Wells Required By EPA Remedy Delivered to Colton (%) (based County/Emhart IA)**							
27	CR-3							
28	Miro-2							
29	Miro-3							
30								
31	**Step 5: Input Lifing Costs ($/AF)**							
32	**Lifting Cost**		**Notes**					
33	Colton's Baseline Lifting Cost		*Exhibit G (should not change too often)*	*This is made up for this example.*				
34	Rialto's Baseline Lifting Cost (CR-3)	=O22	*Calculated in Step 3*	*This is made up for this example.*				
35	Actual Miro-2 Lifting Cost		*County to provide annual averages.*	*Not important unless Emhart is using part of Miro wells for its remedy.*				
36	Actual Miro-3 Lifting Cost							
37	Actual EW-1 Lifting Cost		*Emhart to provide annual averages*	*This is made up for this example.*				
38								
39	**Step 6: Input allocation of Regional Board Remedy-Driven Icremental Lifting Costs (CR-3) (from County/Emhart IA)**							
40	County Share of Regional Board Remedy CR-3 Pumping							
41	Emhart Share of Regional Board Remedy CR-3 Pumping	=1-B40						

TABLE 1: ANNUALIZED WATER ALLOCATION

	EW1 (AF)	CR-3 (AF)	Miro 2 (AF)	Miro 3 (AF)	Total (AF)	For Colton (AF)	Percent to Colton	For Rialto (AF)	Percent to Rialto	***Notes***
Pumping for Emhart Remedy	=N10	=N7*B27	=N8*B28	=N9*B29	=SUM(B44:E44)	=F44	=G44/F44	0	=I44/H44	*Colton gets all water pumped for Emhart remedy on an annual basis*
Pumping for County Remedy	0	=N7-C44	=N8-D44	=N9-E44	=SUM(B45:E45)	=N16-G44	=G45/F45	=F45-G45	=I45/F45	*Colton gets from County the delta between water delivered Colton minus what Emhart pumped that water year. Rialto gets all water not delivered to Colton.*
Total	=SUM(B44:B45)	=SUM(C44:C45)	=SUM(D44:D45)	=SUM(E44:E45)	=SUM(F44:F45)	=SUM(G44:G45)	=G46/F46	=SUM(I44:I45)	=I46/F46	

TABLE 2: CALCULATION OF LIFTING COST ALLOCATION (excludes electrical from Treatment Plant, addressed separately below)

Description	Cash flow	AF	Base Cost	Total Cost	***Cost note***	To Rialto	To County	To Emhart	to Colton
Total Emhart Remedy Pumping (delivered to Colton)	Colton pays Emhart	=F44	=$B$33	=D50*C50	*Colton Base Lifting Costs*			=E50	=0-E50
Total County Remedy Pumping that was Delivered to Colton	Colton pays County	=G45	=$B$33	=D51*C51			=E51		=0-E51
County Remedy Pumping at CR-3 that was Delivered to Colton	County pays Rialto	=C45*H45	=$O$22	=D52*C52		=E52	=0-E52		
Emhart Remedy Pumping at CR-3 that was delievered to Colton	Emhart pays Rialto	=C44	=$O$22+$O$23	=D53*C53	*From Exhibit H -- Rialto Base CR-3 Lifting Costs (annual average)*	=E53		=0-E53	
County Remedy Pumping at Miro 2 and Miro 3 that was delivered to Rialto	Rialto Pays County	=(D45+E45)*(1-H45)	=$O$22	=D54*C54		=0-E54	=E54		
County share of Regional Board Remedy-driven Incremental Lifting Costs (CR-3)	County pays Rialto	=C45	=O23*B40	=D55*C55	*80% of Remedy-driven incremental (per County/Emhart Agreement; Exhibit H)*	=E55	=0-E55		
Emhart Share of Regional Boad Remedy-driven Incremental Lifting Costs (CR-3)	Emhart pays Rialto	=C45	=O23*B41	=D56*C56	*20% of Remedy-driven incremental (per County/Emhart Agreement; Exhibit H)*	=E56		=0-E56	
Emhart Remedy Pumping at Miro 2 and Miro 3 (delivered to Colton)	Emhart to County	=D44+E44	=B35	=D57*C57	*Actual lifting costs at Miro 2/3 (County to provide if needed)*		=E57	=0-E57	

	A	B	C	D
59	**TABLE 3: ALLOCATION OF TREATMENT PLANT ELECTRICAL COSTS**			
60		Percent	Annual Amount	*Notes*
61	County Share of CTP Energy Costs	=(B40*C45+D45+E45)/F46	=B61*N$24	*Per County Emhart Allocation Agreement (County share is 80% of CR-3 flow+ 100% of Miro 2 and Miro 3) (first 2 years)*
62	Emhart Share of CTP Energy Costs	=1-B61	=B62*N$24	*Per County Emhart Allocation Agreement (Emhart share is 20% of CR-3 flow plus 100% of EW1 Share)(first 2 years)*
63	**Total**		=SUM(C61:C62)	
64				
65				
66				

	G	H	I	J
	TABLE 4: COMBINED REMEDY SHARE OF ELECTRICAL AT CR-3 METER (CR-3 INCREMENTAL PLUS CTP)			
		To Rialto	County Share	Emhart Share
	Remedy-drive Incremental lifting at CR-3	=SUM(N23)	=H61*B40	=H61*B41
	CTP energy costs	=C63	=C61	=C62
	Total	=SUM(H61:H62)	=SUM(I61:I62)	=SUM(J61:J62)

	A	B	C	D	E
67	**TABLE 5: END OF YEAR WATER SUMMARY (Annual Total Based on Water and Treatment Plant Use)**				
68		**To Rialto**	**To Emhart**	**To County**	***Notes***
69	County Owes	=H52+H55+C61	NA	NA	*County pays to Rialto its share of CTP Energy, its share of remedy-driven incremental at CR-3, and for CR-3 water delivered to Colton*
70	Colton Owes	NA	=J50	=I51	*Colton pays its base lifting costs * AF of water received (to Emhart or County)*
71	Rialto Owes	NA	NA	=I54	*Rialto pays its lifting costs for water it receives from Miro 2 and Miro 3*
72	Emhart Owes	=C62+H56+H53	NA	=I57	*Emhart pays to Rialto, its share of CTP Energy, its share of remedy-driven incremental at CR-3, its share of CR-3 pumped for Emhart remedy; Emhart pays to County for Miro 2 and Miro 3 water Emhart delivers to Colton (if any)*
73					

	A	B	C	D	E	F	G	H	I
74	**Step 7: Annual Energy Cost Reconciliation**								
75		Previous Water Year Payments				Reconciliation and Estimated Next Water Year Payments			
76		First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total Previous Water Year Payments	Actual Allocated Cost	Balance Due	Estimated Quarterly Payments for Next Water Year
77	County to Rialto					=SUM(B77:E77)	=B69-D71	=G77-F77	=G77/4
78	Colton to Emhart					=SUM(B78:E78)	=J50	=G78-F78	=G78/4
79	Colton to County					=SUM(B79:E79)	=I51	=G79-F79	=G79/4
80	Emhart to Rialto					=SUM(B80:E80)	=B72	=G80-F80	=G80/4
81	Emhart to County					=SUM(B81:E81)	=D72	=G81-F81	=G81/4
82	*Explanatory Notes*						*Use this Column to determine Annual Payments for next Water Year*	*Negative value means payee writes a check to payor. Can handle as credit on first quarterly payment*	*Current Year Actual divided by 4*

Exhibit I

Water Management Plan
(Example)

EXHIBIT I - COMBINED REMEDIES ANNUAL WATER MANAGEMENT PLAN

Step 1: Input Planned Combined Remedies Output

PLANNED COMBINED REMEDIES OUTPUT									
Month	Emhart Pumping[1 2]			County Pumping[2 3]				Combined Remedies Total	
Winter Months	EW-1 (gpm)	Possible EW-2 (gpm)	Emhart Total (AF)[3]	RIALTO-3 (gpm)	Miro-2 (gpm)	Miro-3 (gpm)	County Total (AF)	(gpm)	(AF)
October	1635		220	800			108	2435	328
November	1635		220	800			108	2435	328
December	1635		220	800			108	2435	328
January	1635		220	800			108	2435	328
February	1635		220	800			108	2435	328
March	1635		220	800			108	2435	328
April	1635		220	800			108	2435	328
Summer Months									
May	1635		220	1540			207	3175	427
June	1635		220	1540			207	3175	427
July	1635		220	1540			207	3175	427
August	1635		220	1540			207	3175	427
September	1635		220	1530			206	3165	426
Annual Total			**2639**				**1788**		**4427**
Annual Average	**1635**		**220**	**1108**			**149**	**2743**	**369**
								Red Box means that treatment plant production exceeds ability to deliver water to Colton	*Red Box means that treatment plant production exceeds available water rights*

EXAMPLE

Notes

1 *Emhart pumping not to exceed "Current Rights Available to Emhart" identified below.*

2 *Emhart pumping may in the future include a portion of other extraction wells, such as Rialto-3. In that instance, table can be modified as appropriate.*

3 *County pumping not to exceed "Current Rights Available to County" identified below.*

4 *County pumping may in the future include other wells. In that instance, table can be modified as appropriate.*

5 *1 gpm = 0.134506281 Acre Feet per Month*

Step 2: Input Available Water Rights

AVAILABLE RIALTO AND COLTON WATER RIGHTS (AF)							
City	Rights per 1961 Decree	Current Required % Reduction per 1961 Decree (cannot be greater than 50%)	Current Rights Per 1961 Decree (AF)	Rialto Rights Unavailable to Rialto due to Standby Agreement	Current Rights Available to Emhart (AF) [Accounting for 200 AF agreement between Colton and County]	Current Rights Available to County (AF)	Combined Remedy Rights Available for Treatment Plant (AF)
Rialto	4366	27%	3187	1600	0	1587	1587
Colton	3900	27%	2847	NA	2647	200	2847
Total	8266		6034		2647	1787	4434

Step 3: Input Colton Monthly Minimum Needs and Maximum Capacity to Accept Water from the Combined Remedies

COLTON WATER BUDGET (AF)			
Month	Minimum Water Needs	Maximum Capacity of Colton to Accept Water	
October	115	300	*Text is red if value exceeds water delivery capacity to Colton*
November	115	300	
December	115	300	
January	115	300	
February	115	300	
March	115	300	
April	115	300	
May	196	400	
June	196	400	
July	196	400	
August	196	400	
September	196	400	
TOTAL*	1785	*Box is red if minimum water needs exceed Colton Water Rights*	

** Not to exceed Colton Water Rights*

Step 4: Input Monthly Maximum Operational Flow Rate for Delivery of Water to Rialto and Colton

	Maximum Operational Flow Rate (gpm)	Maximum Volume of Water Deliverable to Colton (AF)	Upper Limit for Delivery of Water to Colton* (AF)	
Octboer	2040	274	274	*Text is red if maximum volume of water deliverable to Colton is less than Colton minimum water needs*
November	2040	274	274	
December	2040	274	274	
January	2040	274	274	
February	2040	274	274	
March	2040	274	274	
April	2040	274	274	
May	2040	274	274	
June	2040	274	274	
July	2040	274	274	
August	2040	274	274	
September	2040	274	274	
Total	2040	3293		

** Lesser of Maximum Capacity of Colton to Accept Water (Step 3, Column C) and Maximum Volume of Water Deliverable to Colton (Step 4, Column C)*

Maximum Water Deliverable to Rialto Per Month (AF)	(gpm)	(AF)
	4000	538

EXAMPLE

Step 5: Input Rialto Month-by-Month Minimum Needs

RIALTO WATER BUDGET	
Month	**Minimum Water Needs (AF)**
October	75
November	75
December	75
January	75
February	75
March	75
April	75
May	200
June	200
July	200
August	200
September	200
Total*	1525

Box is red if minimum water needs exceed Rialto Water Rights

** Not to exceed Rialto Water Rights*

Step 6: Parties meet and confer to determine if they can agree upon maximum prioritized delivery of water to Colton in winter months (Table 1) or must revert to default water delivery schedule (Table 2)

For Table 1

Calculation of Maximum Monthly Delivery to Colton in Winter (to ensure Colton can receive its minimum needs in the summer)

Colton Water Rights	Minimum Summer Needs (sum of minimum for each summer month)	Water Rights Available in Winter Months (rights minus summer minimum needs)	Maximum Monthly Delivery to Colton in Winter to Preserve Rights for Summer (available winter rights/7)*
2847	980	1867	267

Calculation of Water Pumped for Colton for County Remedy

What County Pumped	Annual Delivery Capacity Available to County for Initial 200 AF	Rialto Water Rights	Amount Rialto can Pump from other wells (before any adjustments)	Water County Pumps for Colton Above 200 AF (per Water Year)
1788	200	1587	0	0

** Purple Box indicates value exceeds capacity tp deliver water to Colton*

Calculation of Water to Colton in the Summer Months

What Emhart Pumped (all for Colton) (AF per water year)	What County Pumped for Colton (AF per water year)	Total to Colton (AF per water year)	Total Water to Colton in Summer Months (AF)	Monthly Total to Colton in Summer Months (AF per month) (assuming Rialto rights utilized as much as possible for County Remedy)	Maximum Potential Water to Colton in Summer (assuming Colton uses all its water rights available after subtracting winter use)
2639	200	2839	1072	214	216
(From production values above)	*(From table above)*	*(Emhart delivery plus County delivery)*	*(Annual total AF to Colton minus water to Colton in winter)*	*If cell is green, delivery to Colton will be limited by delivery capacity*	*Used to calculate potential shift of water to Colton in summer to meet minimum Colton needs (which in turn allows Rialto to produce more from its other wells). Green indicates potential delivery limited by delivery capacity to Colton.*

EXAMPLE

Table 1 - Maximum Prioritized Delivery of Water to Colton in Winter Months						
Month	**Planned Combined Remedies Output (AF)**	**Planned Delivery to Rialto (AF)**	**Remaining Rialto Water Rights (AF)**	**Planned Delivery to Colton (AF)**	**Remaining Colton Water Rights (AF)**	**If Planned Delivery to Colton (Column E) is less than Colton's minimum water needs in a given month, and Colton has additional available water rights, the Parties may manually increase the Planned Delivery to Colton by inputting the amount of Colton Water Rights to be preferentially used by the County (per Paragraph VI. B. 2. a. ix.) (AF)**
Start (Total Water Rights)			1587		2847	
October	328	75	1512	253	2594	0
November	328	75	1437	253	2342	0
December	328	75	1362	253	2089	0
January	328	75	1287	253	1837	0
February	328	75	1212	253	1584	0
March	328	75	1137	253	1332	0
April	328	75	1062	253	1079	0
May	427	213	849	214	865	0
June	427	213	637	214	651	0
July	427	213	424	214	436	0
August	427	213	211	214	222	0
September	426	211	0	214	8	0
Total Water Delivered	**4427**	**1587**		**2839**		
Unused Water Rights for Water Year			**0**		**8**	0
	Box is Red if CTP produces more than capacity to deliver water to Colton.	*Red Box means CTP output does not match water provided to Rialto and Colton. Blue Box means delivery is less than minimum monthly need. Green Box means that production plus other water rights meets minimum monthly needs in summer.*	*Red Box means delivery exceeds water rights.*	*Red Box means CTP output does not match water provided to Rialto and Colton. Blue Box means delivery is less than minimum monthly need. Yellow text means that delivery to Colton limited by delivery capacity to Colton. Purple text means some CTP Output shifted to Colton from Rialto.*	*Red Box means delivery exceeds water rights*	*Red Box Means Value Causes water to Colton to exceed delivery capacity to Colton*

EXAMPLE

Under the "Maximum Prioritized Delivery" schedule:

In each Winter Month:

1 *Colton receives the lesser of (1) a value equal to 1/7th of the Colton Water Rights minus the total summer minimum water needs (2)the monthly treatment plant output minus the lesser of (Rialto minimum monthly needs and the amount pumped for the County*

2 *Rialto receives all water that is not delivered to Colton. The Colton delivery calculation ensures that Rialto receives at least its minimum needs, provided that such volume does not exceed the volume of water pumped by the County in that month*

In each Summer Month:

1 *Colton receives the lesser of (1) a value equal to 1/5th of the total to be pumped for Colton in that water year less the amount pumped in the winter months (2) the monthly maximum capacity to deliver water to Colton and (3) Colton's maximum capacity to accept water*

2 *Rialto receives all water that is not delivered to Colton.*

If remaining water rights are less than zero, County/Emhart will need to evaluate changes to production rates or alternative sources of water.

Table 2 - Default Water Delivery Schedule								
Month	**Planned Combined Remedies Output (AF)**	**Colton 200 AF Pumped for County Remedy Delivered to Colton (AF)**	**Planned Delivery to Rialto (AF)**	**Remaining Rialto Water Rights (AF)**	**Planned Delivery to Colton (AF) for Emhart**	**Planned Delivery to Colton (AF) for Combined Remedy**	**Remaining Colton Water Rights (AF)**	**Surplus Available to County to Pump for Colton (AF)**
Start (Total Water Rights)				1587			2847	
October	328	28.6	79	1508	220	248	2599	
November	328	28.6	79	1429	220	248	2350	
December	328	28.6	79	1350	220	248	2102	
January	328	28.6	79	1271	220	248	1853	
February	328	28.6	79	1192	220	248	1605	
March	328	28.6	79	1113	220	248	1356	
April	328	28.6	79	1034	220	248	1108	
May	427	0	207	827	220	220	888	
June	427	0	207	620	220	220	668	8
July	427	0	207	413	220	220	448	8
August	427	0	207	205	220	220	228	8
September	426	0	206	0	220	220	8	8
Total Water Delivered	**4427**	**200**	**1588**		**2639**	**2839**		
Unused Water Rights for Water Year				**0**			**8**	
	Red Box indicates mismatch between CTP output and delivery to cities.	*Delivery is reduced if capacity to deliver water to Colton is not sufficient to deliver 200 AF to Colton.*	*Blue Box means delivery is less than minimum monthly need.*	*Red Box means delivery exceeds water rights.*	*Blue Box means delivery is less than minimum monthly need. Green text means that delivery to Colton limited by delivery capacity.*	*Blue Box means delivery is less than minimum monthly need. Green text means that delivery to Colton limited by delivery capacity.*	*Red Box means delivery exceeds water rights.*	

EXAMPLE

Under the "Default Delivery" schedule:

Rialto receives all water pumped by County (except for 200 AF that the County may pump for Colton and Colton receives all water pumped by Emhart plus the 200 AF that the County may pump for Colton. The Colton 200 AF from the County is divided equally among the Winter Months.

If remaining water rights are less than zero, County/Emhart will need to evaluate changes to production rates or alternative sources of water.

Step 7: Parties shall make any necessary modifications to the WMP as required by the limitations of Paragraph VI.B.2.a of the Four Party Implementation Agreement

Instructions

1. County and Emhart provide data for yellow boxes in rows 9 to 21
2. Rialto and Colton provide anticipated percent reductions for yellow boxes on rows 36 and 37
3. Colton provides its minimum needs and maximum capacity to receive water by month (yellow boxes on rows 44 to 55)
4. Colton and Rialto identify capacity values for yellow cells on rows 61 and 72, 75 (likely no change year to year)
5. Rialto provide its minimum needs by month (rows 82 to 93)
6. County and Emhart adjust anticipated treatment plant output (yellow cells on rows 9 to 21) to ensure minimum needs are met and water rights not exceeded (based on data provided by cities). Check
7. Each month, update yellow cells using actual production and delivery data (rows 9 to 21 and 82 to 93). Adjust future months as appropriate.
8. After trigger measurements reported in June, parties adjust data to reflect deliveries and pumping to date (for that water year) and curtailment. Parties make other adjustments as needed to pumping pattern to ensure pumping does not exceed water rights.
9. If Colton has extra water rights, it can request additional deliveries up to production of treatment plant, provided that Rialto is able to increase its production at other wells to accommodate a reduced
10. After trigger measurement, County can request use of additional Colton water rights (subject to delivery capacity restraints) or Colton can utilize those rights at its other wells.
11. Rialto can produce from its other wells an amount equal to its excess rights, following reporting of the curtailment, if such rights are not needed for the County Remedy.

Some things to Check:

1. Does minimum need of each city fall within its water rights?
2. Is each city getting its minimum needs met?
3. Can an adjustments to seasonal pumping fix a problem with 2?
4. If capacity to deliver water to Colton is limited, can water be wheeled to Colton in another way?
5. If production exceeds water rights, will need to reduce pumping from treatment plant unless Emhart or County can get additional water rights.

EXAMPLE

Exhibit I

Water Management Plan
(Excel Spreadsheet Formulas)

EXHIBIT I - COMBINED REMEDIES ANNUAL WATER MANAGEMENT PLAN

Step 1: Input Planned Combined Remedies Output

PLANNED COMBINED REMEDIES OUTPUT

Month	Emhart Pumping[1,2]			County Pumping[2,3]				Combined Remedies Total	
	EW-1 (gpm)	Possible EW-2 (gpm)	Emhart Total (AF)[3]	RIALTO-3 (gpm)	Miro-2 (gpm)	Miro-3 (gpm)	County Total (AF)	(gpm)	(AF)
Winter Months									
October			=SUM(B9:C9)*$C$30				=SUM(E9:G9)*$C$30	=SUM(B9:C9,E9:G9)	=D9+H9
November			=SUM(B10:C10)*$C$30				=SUM(E10:G10)*$C$30	=SUM(B10:C10,E10:G10)	=D10+H10
December			=SUM(B11:C11)*$C$30				=SUM(E11:G11)*$C$30	=SUM(B11:C11,E11:G11)	=D11+H11
January			=SUM(B12:C12)*$C$30				=SUM(E12:G12)*$C$30	=SUM(B12:C12,E12:G12)	=D12+H12
February			=SUM(B13:C13)*$C$30				=SUM(E13:G13)*$C$30	=SUM(B13:C13,E13:G13)	=D13+H13
March			=SUM(B14:C14)*$C$30				=SUM(E14:G14)*$C$30	=SUM(B14:C14,E14:G14)	=D14+H14
April			=SUM(B15:C15)*$C$30				=SUM(E15:G15)*$C$30	=SUM(B15:C15,E15:G15)	=D15+H15
Summer Months									
May			=SUM(B17:C17)*$C$30				=SUM(E17:G17)*C$30	=SUM(B17:C17,E17:G17)	=D17+H17
June			=SUM(B18:C18)*$C$30				=SUM(E18:G18)*C$30	=SUM(B18:C18,E18:G18)	=D18+H18
July			=SUM(B19:C19)*$C$30				=SUM(E19:G19)*C$30	=SUM(B19:C19,E19:G19)	=D19+H19
August			=SUM(B20:C20)*$C$30				=SUM(E20:G20)*C$30	=SUM(B20:C20,E20:G20)	=D20+H20
September			=SUM(B21:C21)*$C$30				=SUM(E21:G21)*C$30	=SUM(B21:C21,E21:G21)	=D21+H21
Annual Total			**=SUM(D9:D21)**				**=SUM(H9:H21)**		**=SUM(J9:J21)**
Annual Average	**=AVERAGE(B9:B21)**		**=AVERAGE(D9:D21)**	**=AVERAGE(E9:E21)**			**=AVERAGE(H9:H21)**	**=AVERAGE(I9:I21)**	**=AVERAGE(J9:J21)**

Red Box means that treatment plant production exceeds ability to deliver water to Colton

Red Box means that treatment plant production exceeds available water rights

Notes

1 *Emhart pumping not to exceed "Current Rights Available to Emhart" identified below.*

2 *Emhart pumping may in the future include a portion of other extraction wells, such as Rialto-3. In that instance, table can be modified as appropriate.*

3 *County pumping not to exceed "Current Rights Available to County" identified below.*

4 *County pumping may in the future include other wells. In that instance, table can be modified as appropriate.*

5 *1 gpm = 0.134506281 Acre Feet per Month*

	A	B	C	D	E	F	G	H
32	**Step 2: Input Available Water Rights**							
33								
34	**AVAILABLE RIALTO AND COLTON WATER RIGHTS (AF)**							
35	**City**	**Rights per 1961 Decree**	**Current Required % Reduction per 1961 Decree (cannot be greater than 50%)**	**Current Rights Per 1961 Decree (AF)**	**Rialto Rights Unavailable to Rialto due to Standby Agreement**	**Current Rights Available to Emhart (AF) [Accounting for 200 AF agreement between Colton and County]**	**Current Rights Available to County (AF)**	**Combined Remedy Rights Available for Treatment Plant (AF)**
36	Rialto	4366		=B36-4366*C36	1600	0	=D36-E36	=SUM(F36:G36)
37	Colton	3900		=B37-B37*C37	NA	=D37-200	200	=SUM(F37:G37)
38	Total	=SUM(B36:B37)		=SUM(D36:D37)		=SUM(F36:F37)	=SUM(G36:G37)	=SUM(F38:G38)
39								
40	**Step 3: Input Colton Monthly Minimum Needs and Maximum Capacity to Accept Water from the Combined Remedies**							
41								
42	**COLTON WATER BUDGET (AF)**							
43	**Month**	**Minimum Water Needs**	**Maximum Capacity of Colton to Accept Water**					
44	October			*Text is red if value exceeds water delivery capacity to Colton*				
45	November							
46	December							
47	January							
48	February							
49	March							
50	April							
51	May							
52	June							
53	July							
54	August							
55	September							
56	TOTAL*	=SUM(B44:B55)	*Box is red if minimum water needs exceed Colton Water Rights*					
57	** Not to exceed Colton Water Rights*							
58	**Step 4: Input Monthly Maximum Operational Flow Rate for Delivery of Water to Rialto and Colton**							
59								
60		**Maximum Operational Flow Rate (gpm)**	**Maximum Volume of Water Deliverable to Colton (AF)**	**Upper Limit for Delivery of Water to Colton* (AF)**				
61	Octboer		=B61*$C$30	=MIN(C44,C61)	*Text is red if maximum volume of water deliverable to Colton is less than Colton minimum water needs*			
62	November		=B62*$C$30	=MIN(C45,C62)				
63	December		=B63*$C$30	=MIN(C46,C63)				
64	January		=B64*$C$30	=MIN(C47,C64)				
65	February		=B65*$C$30	=MIN(C48,C65)				
66	March		=B66*$C$30	=MIN(C49,C66)				
67	April		=B67*$C$30	=MIN(C50,C67)				
68	May		=B68*$C$30	=MIN(C51,C68)				
69	June		=B69*$C$30	=MIN(C52,C69)				
70	July		=B70*$C$30	=MIN(C53,C70)				
71	August		=B71*$C$30	=MIN(C54,C71)				
72	September		=B72*$C$30	=MIN(C55,C72)				
73	**Total**	=AVERAGE(B61:B72)	=SUM(C61:C72)					
74	** Lesser of Maximum Capacity of Colton to Accept Water (Step 3, Column C) and Maximum Volume of Water Deliverable to Colton (Step 4, Column C)*							
75	**Maximum Water Deliverable to Rialto Per Month (AF)**		(gpm)	(AF)				
76				=C76*C30				
77								

Step 5: Input Rialto Month-by-Month Minimum Needs

RIALTO WATER BUDGET	
Month	**Minimum Water Needs (AF)**
October	
November	
December	
January	
February	
March	
April	
May	
June	
July	
August	
September	
Total*	=SUM(B82:B93)

Box is red if minimum water needs exceed Rialto Water Rights

** Not to exceed Rialto Water Rights*

Step 6: Parties meet and confer to determine if they can agree upon maximum prioritized delivery of water to Colton in winter months (Table 1) or must revert to default water delivery schedule (Table 2)

For Table 1

Calculation of Maximum Monthly Delivery to Colton in Winter (to ensure Colton can receive its minimum needs in the summer)

Colton Water Rights	Minimum Summer Needs (sum of minimum for each summer month)	Water Rights Available in Winter Months (rights minus summer minimum needs)	Maximum Monthly Delivery to Colton in Winter to Preserve Rights for Summer (available winter rights/7)*
=D37	=SUM(B51:B55)	=A101-B101	=C101/7

Calculation of Water Pumped for Colton for County Remedy

What County Pumped	Annual Delivery Capacity Available to County for Initial 200 AF	Rialto Water Rights	Amount Rialto can Pump from other wells (before any adjustments)	Water County Pumps for Colton Above 200 AF (per Water Year)
=H22	=MIN(C73-$D$22,200)	=G36	=IF(A105-(B105+C105)<0,(B105+C105)-A105,0)	=IF(A105-(B105+C105)>0,A105-(B105+C105),0)

** Purple Box indicates value exceeds co*

Calculation of Water to Colton in the Summer Months

What Emhart Pumped (all for Colton) (AF per water year)	What County Pumped for Colton (AF per water year)	Total to Colton (AF per water year)	Total Water to Colton in Summer Months (AF)	Monthly Total to Colton in Summer Months (AF per month) (assuming Rialto rights utilized as much as possible for County Remedy)	Maximum Potential Water to Colton in Summer (assuming Colton uses all its water rights available after subtracting winter use)
=D22	=MIN(B105+E105,C73)	=B109+A109	=C109-SUM(E115:E121)	=D109/5	=(D37-SUM(E115:E121))/5
(From production values above)	*(From table above)*	*(Emhart delivery plus County delivery)*	*(Annual total AF to Colton minus water to Colton in winter)*	*If cell is green, delivery to Colton will be limited by delivery capacity*	*Used to calculate potential shift of water to Colton in summer to meet minimum Colton needs (which in turn allows Rialto to produce more from its other wells). Green indicates potential delivery limited by delivery capacity to Colton.*

	A	B	C	D	E	F	G	H
111								
112	**Table 1 - Maximum Prioritized Delivery of Water to Colton in Winter Months**							
113	**Month**	**Planned Combined Remedies Output (AF)**	**Planned Delivery to Rialto (AF)**	**Remaining Rialto Water Rights (AF)**	**Planned Delivery to Colton (AF)**	**Remaining Colton Water Rights (AF)**	**If Planned Delivery to Colton (Column E) is less than Colton's minimum water needs in a given month, and Colton has additional available water rights, the Parties may manually increase the Planned Delivery to Colton by inputting the amount of Colton Water Rights to be preferentially used by the County (per Paragraph VI. B. 2. a. ix.) (AF)**	
114	Start (Total Water Rights)			=D36-E36		=D37		
115	October	=MIN(J9,D$76)	=MIN(MAX((B115-E115),B82),H9)-G115	=D114-C115	=MIN(C61,D61,(B115-MIN(B82,H9)),D$101)+G115	=F114-E115		
116	November	=MIN(J10,D$76)	=MIN(MAX((B116-E116),B83),H10)-G116	=D115-C116	=MIN(C62,D62,(B116-MIN(B83,H10)),D$101)+G116	=F115-E116		
117	December	=MIN(J11,D$76)	=MIN(MAX((B117-E117),B84),H11)-G117	=D116-C117	=MIN(C63,D63,(B117-MIN(B84,H11)),D$101)+G117	=F116-E117		
118	January	=MIN(J12,D$76)	=MIN(MAX((B118-E118),B85),H12)-G118	=D117-C118	=MIN(C64,D64,(B118-MIN(B85,H12)),D$101)+G118	=F117-E118		
119	February	=MIN(J13,D$76)	=MIN(MAX((B119-E119),B86),H13)-G119	=D118-C119	=MIN(C65,D65,(B119-MIN(B86,H13)),D$101)+G119	=F118-E119		
120	March	=MIN(J14,D$76)	=MIN(MAX((B120-E120),B87),H14)-G120	=D119-C120	=MIN(C66,D66,(B120-MIN(B87,H14)),D$101)+G120	=F119-E120		
121	April	=MIN(J15,D$76)	=MIN(MAX((B121-E121),B88),H15)-G121	=D120-C121	=MIN(C67,D67,(B121-MIN(B88,H15)),D$101)+G121	=F120-E121		
122	May	=MIN(J17,D$76)	=B122-E122	=D121-C122	=(MIN(IF(B51>E$109,IF($F$109>=B51,B51,$F$109),$E$109),$C68,D68))+G122	=F121-E122		
123	June	=MIN(J18,D$76)	=B123-E123	=D122-C123	=(MIN(IF(B52>E$109,IF($F$109>=B52,B52,$F$109),$E$109),$C69,D69))+G123	=F122-E123		
124	July	=MIN(J19,D$76)	=B124-E124	=D123-C124	=(MIN(IF(B53>E$109,IF($F$109>=B53,B53,$F$109),$E$109),$C70,D70))+G124	=F123-E124		
125	August	=MIN(J20,D$76)	=B125-E125	=D124-C125	=(MIN(IF(B54>E$109,IF($F$109>=B54,B54,$F$109),$E$109),$C71,D71))+G125	=F124-E125		
126	September	=MIN(J21,D$76)	=B126-E126	=ROUND(D125-C126,0)	=(MIN(IF(B55>E$109,IF($F$109>=B55,B55,$F$109),$E$109),$C72,D72))+G126	=ROUND(F125-E126,0)		
127	Total Water Delivered	**=SUM(B115:B126)**	**=SUM(C115:C126)**		**=SUM(E115:E126)**			
128	Unused Water Rights for Water Year			**=D126**		**=F126**	=SUM(G115:G126)	
129		*Box is Red if CTP produces more than capacity to deliver water to Colton.*	*Red Box means CTP output does not match water provided to Rialto and Colton. Blue Box means delivery is less than minimum monthly need. Green Box means that production plus other water rights meets minimum monthly needs in summer.*	*Red Box means delivery exceeds water rights.*	*Red Box means CTP output does not match water provided to Rialto and Colton. Blue Box means delivery is less than minimum monthly need. Yellow text means that delivery to Colton limited by delivery capacity to Colton. Purple text means some CTP Output shifted to Colton from Rialto.*	*Red Box means delivery exceeds water rights*	*Red Box Means Value Causes water to Colton to exceed delivery capacity to Colton*	
130								
131	*Under the "Maximum Prioritized Delivery" schedule:*							
132	*In each Winter Month:*							
133	*1*	*Colton receives the lesser of (1) a value equal to 1/7th of the Colton Water Rights minus the total summer minimum water needs (2)the monthly treatment plant output minus the lesser of (Rialto minimum monthly needs and the amount pumped for the County*						
134	*2*	*Rialto receives all water that is not delivered to Colton. The Colton delivery calculation ensures that Rialto receives at least its minimum needs, provided that such volume does not exceed the volume of water pumped by the County in that month*						
135	*In each Summer Month:*							
136	*1*	*Colton receives the lesser of (1) a value equal to 1/5th of the total to be pumped for Colton in that water year less the amount pumped in the winter months (2) the monthly maximum capacity to deliver water to Colton and (3) Colton's maximum capacity to accept water*						
137	*2*	*Rialto receives all water that is not delivered to Colton.*						
138	*If remaining water rights are less than zero, County/Emhart will need to evaluate changes to production rates or alternative sources of water.*							

	A	B	C	D	E	F	G	H	I
139	**Table 2 - Default Water Delivery Schedule**								
140	**Month**	**Planned Combined Remedies Output (AF)**	**Colton 200 AF Pumped for County Remedy Delivered to Colton (AF)**	**Planned Delivery to Rialto (AF)**	**Remaining Rialto Water Rights (AF)**	**Planned Delivery to Colton (AF) for Emhart**	**Planned Delivery to Colton (AF) for Combined Remedy**	**Remaining Colton Water Rights (AF)**	**Surplus Available to County to Pump for Colton (AF)**
141	Start (Total Water Rights)				=D36-E36			=D37	
142	October	=J9	=MIN(H9,IF(D9+200/7>$C$61,($C$61-D9),200/7))	=H9-C142	=E141-D142	=D9	=F142+C142	=H141-G142	
143	November	=J10	=MIN(H10,IF(D10+200/7>$C$61,($C$61-D10),200/7))	=H10-C143	=E142-D143	=D10	=F143+C143	=H142-G143	
144	December	=J11	=MIN(H11,IF(D11+200/7>$C$61,($C$61-D11),200/7))	=H11-C144	=E143-D144	=D11	=F144+C144	=H143-G144	
145	January	=J12	=MIN(H12,IF(D12+200/7>$C$61,($C$61-D12),200/7))	=H12-C145	=E144-D145	=D12	=F145+C145	=H144-G145	
146	February	=J13	=MIN(H13,IF(D13+200/7>$C$61,($C$61-D13),200/7))	=H13-C146	=E145-D146	=D13	=F146+C146	=H145-G146	
147	March	=J14	=MIN(H14,IF(D14+200/7>$C$61,($C$61-D14),200/7))	=H14-C147	=E146-D147	=D14	=F147+C147	=H146-G147	
148	April	=J15	=MIN(H15,IF(D15+200/7>$C$61,($C$61-D15),200/7))	=H15-C148	=E147-D148	=D15	=F148+C148	=H147-G148	
149	May	=J17	=MIN(IF(SUM(C$142:C$148)<200,MIN((200-SUM(C$142:C$148))/5),IF(D17+(200-SUM(C$142:C$148))/5>$C68,($C68-D17),0)),$C68-F149)	=H17-C149	=E148-D149	=D17	=F149+C149	=H148-G149	
150	June	=J18	=MIN(IF(SUM(C$142:C$148)<200,MIN((200-SUM(C$142:C$148))/5),IF(D18+(200-SUM(C$142:C$148))/5>$C69,($C69-D18),0)),$C69-F150)	=H18-C150	=E149-D150	=D18	=F150+C150	=H149-G150	=IF(H$155>0,H$155,0)
151	July	=J19	=MIN(IF(SUM(C$142:C$148)<200,MIN((200-SUM(C$142:C$148))/5),IF(D19+(200-SUM(C$142:C$148))/5>$C70,($C70-D19),0)),$C70-F151)	=H19-C151	=E150-D151	=D19	=F151+C151	=H150-G151	=IF(H$155>0,H$155,0)
152	August	=J20	=MIN(IF(SUM(C$142:C$148)<200,MIN((200-SUM(C$142:C$148))/5),IF(D20+(200-SUM(C$142:C$148))/5>$C71,($C71-D20),0)),$C71-F152)	=H20-C152	=E151-D152	=D20	=F152+C152	=H151-G152	=IF(H$155>0,H$155,0)
153	September	=J21	=MIN(IF(SUM(C$142:C$148)<200,MIN((200-SUM(C$142:C$148))/5),IF(D21+(200-SUM(C$142:C$148))/5>$C72,($C72-D21),0)),$C72-F153)	=H21-C153	=ROUND(E152-D153,0)	=D21	=F153+C153	=ROUND(H152-G153,0)	=IF(H$155>0,H$155,0)
154	Total Water Delivered	**=SUM(B142:B153)**	**=SUM(C142:C153)**	**=SUM(D142:D153)**		**=SUM(F142:F153)**	**=SUM(G142:G153)**		
155	Unused Water Rights for Water Year				**=E153**			**=H153**	
156		*Red Box indicates mismatch between CTP output and delivery to cities.*	*Delivery is reduced if capacity to deliver water to Colton is not sufficient to deliver 200 AF to Colton.*	*Blue Box means delivery is less than minimum monthly need.*	*Red Box means delivery exceeds water rights.*	*Blue Box means delivery is less than minimum monthly need. Green text means that delivery to Colton limited by delivery capacity.*	*Blue Box means delivery is less than minimum monthly need. Green text means that delivery to Colton limited by delivery capacity.*	*Red Box means delivery exceeds water rights.*	
157									
158	*Under the "Default Delivery" schedule:*								
159	*Rialto receives all water pumped by County (except for 200 AF that the County may pump for Colton and Colton receives all water pumped by Emhart plus the 200 AF that the County may pump for Colton. The Colton 200 AF from the County is divided equally among the Winter Months.*								
160	*If remaining water rights are*								
161									
162	**Step 7: Parties shall make any necessary modifications to the WMP as required by the limitations of Paragraph VI.B.2.a of the Four Party Implementation Agreement**								

	A	B	C	D	E	F
163						
164	***Instructions***					
165	*1. County and Emhart provide data for yellow boxes in rows 9 to 21*					
166	*2. Rialto and Colton provide anticipated percent reductions for yellow boxes on rows 36 and 37*					
167	*3. Colton provides its minimum needs and maximum capacity to receive water by month (yellow boxes on rows 44 to 55)*					
168	*4. Colton and Rialto identify capacity values for yellow cells on rows 61 and 72, 75 (likely no change year to year)*					
169	*5. Rialto provide its minimum needs by month (rows 82 to 93)*					
170	*6. County and Emhart adjust anticipated treatment plant output (yellow cells on rows 9 to 21) to ensure minimum needs are met and water rights not exceeded (based on data provided by cities). Check red and blue shaded cells for potential issues.*					
171	*7. Each month, update yellow cells using actual production and delivery data (rows 9 to 21 and 82 to 93). Adjust future months as appropriate.*					
172	*8. After trigger measurements reported in June, parties adjust data to reflect deliveries and pumping to date (for that water year) and curtailment. Parties make other adjustments as needed to pumping pattern to ensure pumping does not exceed water rights.*					
173	*9. If Colton has extra water rights, it can request additional deliveries up to production of treatment plant, provided that Rialto is able to increase its production at other wells to accommodate a reduced delivery schedule from the CTP (rows 103 to 114)*					
174	*10. After trigger measurement, County can request use of additional Colton water rights (subject to delivery capacity restraints) or Colton can utilize those rights at its other wells.*					
175	*11. Rialto can produce from its other wells an amount equal to its excess rights, following reporting of the curtailment, if such rights are not needed for the County Remedy.*					
176						
177						
178	***Some things to Check:***					
179	*1. Does minimum need of each city fall within its water rights?*					
180	*2. Is each city getting its minimum needs met?*					
181	*3. Can an adjustments to seasonal pumping fix a problem with 2?*					
182	*4. If capacity to deliver water to Colton is limited, can water be wheeled to Colton in another way?*					
183	*5. If production exceeds water rights, will need to reduce pumping from treatment plant unless Emhart or County can get additional water rights.*					

Exhibit J

Rialto/Emhart Real Property Lease Agreement

1. **PARTIES**:

This Lease is made by and between the City of Rialto ("Rialto") and Emhart Industries, Inc. ("Emhart").

2. PREMISES LEASED:

The premises subject to this Lease ("Premises") are:

a. Combined Treatment Plant Lease Area:

THOSE PORTIONS OF LOTS 19 AND 20 OF THE PALMER SUBDIVISION, IN THE CITY OF RIALTO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS SHOWN ON MAP FILED IN BOOK 18, PAGE 72 OF MAPS, IN THE OFFICE OF THE RECORDER OF SAID COUNTY, WITHIN THE FOLLOWING DESCRIBED BOUNDARIES:

COMMENCING AT A POINT IN THE CENTERLINE OF LINDEN AVENUE, AS SHOWN ON PARCEL MAP NO. 427, FILED IN BOOK 4, PAGE 7, OF PARCEL MAPS, IN THE OFFICE OF THE RECORDER OF SAID COUNTY, DISTANT THEREON
NORTH 00° 02' 00" EAST 430.00 FEET FROM THE INTERSECTION OF MIRO WAY AND LINDEN AVENUE AS SHOWN ON SAID PARCEL MAP NO. 427; THENCE SOUTH 89° 58' 00" EAST 44.00 FEET TO THE NOW EXISTING EASTERLY LINE OF SAID LINDEN AVENUE AND **THE TRUE POINT OF BEGINNING** ; THENCE SOUTH 89° 58' 00" EAST 139.23 FEET; THENCE SOUTH 00° 02' 00" WEST 98.96 FEET; THENCE NORTH 89° 57' 13" EAST 60.77 FEET; THENCE SOUTH 00° 02' 00" WEST 288.83 FEET TO THE NORTHERLY LINE OF MIRO WAY AS DESCRIBED IN RESOLUTION RECORDED DECEMBER 22, 2012 AS DOCUMENT NO. 2014-0488256, OF OFFICIAL RECORDS,
RECORDS OF SAID COUNTY; THENCE SOUTH 89° 57' 49" WEST ALONG SAID NORTHERLY LINE 183.98 FEET TO AN ANGLE POINT THEREON; THENCE CONTINUING ALONG SAID NORTHERLY LINE NORTH 42° 15' 49" WEST 23.80 FEET TO A LINE THAT BEARS NORTH 00° 02' 00" EAST AND PASSES THROUGH THE TRUE POINT OF

BEGINNING; THENCE NORTH 00° 02’ 00” EAST 370.32 FEET TO THE TRUE POINT OF BEGINNING.

The Combined Treatment Plant Lease Area is depicted on Exhibit J 1.

b. EW-1 Lease Area

THAT PORTION OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 1 NORTH, RANGE 5 WEST, SAN BERNARDINO BASE AND MERIDIAN, IN THE CITY OF RIALTO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA WITHIN THE FOLLOWING DESCRIBED BOUNDARIES:

COMMENCING AT THE CENTER OF SAID SECTION 34 AS SHOWN ON PARCEL MAP NO. 5020 FILED IN BOOK 47, PAGES 74 THROUGH 76, INCLUSIVE, OF PARCEL MAPS IN THE OFFICE OF THE RECORDER OF SAID COUNTY; THENCE NORTH 89° 55’ 30” EAST ALONG THE NORTHERLY LINE OF SAID SOUTHEAST QUARTER 53.54 FEET; THENCE SOUTH 00° 03’ 40” EAST PARALLEL TO THE EASTERLY BOUNDARY OF SAID PARCEL MAP NO. 5020 A DISTANCE OF 22.60 FEET TO THE **TRUE POINT OF BEGINNING** ; THENCE SOUTH 00° 03’ 40” EAST 49.00 FEET; THENCE SOUTH 89° 56’ 20” WEST 29.50 FEET; THENCE NORTH 01°41’ 32” EAST 49.02 FEET TO A LINE HAVING A BEARING OF NORTH 89° 56’ 20” EAST AND THAT PASSES THROUGH THE TRUE POINT OF BEGINNING; THENCE NORTH 89° 56’ 20” EAST ALONG SAID LINE 28.00 FEET TO THE TRUE POINT OF BEGINNING.

The EW-1 Lease Area is depicted on Exhibit J-2.

c. EW-2 Lease Area

As of the date upon which this Lease was entered, it was unknown whether U.S. EPA would require Emhart to install EW-2 to achieve the remedial objectives set forth in the Work Consent Decree. In the event EW-2 is to be installed on Rialto property, this Lease shall be amended to include a description of the parcel(s) upon written agreement of Rialto and Emhart, in accordance with Paragraph 10.b.1) of the Work Consent Decree and Paragraph VII.B of the Four Party Implementation Agreement.

3. **TERM OF LEASE**: This Lease shall remain in effect until one year after Emhart terminates its participation in the Four Party Implementation Agreement, or after it removes components of the Combined Remedies for which it is responsible (if any) and restores the ground surface as provided for in Paragraph XIII of the Four Party Implementation Agreement, whichever occurs first.

4. **IMPROVEMENTS**: Emhart shall place on the Premises only those improvements required by the Work Consent Decree (which currently include, as described in the Four Party Implementation Agreement, the Combined Treatment Plant; EW-1; and, if required, EW-2). In the event that Rialto and/or Lewis-Hillwood Rialto Company, LLC ("LHR") underground utilities providing services to the Combined Treatment Plant Lease Area, Emhart and the County (as provided in its lease for the Combined Treatment Plant Lease Area) shall, at no cost to Rialto, underground all associated utilities located on or at the Combined Treatment Plant Lease Area.

   Ownership of improvements by Emhart on the Premises and removal of such improvements upon termination of this Lease shall be governed by Paragraphs VIII.B.3. (ownership by Emhart) and XIII B. and C. (removal) of the Four Party Implementation Agreement.

5. **COMPLIANCE WITH APPLICABLE LAWS:** Emhart shall perform all of its activities on the Premises in compliance with applicable federal, state, or local rules, regulations, ordinances, or laws. In the event that Emhart's activities violate applicable federal, state, or local rules, regulations, ordinances, or law, Emhart shall promptly, upon written notice from Rialto, come into compliance with such law, including the removal or modification of any installation to conform with the applicable laws.

6. ENVIRONMENTAL MATTERS:

6.1 Definition of Hazardous Substance. For the purposes of this Lease, the term "Hazardous Substance" shall mean any material or substance which is or becomes (i) defined as a "hazardous waste," "extremely hazardous waste," or "restricted hazardous waste" under Section 25115, 25117 or 25122.7, or listed pursuant to Section 25140 of the California Health and Safety Code, Division 20, Chapter 6.5 (Hazardous Waste Control

Law), (ii) defined as a "hazardous substance" under Section 25316 of the California Health and Safety Code, Division 20, Chapter 6.8 (Carpenter-Presley-Tanner Hazardous Substance Account Act), (iii) defined as a "hazardous material" under Section 25501 of the California Health and Safety Code, Division 20, Chapter 6.95 (Hazardous Materials Release Response Plans and Inventory), (iv) defined as a "hazardous substance" under Section 25281 of the California Health and Safety Code, Division 20, Chapter 6.7 (Underground Storage of Hazardous Substances), (v) petroleum, (vi) friable asbestos, (vii) polychlorinated byphenyls, (viii) defined as a "hazardous substance" pursuant to Section 311 of the Clean Water Act (33 U.S.C. §1321), (ix) defined as a "hazardous waste" pursuant to Section 1004 of the Resource Conservation and Recovery Act, 42 U.S.C. §6901 et seq. (42 U.S.C. §6903), or (x) defined as a "hazardous substance" pursuant to Section 101 of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §9601 et seq. (42 U.S.C § 9601).

6.2 Hazardous Substances on Premises. Emhart shall not permit or authorize at any time the presence, use, manufacture, handling, generation, storage, treatment, discharge, release, burial or disposal of any Hazardous Substance on, under or about the Premises, or authorize the transportation of any Hazardous Substance to or from the Premises, except those Hazardous Substances associated with the construction, operation, maintenance, and/or future modification of the Combined Remedies in accordance with all federal, state, and local environmental laws and regulations with respect to the storage, use, generation, transportation, handling, and disposal of Hazardous Substances on the Premises. In the event Emhart causes a release of any Hazardous Substance on the Premises, Emhart shall assume responsibility for investigation, and cleanup of such substances as provided by law. In such event, Emhart shall promptly notify Rialto of the release and provide copies of any reports or correspondence with government agencies relating thereto.

7. **USE:** Emhart shall use the Premises for installation, construction, operation, and maintenance of the Combined Remedies as set forth in the Four Party Implementation Agreement. Emhart shall maintain the Premises in a neat and orderly condition. During construction of the Combined

Remedies, Emhart shall, as is reasonably feasible, maintain the Premises in a neat and orderly condition.

8. **ASSIGNMENT AND SUBLETTING:** Emhart may not assign or sublease the Premises without the written consent of Rialto, which consent may be withheld in the sole and absolute subjective discretion of Rialto.

9. **THIRD PARTY ACCESS:** Except as required for the installation, construction, operation and maintenance of the Combined Remedies as provided for in the Four Party Implementation Agreement, Emhart shall not allow any third party (excluding the County) access to the Premises, without Rialto's prior written consent.

10. **REPAIRS**: Emhart must repair any damage to the Premises caused by its acts, omissions, negligence, or willful misconduct.

11. **RIALTO'S ACCESS TO PREMISES:** Rialto and its authorized representatives shall have the right to enter the Premises at any time for any purpose.

12. **RETURN OF PREMISES TO PRE-CONSTRUCTION CONDITIONS:** Emhart shall remove components of the Combined Remedies owned by Emhart and return the Premises to pre-construction conditions as provided in Paragraph XIII.C of the Four Party Implementation Agreement.

13. **RENT:** Rialto shall not charge Emhart rent for the Premises.

14. **AMENDMENTS:** This Lease may be amended only by written agreement of Emhart and Rialto.

15. **WARRANTY OF TITLE:** Rialto warrants that there are no encumbrances of record or not of record concerning the Premises that will inhibit Emhart's use of the Premises as provided in this Lease.

16. **CONDITION OF PREMISES:** Prior to execution of this Lease, Emhart has not conducted any investigation of the condition of the Premises and Rialto has provided no representations or warranties, express or implied, regarding the condition of the Premises.

17. **DEFINED TERMS:** Defined terms used in this Lease shall have the meanings provided in the Four Party Implementation Agreement.

18. **INTERPRETATIONS:** This Lease shall be interpreted and construed (1) in accordance with the laws of the State of California; and (2) as drafted by all Parties with equal participation in its drafting.

19. **EXHIBITS:** All exhibits referred to are attached to this Lease and incorporated by reference.

20. **EFFECTIVE DATE OF THIS LEASE:** This lease shall be effective upon _____, 2015.

EMHART INDUSTRIES, INC.

By: _____

Theodore Morris
Vice President
Emhart Industries, Inc.

Date: August 4, 2015

THE CITY OF RIALTO

By: _____

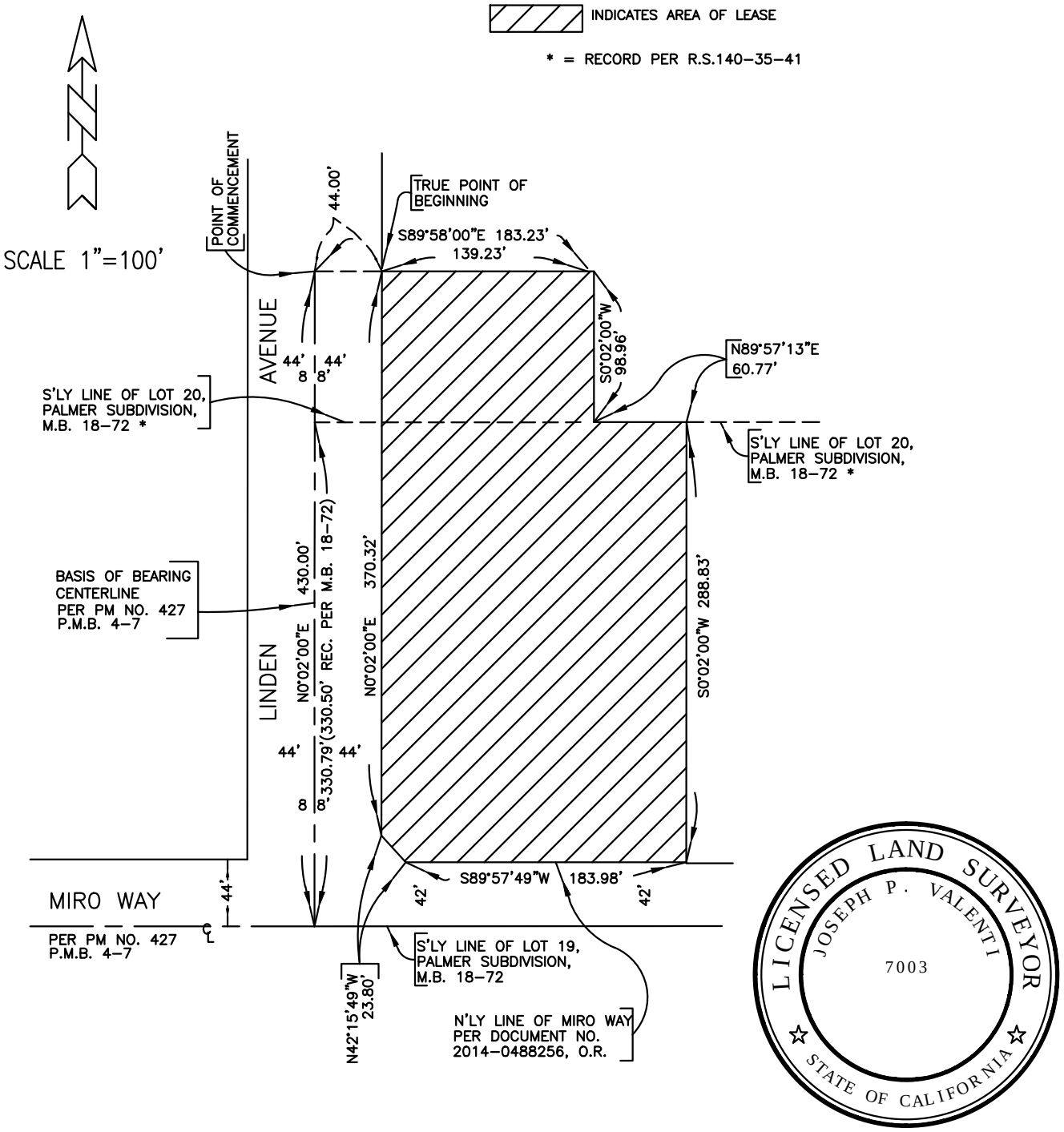
Deborah Robertson
Mayor, City of Rialto

Date: 8/26/15

Approved as to Legal Form:

By: _____

Fred Galante
City Attorney



PLANS PREPARED BY:

CIVILTEC engineering inc.

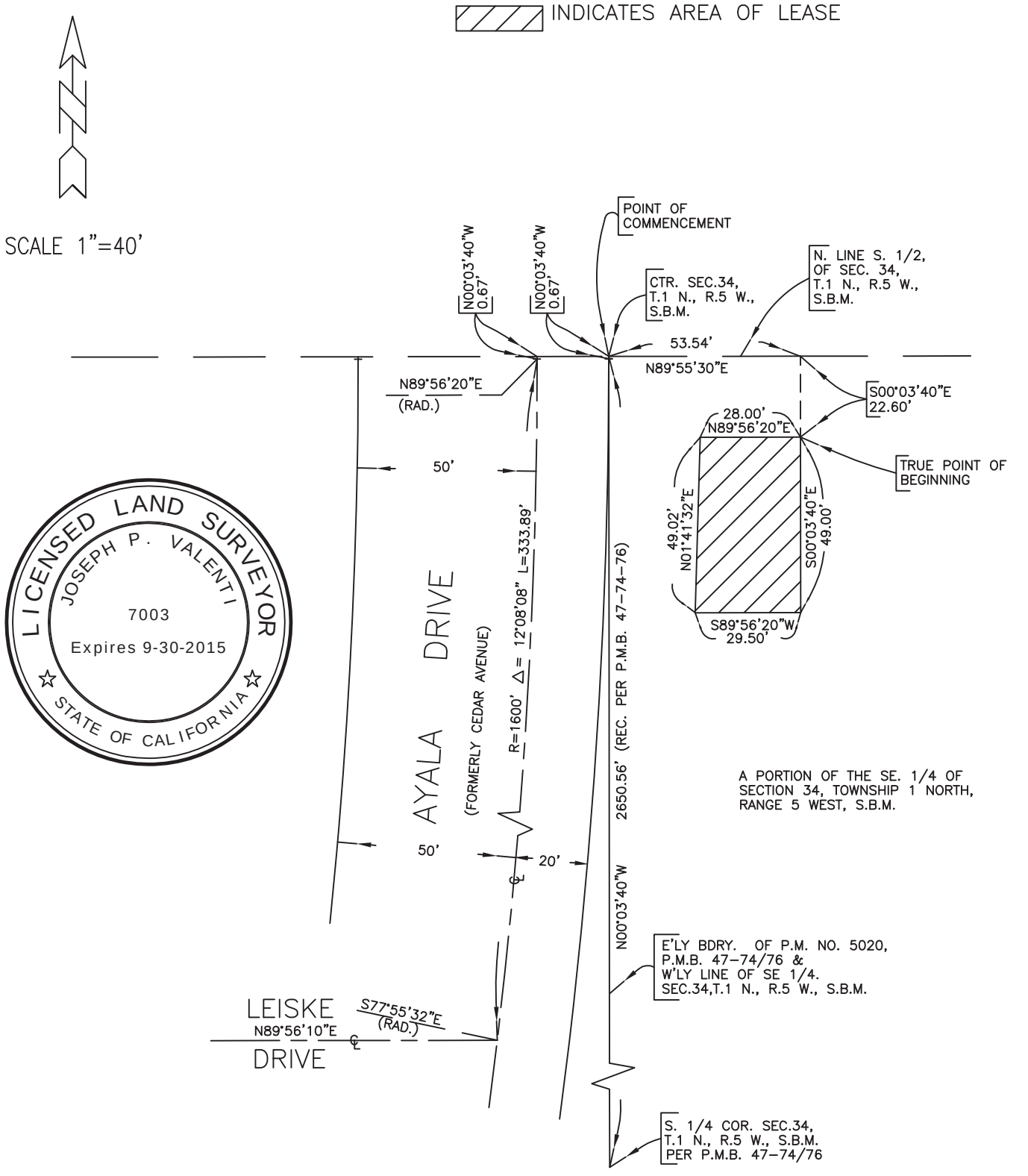
General Civil, Municipal, Water and Wastewater Engineering, Planning, Construction Management and Surveying

118 WEST LIME AVENUE
MONROVIA, CA 91016
PHONE: (626) 357-0588
FAX: (626) 303-7957

EXHIBIT J-1 - COMBINED TREATMENT PLANT LEASE AREA

REVISED: 05-01-2015
REVISED: 03-24-2015

DATE: 02-23-2015	DRAWN: J. P. V.	SCALE: 1" = 100'
DRAWING No.:G-6PLANTSITE	SHEET 1 OF 1	



PLANS PREPARED BY:

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118 WEST LIME AVENUE
MONROVIA, CA 91016
PHONE: (626) 357-0588
FAX: (626) 303-7957

EXHIBIT J-2 - EW-1 LEASE AREA

REVISED: 02-25-2015

DATE: 02-21-2015	DRAWN: J. P. V.	SCALE: 1" = 40'
DRAWING No.: C-2WELLSITE	SHEET 1 OF 1	

Exhibit K

Combined Treatment Plant Site Plan

Legend

Combined Treatment Plant Footprint

N

0 25 50

Feet

SOURCE AREA OPERABLE UNIT ROCKETS, FIREWORKS AND FLARES SUPERFUND SITE

EXHIBIT K
COMBINED TREATMENT PLANT SITE PLAN

ERM

PREPARED BY:
AP (ERM)

JOB NO. 0179962.03.A
FILE: Exhibit K.mxd

Document Path: M:\Projects\Emhart_Rialto\Portland\GIS\IA\Exhibit K.mxd

First Amendment to Four Party Implementation Agreement (Regarding Costs of Construction, Operation, and Maintenance of Liquid Chlorinator)

This agreement amends the Four Party Implementation Agreement made and entered into effective September 1, 2015, by and between Emhart, Rialto, Colton, and the County ("4-Party IA") to provide terms not addressed in the 4-Party IA regarding the costs of construction, operation, and maintenance of a liquid chlorinator to be used to disinfect extracted groundwater after treatment for perchlorate and VOCs by the Combined Treatment Plant and prior to distribution as domestic water supply via the Rialto municipal water supply system. Terms defined in the 4-Party IA and used in this agreement shall have the meanings set forth in the 4-Party IA.

Recitals

Whereas, Colton's DDW Permit and Rialto's DDW Permit require disinfection of all groundwater extracted from the Basin, regardless of whether it is impacted by perchlorate and/or VOCs.

Whereas, pursuant to Rialto's DDW Permit, Rialto operates and maintains chlorination systems to disinfect all water it extracts pursuant to Rialto Water Rights, including paying all costs of operation and maintenance of its chlorinator located at CR-3.

Whereas, pursuant to Colton's DDW Permit, Colton operates and maintains chlorination systems to disinfect all water it extracts pursuant to Colton Water Rights, including paying all costs of operation and maintenance of its chlorinator located at the Domecq Reservoir Site.

Whereas, to facilitate operation of the Combined Remedies, Colton and Rialto have leased their respective water rights in the Basin to Emhart and the County as described in Paragraph V of the 4-Party IA.

Whereas, as set forth in the 4-Party IA, upon startup, the Combined Remedies will pump water from the Basin, treat that water at the Combined Treatment Plant to remove perchlorate and VOCs, and deliver the treated water to Rialto.

Whereas, as set forth in the 4-Party IA, Rialto will receive all water treated by the Combined Treatment Plant, and deliver to Colton a volume of water equivalent to the Colton Water Rights utilized by the County and Emhart at the Combined Treatment Plant.

Whereas, the Work Consent Decree, 4-Party IA, County/Rialto Implementation Agreement, and County/Colton/Rialto Standby Agreement do not address payment of the costs to operate and maintain the chlorination systems required by DDW for all water extracted from the Basin.

Whereas, the Parties believe that replacing the existing tablet chlorinator at CR-3 with a single liquid (sodium hypochlorite) chlorinator to disinfect all treated water to be generated by the Combined Treatment Plant ("Liquid Chlorinator") would be more efficient and less expensive to operate and maintain.

Agreement

Now, therefore, the Parties agree to amend the 4-Party IA as follows:

1. **Design and Construction of the Liquid Chlorinator**

    a. Emhart has designed the Liquid Chlorinator in accordance with Rialto's requested design parameters and submitted the design to Rialto, Colton, and the County for review and comment. Rialto has approved the design for the Liquid Chlorinator. A copy of the approved Liquid Chlorinator design is attached hereto as Exhibit 1-A.

    b. Emhart shall construct the Liquid Chlorinator consistent with the approved design.

    c. The estimated capital cost of the Liquid Chlorinator is $652,988, which consists of (i) the construction contractor bid price of $499,000; (ii) estimated contingency and contractor integration costs of $25,000; (iii) pre-purchased long-lead chlorinator equipment costs of $78,258; and (iv) design costs of $50,730.

    d. Except as set forth in this paragraph, Rialto, Colton, and Emhart shall share equally (1/3 each) the final total capital cost of the Liquid Chlorinator, including, but not limited to, the costs identified in paragraph 1.c. and any change order amounts necessary to address

issues not anticipated by the design or that otherwise may arise during construction. Notwithstanding any other provision(s) in this paragraph or agreement, Colton's share of the final total capital cost of the Liquid Chlorinator shall not exceed $218,000. The County is not responsible for paying any of the capital or related costs of the Liquid Chlorinator.

e. Emhart shall pay its contractors and subcontractors to construct the Liquid Chlorinator. Within 30 days of completion of construction of the Liquid Chlorinator, Emhart shall submit invoices to Rialto and Colton for their 1/3 shares of the capital cost of the Liquid Chlorinator. Rialto shall pay its 1/3 share in the form of offsets against amounts due to Rialto from Emhart pursuant to Paragraph IV.F. of the 4-Party IA, until the full amount of Rialto's share of the Liquid Chlorinator capital cost has been paid. Colton shall pay its share in equal quarterly installments to be paid along with Colton's payments to Emhart for Colton Baseline Lifting Costs, over a period not to exceed five years.

f. Any dispute regarding an invoice for Liquid Chlorinator capital costs shall be resolved pursuant to Paragraph XII of the 4-Party IA.

2. **Operation and Maintenance of the Liquid Chlorinator**

a. Rialto, as the owner of its municipal water supply system, shall own, operate, and maintain the Liquid Chlorinator.

b. Colton shall reimburse Rialto for the costs of operation and maintenance of the Liquid Chlorinator pursuant to the following formula:

> Colton reimbursement to Rialto = total cost of Liquid Chlorinator O&M x (volume of water delivered to Colton by Rialto/total volume of water delivered to Rialto from Combined Treatment Plant)

c. Rialto shall invoice Colton for its share of Liquid Chlorinator operation and maintenance costs monthly. Upon request by Colton, Rialto shall provide records documenting the volume of water

treated at the Liquid Chlorinator, the operation and maintenance costs of the Liquid Chlorinator and any other documents necessary to determine or verify the amounts invoiced.

d. Colton shall pay the invoiced amount within 30 days of receipt of an invoice from Rialto.

e. Neither the County nor Emhart are responsible for the costs of operation and maintenance of the Liquid Chlorinator.

f. Any dispute regarding an invoice for Liquid Chlorinator operation and maintenance costs shall be resolved pursuant to Paragraph XII of the 4-Party IA.

FOR EMHART INDUSTRIES, INC.:

By: _____
Emhart Industries, Inc.

Date: _____

FOR THE CITY OF RIALTO:

By: _____
City of Rialto

Date: _____

FOR THE CITY OF COLTON:

By: _____
City of Colton

Date: _____

FOR THE COUNTY OF SAN BERNARDINO:

By: _____
County of San Bernardino

Date: _____

EXHIBIT 1-A

ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE

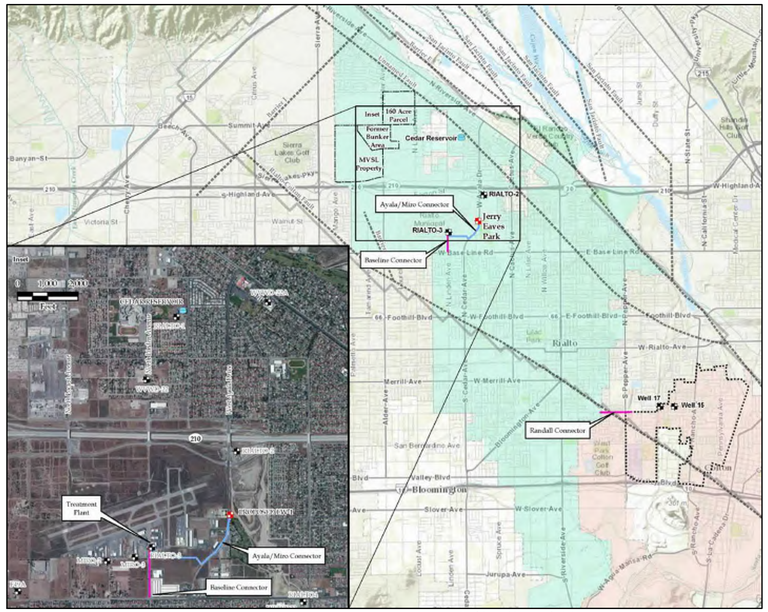
SOURCE AREA OPERABLE UNIT

RIALTO, CALIFORNIA

ADDENDUM NO. 3

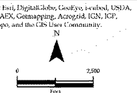
GROUNDWATER EXTRACTION AND TREATMENT SYSTEM COMBINED REMEDY CHLORINATION SYSTEM INSTALLATION

FEBRUARY 2020



SITE LOCATION MAP

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



LIST OF DRAWINGS

SHEET NO.	DRAWING NO.	DESCRIPTION
1	G-1	COVER SHEET
2	G-2	GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS
3	D-1	DEMOLITION PLAN
4	C-1	CIVIL PIPING PLAN
5	C-2	CIVIL DETAILS
6	S-1	GENERAL STRUCTURAL NOTES
7	S-2	DESIGN CRITERIA AND STRUCTURAL ABBREVIATIONS
8	S-3	SPECIAL INSPECTIONS AND STRUCTURAL OBSERVATIONS
9	S-4	FOUNDATION PLAN
10	S-5	SECTIONS
11	S-6	STRUCTURAL DETAILS
12	M-1	CHEMICAL TANKS ENCLOSURE PLAN
13	M-2	CHEMICAL TANKS ENCLOSURE SECTIONS
14	M-3	CHEMICAL FEED SYSTEM PLAN
15	M-4	CHEMICAL FEED SYSTEM SECTIONS
16	M-5	MECHANICAL DETAILS – 1
17	M-6	MECHANICAL DETAILS – 2
18	E-1	ELECTRICAL PLAN
19	E-2	ELECTRICAL DETAIL PLAN – 1
20	E-3	ELECTRICAL DETAIL PLAN – 2
21	N-1	INSTRUMENTATION LEGEND
22	N-2	CHLORINATION SYSTEM P&ID
23	N-3	INSTRUMENTATION DETAILS

DIAL 811
DIG ALERT
UNDERGROUND SERVICE ALERT
PLAY IT SAFE. DIAL BEFORE YOU DIG!
AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING

REGISTERED PROFESSIONAL ENGINEER
BRYAN C. PAINE
No. C64334
Exp. 06/30/21
CIVIL
STATE OF CALIFORNIA

PLANS PREPARED BY:

AECOM
999 TOWN & COUNTRY ROAD
ORANGE, CA 92868
TEL (714) 567-2400

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM COMBINED REMEDY SOURCE AREA OPERABLE UNIT, ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE CHLORINATION SYSTEM INSTALLATION

REV 9

SCALE	AS SHOWN	DESIGNED BY	B. PAINE	DRAWN BY	D. LAFRANCE	DRAWING NUMBER	AS SHOWN	SHEET 1
DATE	FEBRUARY 2020	CHECKED	J. ZIMMERLE	APPROVED	J. ZIMMERLE	JOB NUMBER	60438759	

COVER SHEET

DWG NO. G-1

\\USORA1PFLWI001.NA.AECOMNET.COM\ORANGE\DCS\PROJECTS\ENVA\60438759_RFF_RIALTO_TREATMENT\900-CAD-GIS\2018_CHLORINATION_SYSTEM_PROJECT\SHEETS\G-1.DWG (02-11-20, 11:11:58AM)

LEGEND & SYMBOLS

- A/V — AIR AND VACUUM VALVE
- B.O. — BLOW-OFF
- WM — WATER SERVICE METER
- REDUCER/ENLARGER
- END CAP
- TEE
- STREET LIGHT
- PULL BOX
- FIRE HYDRANT
- OR — GATE OR BUTTERFLY VALVES
- SMH — EXISTING SEWER MANHOLE
- SMH — PROPOSED SEWER MANHOLE
- OR — THRUST BLOCK
- 3309 — ADDRESS – PROPERTY ADDRESS
- 000-0-000-000 — APN – ASSESSOR'S PARCEL NUMBER
- PRV — PRESSURE REGULATING VALVE
- W — EXISTING WATER MAIN
- S — EXISTING SEWER MAIN
- G — EXISTING GAS MAIN
- E — EXISTING ELECTRICAL LINE
- TV — EXISTING CABLE TV LINE
- (OH) — EXISTING OVER HEAD ELECTRICAL LINE
- T — EXISTING TELEPHONE LINE
- PROPERTY LINE
- RIGHT-OF-WAY
- CITY BOUNDARY
- PAINTED DIRECTIONAL ARROW
- PAINTED ACCESSIBILITY SYMBOL
- FENCING MATERIAL AND SPECIFICATIONS ARE PENDING
- EXISTING RETAINING WALL

- DECOMPOSED GRANITE
- PROPOSED CONCRETE
- NON-SKID SURFACE
- EXISTING CONTOUR
- 85 — PROPOSED CONTOUR
- X — PROPOSED FENCE
- X — EXISTING FENCE
- PROPOSED A.C. PAVEMENT
- EXISTING EDGE OF PAVEMENT CONCRETE PAVEMENT
- EXISTING CONCRETE
- CONCENTRATED FLOW
- SHEET FLOW
- DAYLIGHT
- 250 — EXISTING CONTOUR
- 250 — PROPOSED CONTOUR
- (102.78) — EXISTING GRADE
- EDGE OF A. C. PAVEMENT
- FINISHED CONCRETE SURFACE
- 59.15 FG — EXISTING ELEVATION
- O — OIL PIPELINE
- EXISTING STORM DRAIN
- E — PROPOSED CONDUIT
- STREET CENTERLINE (℄)
- GRAVEL BED
- COMPACTED FILL
- LANDSCAPED AREA
- PROPOSED FLANGED GATE VALVE
- PROPOSED FLANGED PLUG VALVE
- PROPOSED FLANGED CHECK VALVE
- PROPOSED FLANGED BUTTERFLY VALVE
- TYPICAL STEEL-RING FLANGE

PROFILE NUMBER 2 / 3 PROFILE SCALE — DRAWING NUMBER FROM WHICH THE PROFILE WAS TAKEN.

SEE PROFILE 2 / 3 — PROFILE NUMBER; DRAWING NUMBER ON WHICH THE DETAIL APPEARS.

SECTION LETTER A / 10 — SHEET ON WHICH THE SECTION IS SHOWN IN DETAIL

DETAIL SCALE 1 / 2 — DETAIL NUMBER; DWG ON WHICH THE SECTION IS CUT THROUGH IN PLAN VIEW

SECTION SCALE A / 3 — SECTION LETTER; DWG ON WHICH THE SECTION IS CUT THROUGH IN PLAN VIEW

- EX. BUILDING
- EX. TREES
- NEW CURB
- NEW GUTTER
- NEW BUILDING
- NEW VESSELS

ABBREVIATIONS

ALT.	ALTERNATE
& OR ∧	AND
∠	ANGLE
∠	ANGLE (STRUCTURAL)
∠S	ANGLES
APPD. EQ.	APPROVED EQUAL
APPROX.	APPROXIMATE
A.C.P.	ASBESTOS-CEMENT PIPE
A.C.	ASPHALT CONCRETE
ASSY.	ASSEMBLY
ASTM.	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ART.	ARTICLE
@	AT
AVE.	AVENUE
B.C.	BEGINNING OF CURVE
B.&S.	BELL AND SPIGOT
B.M.	BENCH MARK
B.C.	BOLT CIRCLE
B.P.	BOOSTER PUMP
BOT.	BOTTOM
BLVD.	BOULEVARD
BDRY.	BOUNDARY
BLDG.	BUILDING
B'FLY.	BUTTERFLY
B.V.	BUTTERFLY VALVE
BW	BACK OF WALK
CALCS	CALCULATIONS
CB	CATCH BASIN
C.I.	CAST IRON
C.I.P.	CAST IRON PIPE
℄ OR CL	CENTER LINE
CTR.	CENTER
C.L.F.	CHAIN LINK FENCE
CH'KD PL	CHECKERED PLATE
C.C.	CENTER TO CENTER
C.M.L.	CEMENT MORTAR LINED
CML & C	CEMENT MORTAR LINED & COATED
CML & P	CEMENT MORTAR LINED & PAINTED
C.M.C.	CEMENT MORTAR COATED
CL.	CLASS
COEF.	COEFFICIENT
COL.	COLUMN
CO.	COMPANY
CONC.	CONCRETE
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
COORD.	COORDINATE
COR.	CORNER
CORP.	CORPORATION
CORR.	CORRUGATED
C.M.P.	CORRUGATED METAL PIPE
CPLG.	COUPLING
C.A.B.	CRUSHED AGGREGATE BASE
CS	CARBON STEEL
CU.	CUBIC
C.F.	CURB FACE
C.Y.	CUBIC YARD
CYL.	CYLINDER
CLRN.	CLEARANCE
° OR DEG.	DEGREE
Δ	DELTA
DEPT.	DEPARTMENT
DET.	DETAIL
D, DIA., OR ø	DIAMETER
DWG.	DRAWING
DR.	DRIVE
D.I.	DUCTILE IRON
D.I.P.	DUCTILE IRON PIPE
EA.	EACH
E.F.	EACH FACE
E.W.	EACH WAY
E.W.E.F.	EACH WAY EACH FACE
E.	EAST
E/O	EAST OF
ECC.	ECCENTRIC
EP	EDGE OF PAVEMENT
EMH	ELECTRICAL MANHOLE
EL. OR ELEV.	ELEVATION
ELL.	ELBOW
E.C.	END OF CURVE
EQ. OR =	EQUAL
EXIST. OR EX.	EXISTING
FT.	FOOT OR FEET
FIG.	FIGURE
FIN.	FINISH
FF.	FINISHED FLOOR
FS.	FINISHED SURFACE
FG.	FINISHED GRADE
FLG.	FLANGE
FLGD.	FLANGED
FE.	FLANGED END
FH	FIRE HYDRANT
FL.	FLOW LINE
GA.	GAGE OR GAUGE
GAC.	GRANULAR ACTIVATED CARBON
GAL.	GALLON
GALV.	GALVANIZED
G.I.P.	GALV. IRON PIPE
G.M.	GAS METER
G.V.	GATE VALVE
G.B.	GRADE BREAK
GND.	GROUND
H.P.	HIGH POINT
HWY.	HIGHWAY
HORIZ.	HORIZONTAL
HP.	HORSE POWER
IN. OR "	INCH
INCL.	INCLUDING
I.D.	INSIDE DIAMETER
INST.	INSTALL
INC.	INCORPORATED
INT.	INTERIOR
INV.	INVERT
I.P.S.	IRON PIPE SIZE
IX	ION EXCHANGE
LN.	LANE
LAT.	LATITUDE
LT.	LEFT
LG.	LENGTH
L.F.	LINEAR FOOT
LG.	LONG
LGAC.	LIQUID PHASE GRANULAR ACTIVATED CARBON
LONG.	LONGITUDINAL
LL	LOT LINE
LP	LOW POINT
LUB.	LUBRICATED
M.H.	MANHOLE
MHR	MANHOLE RIM
MFR.	MANUFACTURER
MAX.	MAXIMUM
M.S.L.	MEAN SEA LEVEL
M.J.	MECHANICAL JOINTS
MID.	MIDDLE
MI.	MILE
MIN.	MINIMUM
' OR MIN.	MINUTE
MISC.	MISCELLANEOUS
MON.	MONUMENT
NEG.	NEGATIVE
N.	NORTH
N.C.	NORMALLY CLOSED
N/O	NORTH OF
N.I.C.	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
NO. OR #	NUMBER
NOS.	NUMBERS
O.C.	ON CENTER
O.A.E.	OR APPROVED EQUAL
O.D.	OUTSIDE DIAMETER
O.H.	OVER HEAD
PVMT.	PAVEMENT
P.E.	PAD ELEVATION
PLT.	PLATE
PE	PLAIN END
P.A.	PLANTER AREA
PAV'T	PAVEMENT
P.C.C.	POINT OF COMPOUND CURVE OR PORTLAND CEMENT CONCRETE
P.C.	POINT OF CURVE
P.I.	POINT OF INTERSECTION
P.O.S.	POINT OF SLOPE
P.T.	POINT OF TANGENCY
PT.	POINT
P.V.C.	POLYVINYL CHLORIDE
POS.	POSITIVE
LB.	POUND
P.S.I.	POUND PER SQUARE INCH
P.P.	POWER POLE
PVT.	PRIVATE
PROJ.	PROJECT
℄	PROPERTY LINE
PROP.	PROPOSED
R. OR RAD.	RADIUS
RD	RELATIVE DENSITY
RL	RIDGELINE
R.R.	RAILROAD
R.G.	ROUGH GRADE
RY.	RAILWAY
REF.	REFERENCE
REINF.	REINFORCING
R.C.P.	REINFORCED CONC. PIPE
RES.	RESERVOIR
R.W.G.V.	RESILIENT WEDGE GATE VALVE
REV.	REVISION
RT.	RIGHT
R/W	RIGHT-OF-WAY
RD.	ROAD
RS4	SINGLE FAMILY RESIDENCE
" OR SEC.	SECOND
SD	STORM DRAIN
SDR	STANDARD DIMENSION RATIO
SECT.	SECTION
SHC	SODIUM HYPOCHLORITE
SHT.	SHEET
S.	SOUTH
S/O	SOUTH OF
SPEC'S.	SPECIFICATIONS
SQ.	SQUARE
SS	SANITARY SEWER OR STAINLESS STEEL
STD.	STANDARD
STA.	STATION
STL.	STEEL
S.C.C.P.	STL. CYL. CONC. PIPE
SDMH	STORM DRAIN MANHOLE
ST.	STREET
ST. LT.	STREET LIGHT
STR.	STRUCTURAL
S1S1E	SURFACED 1 SIDE & 1 EDGE
S2S1E	" 2 SIDES & 1 EDGE
S1S2E	" 1 SIDE & 2 EDGES
S1E	" 1 EDGE
S1S	" 1 SIDE
S2E	" 2 EDGES
S4S	" 4 SIDES
SYM.	SYMMETRICAL
TMH	TELEPHONE MANHOLE
T.P.	TELEPHONE POLE
TEMP.	TEMPERATURE
TERR.	TERRACE
THD.	THREAD
TOE	TOE OF SLOPE
TC	TOP OF CURB
TF	TOP OF FOOTING
T.G.	TOP OF GRATE
TOP	TOP OF SLOPE
T.P.	TOP OF PLATFORM
T.V.	TOP OF VAULT
TW	TOP OF WALL
TRANS.	TRANSITION
TYP.	TYPICAL
TJ	TYTON JOINT
VERT.	VERTICAL
V.C.P.	VITRIFIED CLAY PIPE
VOC	VOLATILE ORGANIC COMPOUND
W.I.	WROUGHT IRON
WM	WATER METER
WV	WATER VALVE
WT.	WEIGHT
W.	WEST
W/O	WEST OF
W/	WITH
WS	WATER SURFACE

GENERAL NOTES

1. THE CHLORINATION SYSTEM SHALL BE CONSTRUCTED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS, CURRENT CITY OF RIALTO STANDARDS, AND THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" LATEST EDITION. ALL WORK SHALL BE SUBJECT TO THE INSPECTOR'S ACCEPTANCE AS A CONDITION OF COMPLETION OF WORK BY THE CONTRACTOR. IN ADDITION, ALL TRENCH BACKFILL, A.C. PAVING, AND CONCRETE REPLACEMENT SHALL BE SUBJECT TO THE ENGINEER'S ACCEPTANCE AS A CONDITION OF COMPLETION OF WORK BY THE CONTRACTOR.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING HIMSELF FAMILIAR WITH ALL UNDERGROUND UTILITIES, PIPES AND STRUCTURES. THE CONTRACTOR SHALL VERIFY SITE CONDITIONS AND MAKE NECESSARY POT HOLES, AND NOTIFY THE VARIOUS UTILITIES TO MAKE NECESSARY ARRANGEMENTS FOR ANY RELOCATION OF THESE UTILITIES WITH THE OWNER OF THE UTILITY. ANY DELAY OR INCONVENIENCE CAUSED BY THE CONTRACTOR IN THE RELOCATION OF VARIOUS UTILITIES SHALL BE INCIDENTAL TO THE CONTRACT, NO EXTRA COMPENSATION WILL BE ALLOWED. CONTRACTOR SHALL TAKE SOLE RESPONSIBILITY FOR COST INCURRED DUE TO DAMAGE AND REPLACEMENT OF SAID UTILITIES.
3. CONTRACTOR SHALL NOT WILLFULLY PROCEED WITH CONSTRUCTION AS DESIGNED WHEN IT IS OBVIOUS THAT UNKNOWN OBSTRUCTIONS AND/OR DISCREPANCIES EXIST THAT MAY NOT HAVE BEEN KNOWN DURING DESIGN. THE ENGINEER SHALL BE CONSULTED TO MAKE ANY/ALL REQUIRED INTERPRETATIONS OF THE PLANS, HOWEVER, THIS IN NO WAY RELIEVES THE CONTRACTOR OF HIS RESPONSIBILITY FOR CONSTRUCTING THE PROJECT TO ASSEMBLE THE INTENT OF THE PLANS. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL NECESSARY REVISIONS DUE TO A FAILURE TO GIVE SUCH NOTIFICATION.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH OTHER SUBCONTRACTORS AS REQUIRED TO ACCOMPLISH CONSTRUCTION OPERATIONS.
5. ALL CONTRACTOR AND SUBCONTRACTORS PERFORMING WORK SHOWN ON OR RELATED TO THESE PLANS SHALL CONDUCT THEIR OPERATIONS SO THAT ALL EMPLOYEES ARE PROVIDED A SAFE PLACE TO WORK AND THE PUBLIC IS PROTECTED.
6. ALL CONTRACTOR AND SUBCONTRACTORS SHALL COMPLY WITH THE "OCCUPATIONAL SAFETY AND HEALTH REGULATION" OF THE U.S. DEPARTMENT OF LABOR, AND WITH THE STATE OF CALIFORNIA DEPARTMENT OF INDUSTRIAL RELATIONS' "CONSTRUCTION SAFETY ORDERS."
7. CONTRACTOR SHALL SUBMIT "AS-BUILT" CHLORINATION SYSTEM PLANS TO THE OWNER.
8. THE CONTRACTOR MUST HAVE A VALID CLASS "A" GENERAL CONTRACTORS LICENSE.
9. CONTRACTOR SHALL OBTAIN CONSTRUCTION PERMITS FROM THE CITY OF RIALTO PRIOR TO BEGINNING ANY WORK IN THEIR PUBLIC RIGHT OF WAY.
10. THE CONTRACTOR SHALL NOTIFY RESPECTIVE CITY, PUBLIC WORKS DEPARTMENT FIVE (5) WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION AND AT LEAST TWO (2) WORKING DAYS NOTICE WHEN INSPECTIONS OR ENGINEERING JUDGEMENTS BECOME NECESSARY AS SET FORTH IN THE STANDARDS.
11. ALL PERMIT WORK SHALL CONFORM TO PERMIT REQUIREMENTS AT ALL TIMES. THE PLANS, SPECIFICATIONS AND ALL NECESSARY PERMITS REQUIRED BY THE OWNER AND THE RESPECTED CITY SHALL BE ON THE JOB SITE AT ALL TIMES.
12. ALL WORK WHICH IS NOT IN THE PUBLIC RIGHT OF WAY SHALL BE DONE AT THE LEAST INCONVENIENCE TO THE PROPERTY OWNER, CONTRACTOR SHALL MINIMIZE DAMAGE TO EXISTING LANDSCAPING. ALL PRIVATE OR PUBLIC WALLS, FENCES, SOILS REMOVED FOR THE CONSTRUCTION OF THE CHLORINATION SYSTEM SHALL BE REPLACED TO MATCH EXISTING. CONTRACTOR SHALL FILL ALL TURF & LANDSCAPED AREAS TO ORIGINAL GRADE TO ORIGINAL CONDITION.
13. SHUT DOWN OF EXISTING TRANSMISSION MAINS SHALL BE LIMITED TO TWO (2) HOURS MAXIMUM, UNLESS DIRECTED OTHERWISE BY THE OWNER.
14. CONNECTIONS TO EXISTING WATER LINES SHALL BE DONE ONLY IN THE PRESENCE OF THE WATER COMPANY INSPECTOR OR ITS DESIGNATED PERSONNEL.
15. ALL PRESSURE TESTS SHALL BE APPROVED BY THE OWNER'S INSPECTOR PRIOR TO PLACEMENT OF PERMANENT RESURFACING.
16. DISCHARGE OF MATERIAL OTHER THAN STORM WATER ARE ALLOWED ONLY WHEN NECESSARY FOR PERFORMANCE AND COMPLETION OF CONSTRUCTION PRACTICES AND WHERE THEY DO NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF ANY WATER QUALITY STANDARD; CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION OR NUISANCE; OR CONTAIN A HAZARDOUS SUBSTANCE IN A QUANTITY REPORTABLE UNDER FEDERAL REGULATIONS 40 CFR, PARTS 117 AND 302.
17. POTENTIAL POLLUTANTS INCLUDE, BUT ARE NOT LIMITED TO: WASTES GENERATED DURING DRILLING ACTIVITIES, SOLID OR LIQUID CHEMICAL SPILLS; WASTES FROM PAINTS, STAINS, SEALANTS, GLUES, LIMES, PESTICIDES, HERBICIDES, WOOD PRESERVATIVES AND SOLVENTS; ASBESTOS FIBERS, PLANT FLAKES OR STUCCO FRAGMENTS; FUELS, OILS, LUBRICANTS AND HYDRAULIC, RADIATOR OR BATTERY FLUIDS; FERTILIZERS, VEHICLE/EQUIPMENT AND CONCRETE WASH WATER; CONCRETE, DETERGENT OR FLOATABLE FROM ANY ENGINE/EQUIPMENT STEAM CLEANING OR CHEMICAL DEGREASING; AND SUPER-CHLORINATED POTABLE WATER LINE FLUSHING.
18. DURING CONSTRUCTION, DISPOSAL OF SUCH MATERIALS SHOULD OCCUR IN A SPECIFIED AND CONTROLLED TEMPORARY AREA ON-SITE, PHYSICALLY SEPARATED FROM POTENTIAL STORM WATER RUN-OFF, WITH ULTIMATE DISPOSAL IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS.
19. CONTRACTOR SHALL NOTIFY ENGINEER TWO WORKING DAYS IN ADVANCE OF ANY DISPOSAL ACTIVITIES.

DIAL 811 DIGALERT — UNDERGROUND SERVICE ALERT

PLAY IT SAFE. DIAL BEFORE YOU DIG!

AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING

REGISTERED PROFESSIONAL ENGINEER — BRYAN C. PAINE — No. C64334 — Exp. 06/30/21 — CIVIL — STATE OF CALIFORNIA

PLANS PREPARED BY:

AECOM
999 TOWN & COUNTRY ROAD
ORANGE, CA 92868
TEL (714) 567-2400

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM COMBINED REMEDY SOURCE AREA OPERABLE UNIT, ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE CHLORINATION SYSTEM INSTALLATION

REV 9

SCALE	AS SHOWN	DESIGNED BY	B. PAINE	DRAWN BY	D. LAFRANCE
DATE	FEBRUARY 2020	CHECKED	J. ZIMMERLE	APPROVED	J. ZIMMERLE

DRAWING NUMBER AS SHOWN; JOB NUMBER 60438759

SHEET 2

GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS

DWG NO. G-2

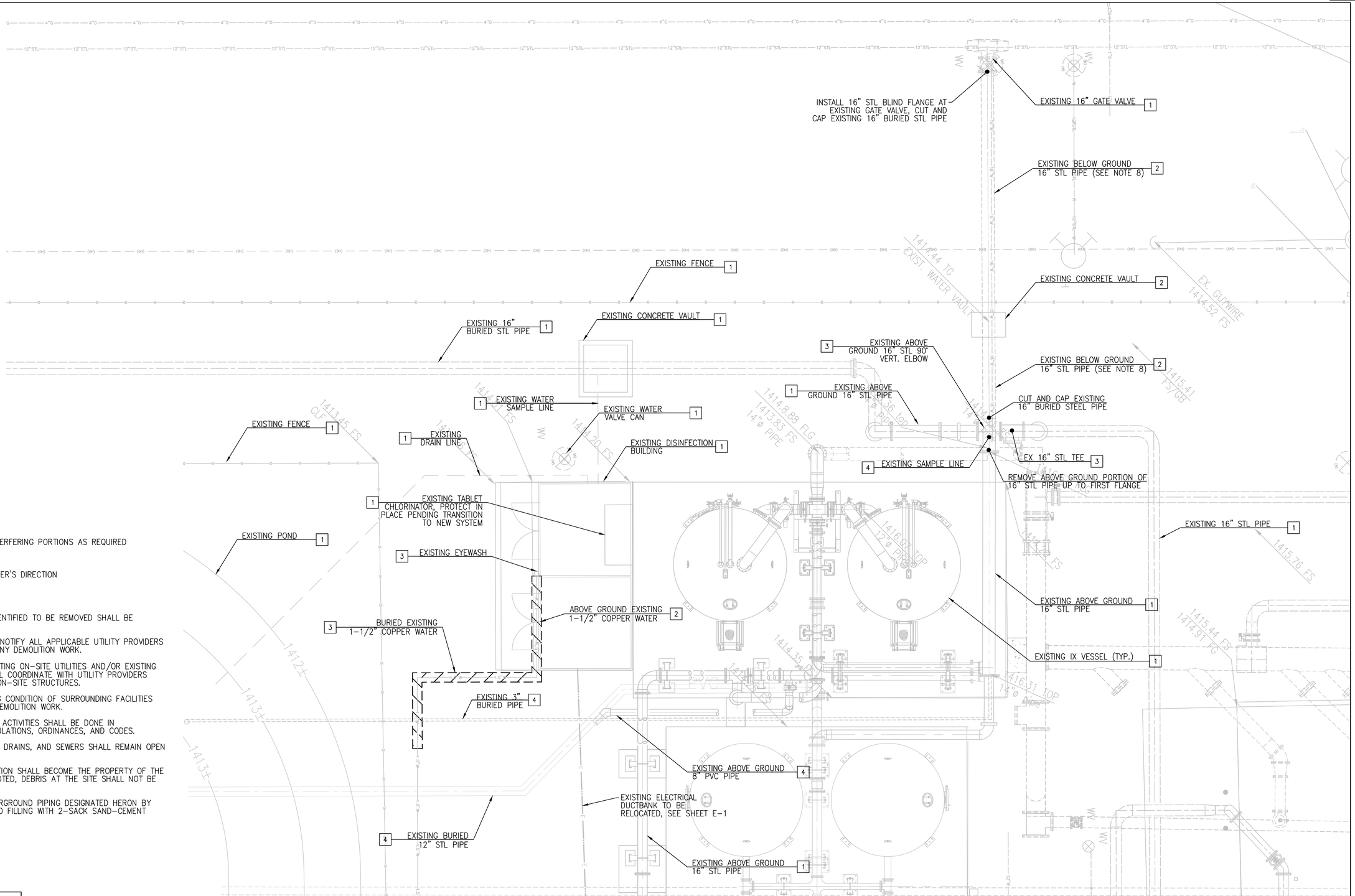
\\USGRAFPLWP01.NA.ACCOMNET.COM\ORANGE\DOCS\PROJECTS\ENV\60438759 RFF RIALTO TREATMENT\900-CAD-GIS\2018_CHLORINATION SYSTEM PROJECT\SHEETS\G-2.DWG (02-11-20, 11:12:47AM)

DISPOSITION NOTES

1. PROTECT–IN–PLACE
2. ABANDON–IN–PLACE, REMOVE INTERFERING PORTIONS AS REQUIRED
3. REMOVE IN ITS ENTIRETY
4. RELOCATE AS REQUIRED PER OWNER'S DIRECTION

DEMOLITION NOTES

1. ALL FACILITIES NOT SPECIFICALLY IDENTIFIED TO BE REMOVED SHALL BE PROTECTED–IN–PLACE.
2. THE CONTRACTOR SHALL PROMPTLY NOTIFY ALL APPLICABLE UTILITY PROVIDERS PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION WORK.
3. THIS PLAN MAY NOT SHOW ALL EXISTING ON–SITE UTILITIES AND/OR EXISTING SUBSTRUCTURES. CONTRACTOR SHALL COORDINATE WITH UTILITY PROVIDERS PRIOR TO DETERMINE LOCATION OF ON–SITE STRUCTURES.
4. CONTRACTOR TO DOCUMENT EXISTING CONDITION OF SURROUNDING FACILITIES PRIOR TO THE COMMENCEMENT OF DEMOLITION WORK.
5. ALL DEMOLITION AND CONSTRUCTION ACTIVITIES SHALL BE DONE IN ACCORDANCE WITH APPLICABLE REGULATIONS, ORDINANCES, AND CODES.
6. STREETS, PROPERTY ACCESS, STORM DRAINS, AND SEWERS SHALL REMAIN OPEN AND OPERABLE AT ALL TIMES.
7. MATERIALS RESULTING FROM DEMOLITION SHALL BECOME THE PROPERTY OF THE CONTRACTOR, UNLESS OTHERWISE NOTED, DEBRIS AT THE SITE SHALL NOT BE ALLOWED TO ACCUMULATE.
8. CONTRACTOR SHALL ABANDON UNDERGROUND PIPING DESIGNATED HERON BY CUTTING AND CAPPING THE PIPE AND FILLING WITH 2–SACK SAND–CEMENT SLURRY.



DIAL 811
DIGALERT
UNDERGROUND SERVICE ALERT
PLAY IT SAFE. DIAL BEFORE YOU DIG!
AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING

REGISTERED PROFESSIONAL ENGINEER
BRYAN C. PAINE
No. C64334
Exp. 06/30/21
CIVIL
STATE OF CALIFORNIA

PLANS PREPARED BY:
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GROUNDWATER EXTRACTION AND TREATMENT SYSTEM COMBINED REMEDY SOURCE AREA OPERABLE UNIT, ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE
CHLORINATION SYSTEM INSTALLATION

REV 9

SCALE	AS SHOWN	DESIGNED BY	B. PAINE	DRAWN BY	D. LAFRANCE	DRAWING NUMBER	AS SHOWN
DATE	FEBRUARY 2020	CHECKED	J. ZIMMERLE	APPROVED	J. ZIMMERLE	JOB NUMBER	60438759

SHEET 3

DEMOLITION PLAN

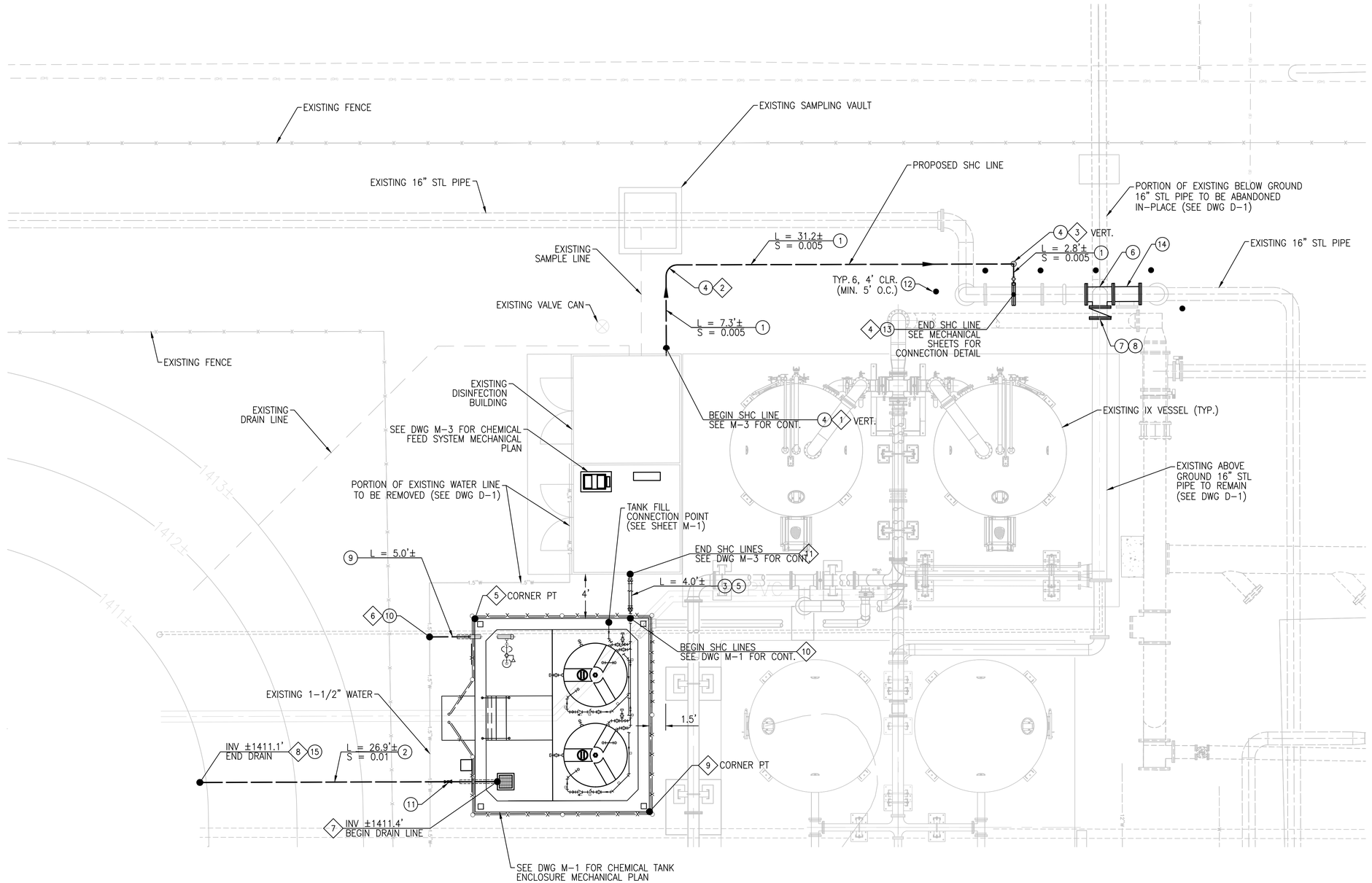
DWG NO. D-1

\\USGRAFP1.WO01.NA.ACOMNET.COM\ORANGE\DOCS\PROJECTS\ENV\60438759 RFF RIALTO TREATMENT\900–CAD–GIS\2018_CHLORINATION SYSTEM PROJECT\SHEETS\D–1.DWG (02–11–20, 11:14:11AM)

POINT TABLE		
POINT	NORTHING	EASTING
1	1868668.83	6743016.72
2	1868669.13	6743009.46
3	1868700.28	6743009.17
4	1868700.28	6743011.99
5	1868651.46	6743041.14
6	1868647.35	6743042.77
7	1868653.46	6743055.89
8	1868626.53	6743055.89
9	1868667.21	6743058.64
10	1868665.52	6743041.14
11	1868665.52	6743037.14

CONSTRUCTION NOTES

1. INSTALL 1-1/2" SCH. 80 CPVC WITH 1/2" TEFLON TUBING SHC LINE PER DETAIL 3, DWG C-2, 30" MIN COVER
2. 4" SCH 80 PVC DRAIN LINE, 30" MIN COVER
3. 3/4" SCH. 80 CPVC RECIRCULATION LINE, 30" MIN COVER
4. INSTALL 1-1/2" SCH. 80 CPVC 90° LONG RADIUS ELBOW WITH 1/2" TEFLON TUBING
5. 3/4" SCH. 80 CPVC METERING PUMP SUCTION, 30" MIN COVER
6. INSTALL 16" SCH. 40 STL TEE, FE X FE X FE
7. INSTALL 16" WAFER STYLE CHECK VALVE, FE X FE
8. INSTALL 16" SLIP-ON WELDING FLANGE
9. INSTALL 1-1/2" TYPE K WITH TAPE COAT, HARD OR SOFT ANNEALED, COPPER PIPE WATER LINE PER DETAIL 3, DWG C-2, 30" MIN COVER
10. INSTALL 1-1/2" TYPE K WITH TAPE COAT, HARD OR SOFT ANNEALED COPPER TEE WITH PLUG
11. INSTALL 4" CPVC GATE VALVE, SPEARS 2023-040C WITH TN-040 2" OPERATOR NUT (OR APPROVED EQUAL), AND TRAFFIC RATED VALVE BOX PER DETAIL 1, DWG C-2
12. INSTALL PIPE BOLLARD PER DETAIL 2, DWG C-2
13. 16" DIA SS WAFER STYLE STATIC MIXER WITH INJECTION PORT AT TOP, WESTFALL 2800 SERIES OR APPROVED EQUAL, PER DETAIL 5, DWG M-3
14. INSTALL 16" SCH. 40 STL PIPE SPOOL, FE X FE
15. INSTALL 4" TIDEFLEX DUCK BILL CHECK VALVE, SERIES TF-1, 316 SS CLAMPS, OR APPROVED EQUAL



GENERAL NOTE

1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING PIPING AND APPURTENANCES SHOWN HEREON AND INFORM THE ENGINEER OF ANY DISCREPANCIES PRIOR TO STARTING ANY WORK.

DIAL 811 UNDERGROUND SERVICE ALERT
DIGALERT
PLAY IT SAFE. DIAL BEFORE YOU DIG!
AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING

N
0 2.5' 5' 10'
0 1" 2"

REGISTERED PROFESSIONAL ENGINEER BRYAN C. PAINE No. C64334 Exp. 06/30/21 CIVIL STATE OF CALIFORNIA

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REV 9

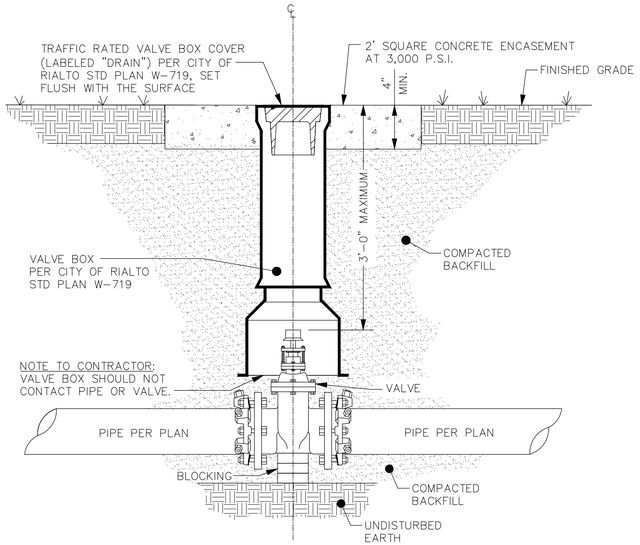
SCALE	AS SHOWN	DESIGNED BY	B. PAINE	DRAWN BY	D. LAFRANCE	DRAWING NUMBER	AS SHOWN
DATE	FEBRUARY 2020	CHECKED	J. ZIMMERLE	APPROVED	J. ZIMMERLE	JOB NUMBER	60438759

SHEET 4

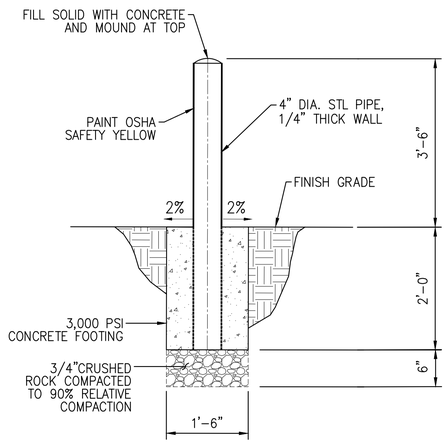
CIVIL PIPING PLAN

DWG NO. C-1

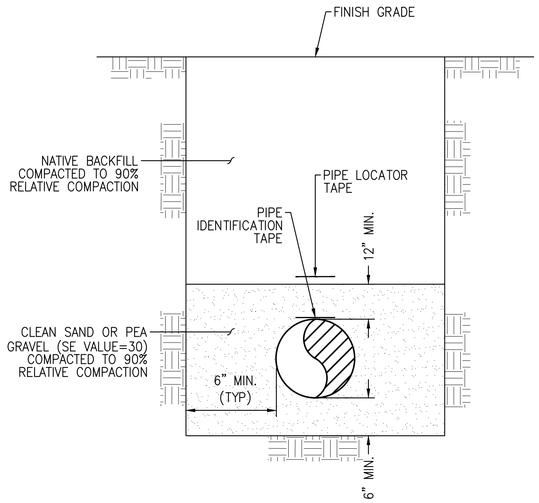
\\ORANGE.NA.AECOMNET.COM\ORANGE\DCS\PROJECTS\ENV\60438759 RFF RIALTO TREATMENT\900-CAD-GIS\2018_CHLORINATION SYSTEM PROJECT\SHEETS\C-1.DWG (02-12-20, 3:51:08PM)



VALVE BOX 1
NOT TO SCALE



BOLLARD POST 2
NOT TO SCALE



PIPE TRENCH 3
NOT TO SCALE

DIAL 811
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REV 9

SCALE	DESIGNED BY	DRAWN BY	DRAWING NUMBER
AS SHOWN	B. PAINE	D. LAFRANCE	AS SHOWN
DATE	CHECKED	APPROVED	JOB NUMBER
FEBRUARY 2020	J. ZIMMERLE	J. ZIMMERLE	60438759

SHEET 5

CIVIL DETAILS

DWG NO. C-2

\\USORA1FILWO01.NA.AECOMNET.COM\ORANGE\DCS\PROJECTS\ENVI\60438759 RIFF RIALTO TREATMENT\900-CAD-GIS\2018_CHLORINATION SYSTEM PROJECT\SHEETS\C-2.DWG (02-11-20, 11:20:58AM)

GENERAL STRUCTURAL NOTES

THESE NOTES SHALL APPLY UNLESS SHOWN/INDICATED OTHERWISE ELSEWHERE ON THE STRUCTURAL DRAWINGS.

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE 2019 CALIFORNIA BUILDING CODE (CBC), BASED UPON THE 2018 EDITION OF THE INTERNATIONAL BUILDING CODE (IBC). WHERE CONFLICTS BETWEEN BUILDING CODES AND SPECIFICATIONS OCCUR, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN. ALL ASTM DESIGNATIONS REFERRED TO ON THESE DRAWINGS SHALL BE THE LATEST ADOPTED OR REVISED SPECIFICATION, AS OF THE DATE OF THESE DRAWINGS.

2. THE STRUCTURAL DRAWINGS ARE TO BE USED IN CONJUNCTION WITH CIVIL AND MECHANICAL DRAWINGS. NO PORTION OF STRUCTURAL RELATED WORK, INCLUDING SHOP DRAWING DEVELOPMENT, SHALL BE PERFORMED WITHOUT CONSIDERING REQUIREMENTS OF CONTRACT DOCUMENTS IN THEIR ENTIRETY.

3. NEITHER THE OWNER NOR THE STRUCTURAL ENGINEER WILL ENFORCE SAFETY MEASURES OR REGULATIONS. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, DESIGN, CONSTRUCT AND MAINTAIN ALL SAFETY DEVICES, INCLUDING SHORING AND BRACING AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS. SITE OBSERVATION VISITS BY THE STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OF THE ABOVE SAFETY ITEMS. IF A LAWSUIT IS FILED BY ONE OF THE CONTRACTOR'S OR SUBCONTRACTOR'S EMPLOYEES, OR ANY ONE ELSE, THE CONTRACTOR WILL INDEMNIFY, DEFEND AND HOLD THE OWNER AND AECOM, THEIR PARENT AND SUBSIDIARY COMPANIES HARMLESS OF ANY AND ALL SUCH CLAIMS.

4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL WALLS, ETC. ARE ADEQUATELY BRACED AND SHORED DURING CONSTRUCTION. ALL BRACING/SHORING SHALL BE DESIGNED BY A REGISTERED ENGINEER HIRED BY THE CONTRACTOR. NO BACKFILL OR LOADING OF CONCRETE WALLS SHALL OCCUR UNTIL CONCRETE HAS REACHED ITS 28-DAY COMPRESSIVE STRENGTH.

5. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS BEFORE STARTING WORK. SHOULD CONDITIONS EXIST WHICH ARE CONTRARY TO THOSE SHOWN ON PLANS, THE ENGINEER SHALL BE NOTIFIED IN WRITING BEFORE PROCEEDING WITH WORK.

6. UNLESS DETAILED, SPECIFIED, OR INDICATED OTHERWISE, CONSTRUCTION SHALL BE AS INDICATED IN THE APPLICABLE TYPICAL DETAILS AND THESE GENERAL NOTES. TYPICAL DETAILS ARE MEANT TO APPLY EVEN THOUGH NOT REFERENCED AT SPECIFIC LOCATIONS ON DRAWINGS WHERE THEY OCCUR.

7. THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS AND METHODS TO ACCOMPLISH THE CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE, WORKERS AND PEDESTRIANS DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO BRACING, SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, TEMPORARY STRUCTURES, AND PARTIALLY COMPLETED WORK, ETC. OBSERVATION VISITS TO THE SITE BY THE ENGINEER SHALL NOT BE CONSIDERED AS INSPECTION OF SUCH ITEMS.

8. DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALES SHOWN ON DRAWINGS.

9. ALL WORK SHALL CONFORM TO THE PLANS AND SPECIFICATIONS IN ALL RESPECTS AND SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER.

10. THE STRUCTURAL DRAWINGS SHOW ONLY THE STRUCTURAL REQUIREMENTS. REFER TO CIVIL AND MECHANICAL DRAWINGS FOR NON-STRUCTURAL ITEMS, SUCH AS:

    A. SIZE AND LOCATION OF ALL OPENINGS.
    B. SIZE AND LOCATION OF ALL CONCRETE CURBS, WALKS, FLOOR DRAINS, ETC.
    C. DIMENSIONS WHICH ARE NOT SHOWN ON STRUCTURAL DRAWINGS.

11. CONSTRUCTION MATERIALS SHALL BE EVENLY DISTRIBUTED IF PLACED ON FRAMED FLOORS OR ROOF. LOAD SHALL NOT EXCEED DESIGN LIVE LOAD FOR EACH PARTICULAR LEVEL. WHEN WEIGHT OF MATERIALS OR EQUIPMENT MAY EXCEED DESIGN LOAD, STRUCTURAL SYSTEMS SHALL BE SHORED.

12. SOIL PROPERTIES, ALLOWABLE DESIGN VALUES, GRADING AND COMPACTION REQUIREMENTS AS PER GEOTECHNICAL EXPLORATION REPORT BY LEIGHTON CONSULTING, INC, PROJECT NO. 11107.001 DATED NOVEMBER 18, 2015. THIS REPORT SHALL BE CONSIDERED A PART OF THESE PLANS AND SHALL BE KEPT AT THE JOB SITE AT ALL TIMES. A COPY OF THIS REPORT IS AVAILABLE FOR REVIEW IN THE ENGINEER'S OFFICE.

13. CONTRACTOR SHALL VERIFY LOCATION OF ALL SITE UTILITIES PRIOR TO STARTING WORK, BOTH ABOVE GROUND AND BELOW GROUND, WHICH MAY BE IMPACTED BY THE WORK SHOWN ON THESE DRAWINGS. ANY CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

14. ALL ITEMS SHOWN ON THESE PLANS ARE NEW UNLESS NOTED (E), EXIST. OR EXISTING.

REINFORCING STEEL

1. REINFORCEMENT FOR CONCRETE SHALL BE DEFORMED BARS CONFORMING TO ASTM SPECIFICATION A615 (A706/A706M FOR WELDED REINFORCING). GRADE 60 STEEL SHALL BE USED EXCEPT THAT #3 BARS AND SMALLER MAY BE GRADE 40 STEEL.

2. WIRE MESH SHALL CONFORM TO ASTM A1064. LAP 12" WHERE SPLICED.

3. ALL REINFORCEMENT, ANCHOR BOLTS, AND OTHER ANCHORAGES PLACED IN CONCRETE SHALL BE ACCURATELY PLACED AND POSITIVELY SECURED AND SUPPORTED BY CONCRETE BLOCKS, METAL CHAIRS, SPACERS, OR METAL HANGERS, AND SHALL BE IN POSITION BEFORE CONCRETE PLACING OR GROUTING IS BEGUN. DETAILING AND PLACING OF BARS SHALL CONFORM TO THE ACI MANUAL OF STANDARD PRACTICES.

4. BARS SPECIFIED AS "CONTINUOUS" SHALL EXTEND THE FULL LENGTH OF THE MEMBER CONTAINING THEM AND MAY BE SPLICED (UNLESS NOTED OR SHOWN WITHOUT SPLICES ON THE PLANS). IN CONCRETE, PROVIDE LAPS PER DETAIL 3 ON DRAWING S-6. STAGGER ALL SPLICES.

5. DOWELS SHALL BE PROVIDED AT ALL POUR JOINTS AND SHALL BE THE SAME SIZE AND SPACING AS REINFORCING DIRECTLY BEYOND POUR JOINTS.

6. ALL REINFORCING BAR BENDS SHALL BE MADE COLD, UNLESS OTHERWISE PERMITTED BY THE ENGINEER. REBENDING OF BARS IS NOT PERMITTED.

7. WELDING OF REINFORCING STEEL, METAL INSERTS AND CONNECTIONS IN REINFORCED CONCRETE OR MASONRY CONSTRUCTION SHALL CONFORM TO ANSI/AWS D1.4-11. USE LOW HYDROGEN E-70 SERIES ELECTRODES FOR WELDING OF REINFORCING BARS. CONTINUOUS INSPECTION IS REQUIRED OF ALL FIELD WELDING IN ACCORDANCE WITH CBC CHAPTER 17.

8. THE SPECIFIED DIMENSIONS OF THE VERTICAL LEGS OF "L" DOWELS, WHOSE HORIZONTAL LEGS ARE CAST INTO A FOOTING OR SLAB CAST ON TOP OF EARTH, ARE BASED UPON THE SLAB THICKNESS AS SHOWN ON THE DRAWINGS. IF A SLAB IS POURED THICKER THAN SHOWN ON THE DRAWINGS, SUCH AS FOR THE SUBGRADE OCCURRING AT A LOWER ELEVATION THAN SHOWN, THE VERTICAL LEGS MUST BE FABRICATED TO A LONGER LENGTH OR THE HORIZONTAL TAILS MUST BE SUPPORTED ABOVE SUBGRADE HIGH ENOUGH TO PROVIDE THE SAME AMOUNT OF LAP LENGTH BETWEEN THE DOWEL AND THE WALL VERTICAL REINFORCING.

9. CONDUIT AND PIPING SHALL BE FABRICATED AND INSTALLED SO THAT CUTTING, BENDING, OR DISPLACEMENT OF REINFORCEMENT FROM ITS SPECIFIED LOCATION WILL NOT BE REQUIRED. (REF. ACI 318-14, SECTION 26.8.2).

CONCRETE

1. AGGREGATES FOR CONCRETE SHALL CONFORM TO ASTM C33. CONCRETE f'c AT 28 DAYS SHALL BE AS NOTED BELOW. REQUIRED AVERAGE COMPRESSIVE STRENGTH (f'cr) SHALL BE IN ACCORDANCE WITH ACI 301-16, ARTICLE 4.2.3.

CONCRETE SCHEDULE

ITEMS	28 DAY COMPRESSIVE CYLINDER STRENGTH	
	2500 PSI	4000 PSI
ALL CONCRETE, U.N.O.		X
PIPE BLOCKS AND APPURTENANCES, ELECTRICAL EQUIPMENT PADS, PIPE ENCASEMENTS, DUCT BANKS		X
CURB AND GUTTER, SIDEWALKS, MISC. SITE WORK	X	

2. CEMENT FOR CONCRETE SHALL BE TYPE II PORTLAND CEMENT CONFORMING TO ASTM C150.

3. READY MIXED CONCRETE SHALL CONFORM TO ASTM C94.

4. CONCRETE COVER FOR REINFORCING BARS SHALL BE:
   CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH = 3"
   EXPOSED TO EARTH OR WEATHER: = 2"

5. DRYPACK SHALL BE 1 PART CEMENT AND 3 PARTS SAND (BY VOLUME).

6. NO PIPES OR DUCTS SHALL BE PLACED IN STRUCTURAL CONCRETE UNLESS SPECIFICALLY DETAILED. SEE MECHANICAL AND/OR ELECTRICAL DRAWINGS FOR LOCATION OF SLEEVES THROUGH WALLS AND FLOORS.

7. REFER TO DRAWING DETAILS FOR ALL MOLDS, GROOVES, CLIPS, GROUNDS, ORNAMENTS AND OTHER INSERTS TO BE CAST IN CONCRETE.

8. THE LOCATION OF ALL CONSTRUCTION JOINTS NOT SPECIFICALLY NOTED OR SHOWN SHALL BE APPROVED BY THE STRUCTURAL ENGINEER.

9. "ROUGHENED SURFACES", WHERE SPECIFIED ON THE DRAWINGS, SHALL BE MECHANICALLY ROUGHENED SUCH THAT A 1/4"± AMPLITUDE IS ACHIEVED BETWEEN HIGH AND LOW SPOTS OF THE ROUGHENED SURFACE. THE SURFACE SHALL BE CLEAN AND FREE OF LAITANCE.

10. ALL SLABS SHALL HAVE A TROWEL FINISH EXCEPT AS NOTED ON THE DRAWINGS.

11. PROVIDE 3/4" CHAMFER AT ALL EXPOSED (I.E., NOT BURIED OR CONCEALED FROM VIEW OR ACCESS) CONCRETE EDGES AND CORNERS.

STEEL

1. ALL STRUCTURAL AND MISCELLANEOUS STEEL SHALL BE ASTM A36 UNLESS NOTED OTHERWISE AND SHALL BE FABRICATED IN ACCORDANCE WITH THE AISC SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS. SPECIAL INSPECTION SHALL BE PROVIDED FOR ALL STRUCTURAL STEEL UNLESS FABRICATION IS PERFORMED ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION, IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND SECTION 1704.2.5.1 OF THE 2019 CBC. AT THE COMPLETION OF FABRICATION, THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE CITY BUILDING OFFICIAL AND TO THE ENGINEER STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

2. ALL WIDE FLANGE SECTIONS (W SHAPES) SHALL CONFORM TO ASTM A992, Fy = 50 KSI.

3. STEEL TUBES SHALL CONFORM TO ASTM A500, GRADE B OR BETTER, UNLESS NOTED OTHERWISE.

4. STEEL PIPES SHALL CONFORM TO ASTM A53, GRADE B.

5. BOLTS SHALL CONFORM TO ASTM A307 OR BETTER, UNLESS NOTED OTHERWISE.

6. HOLES FOR BOLTS IN STEEL SHALL BE OF SAME DIAMETER AS BOLT +1/16" MAXIMUM. CONNECTED MEMBERS SHALL BEAR ONLY UPON UNTHREADED PORTIONS OF BOLTS.

7. ALL WELDING SHALL BE SHIELDED ARC TYPE IN ACCORDANCE WITH THE PROVISIONS OF THE AMERICAN WELDING SOCIETY CODE D1.1, AND SHALL BE PERFORMED BY A CERTIFIED WELDER IN A FABRICATION SHOP REGISTERED AND APPROVED IN ACCORDANCE WITH STEEL NOTE 1 ABOVE. CONTINUOUS INSPECTION IS REQUIRED OF ALL FIELD WELDING IN ACCORDANCE WITH AISC 360, SECTION N5.4.

8. NO STRUCTURAL STEEL MEMBER SHALL BE CUT FOR PIPES, DUCTS, ETC. UNLESS SPECIFICALLY DETAILED AND APPROVED BY THE STRUCTURAL ENGINEER.

9. STAINLESS STEEL SHALL CONFORM TO ASTM A276/AISI 316. STAINLESS STEEL BOLTS AND THREADED RODS SHALL CONFORM TO ASTM F593. STAINLESS STEEL NUTS SHALL CONFORM TO ASTM F594.

10. WELDING OF STAINLESS STEEL SHALL CONFORM TO STRUCTURAL WELDING CODE - STAINLESS STEEL, ANSI/AWS D1.6-07

11. WHERE SPECIFIED, USE OF HIGH-STRENGTH BOLTS SHALL CONFORM TO THE PROVISIONS OF THE "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS" APPROVED BY THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS OF THE ENGINEERING FOUNDATION (RCSC). SPECIAL INSPECTION OF HIGH-STRENGTH BOLT CONNECTIONS IS REQUIRED.

12. ALL CARBON STEEL EXPOSED TO WEATHER OR DAMP/WET CONDITION SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A123, A153, A385 AFTER FABRICATION. REPAIR/TOUCHUP OF GALVANIZING SHALL BE IN ACCORDANCE WITH ASTM A780. ALL OTHER CARBON STEEL SHALL RECEIVE TWO COATS OF SHOP APPLIED PRIMER AND BE COATED IN ACCORDANCE WITH THE SPECIFICATIONS.

13. ANCHOR RODS SHALL CONFORM TO ASTM F1154, GRADE 36.

CONTRACTOR PROVIDED STRUCTURAL DESIGNS

CONTRACTOR SHALL PROVIDE DESIGN BY A LICENSED ENGINEER FOR EACH OF THE FOLLOWING:

1. ROOF CANOPY, CANOPY SUPPORT COLUMNS, LATERAL BRACING AND THEIR ANCHORAGES

2. CHEMICAL STORAGE TANKS

3. CHEMICAL STORAGE TANKS AND EQUIPMENT ANCHORAGE (SEE CHEMICAL STORAGE TANKS AND EQUIPMENT ANCHORAGE NOTES BELOW

CHEMICAL STORAGE TANK AND EQUIPMENT ANCHORAGE

1. ANCHORAGE FOR CHEMICAL STORAGE TANKS AND OTHER EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR. THE CONTRACTOR SHALL SUBMIT CALCULATIONS AND SHOP DRAWINGS SIGNED AND STAMPED BY A CALIFORNIA LICENSED CIVIL OR STRUCTURAL ENGINEER PRIOR TO FABRICATION.

2. TANK ANCHORS SHALL BE ASTM F1554, GRADE 36 CAST-IN-PLACE ANCHOR BOLTS OR THREADED ROD ADHESIVE ANCHORS UNLESS NOTED OTHERWISE. ANCHORS FOR OTHER EQUIPMENT SHALL BE 316 STAINLESS STEEL CAST-IN-PLACE ANCHOR BOLTS OR THREADED ROD ADHESIVE ANCHORS, UNLESS NOTED OTHERWISE. EXPANSION ANCHORS MAY NOT BE USED FOR THE ANCHORAGE.

3. TANK AND VESSEL ANCHORS SHALL BE DESIGNED IN ACCORDANCE WITH ASCE 7-16 SECTION 15.7.5 AND ACI 318-14 CHAPTER 17. IN SEISMIC DESIGN CATEGORY C, D, E, AND F, THE ANCHOR EMBEDMENT INTO THE CONCRETE SHALL BE DESIGNED TO DEVELOP THE STEEL STRENGTH OF THE ANCHOR IN TENSION DETERMINED IN ACCORDANCE WITH ACI 318, EQ. 17.4.1.2. THE ANCHOR SHALL HAVE A MINIMUM GAUGE LENGTH OF EIGHT DIAMETERS. POST-INSTALLED ANCHORS ARE PERMITTED TO BE USED IN ACCORDANCE WITH ASCE 7-16 SECTION 15.4.9.3 PROVIDED THAT THE ANCHOR EMBEDMENT INTO THE CONCRETE IS DESIGNED TO DEVELOP THE STEEL STRENGTH OF THE ANCHOR IN TENSION. LOAD COMBINATIONS INCLUDING OVERSTRENGTH ARE NOT TO BE USED TO SIZE THE ANCHOR BOLTS FOR TANKS AND HORIZONTAL AND VERTICAL VESSELS.

ADHESIVE ANCHORS (HILTI)

1. ADHESIVE ANCHORS SHALL BE "HILTI HIT-RE 500 V3" ADHESIVE ANCHORS FOR CONCRETE AS MANUFACTURED BY HILTI, INC.

2. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH ICC EVALUATION REPORT No. 3814 FOR CONCRETE.

3. SPECIAL INSPECTION PER CHAPTER 1704.13 OF THE CBC SHALL BE PROVIDED DURING ANCHOR INSTALLATION.

4. AN ALTERNATIVE ADHESIVE ANCHOR PRODUCT MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL, PROVIDED THAT IT HAS A CURRENT ICC EVALUATION REPORT APPROVAL.

5. ALL ABANDONED HOLES SHALL BE FILLED WITH A DRYPACK GROUT WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5,000 PSI. THE FILLED HOLE(S) SHALL BE PREPARED AND CLEANED AS REQUIRED BY THE GROUT MANUFACTURER.

6. LOCATE EXISTING REINFORCING USING A NON-DESTRUCTIVE METHOD (PACHOMETER OR OTHER), PRIOR TO DRILLING HOLES FOR ANCHORS. MAINTAIN A MINIMUM CLEARANCE OF 1" BETWEEN THE REINFORCEMENT AND THE ANCHOR.

7. CONCRETE IN WHICH ADHESIVE ANCHORS ARE INSTALLED SHALL HAVE A MINIMUM AGE OF 21 DAYS AT TIME OF ANCHOR INSTALLATION.

8. ADHESIVE ANCHORS IN MASONRY SHALL HAVE A MINIMUM EDGE DISTANCE AND BOLT SPACING OF 4 INCHES.

DIAL 811 UNDERGROUND SERVICE ALERT
DIGALERT
PLAY IT SAFE. DIAL BEFORE YOU DIG! AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING

REGISTERED PROFESSIONAL ENGINEER DALE E. WAH No. 25827 STRUCTURAL STATE OF CALIFORNIA 1/17/20

PLANS PREPARED BY:
AECOM
999 TOWN & COUNTRY ROAD
ORANGE, CA 92868
TEL (714) 567-2400

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM COMBINED REMEDY SOURCE AREA OPERABLE UNIT, ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE CHLORINATION SYSTEM INSTALLATION

SCALE	AS SHOWN	DESIGNED BY	D. KUANG	DRAWN BY	T. NGUYEN	DRAWING NUMBER	AS SHOWN
DATE	FEBRUARY 2020	CHECKED	J. ZIMMERLE	APPROVED	J. ZIMMERLE	JOB NUMBER	60438759

GENERAL STRUCTURAL NOTES

REV 9
SHEET 6
DWG NO. S-1

\\USORAFFLW001.NA.AECOMNET.COM\ORANGE\DCS\PROJECTS\ENV\60438759 RFF RIALTO TREATMENT\900-CAD-GIS\2018_CHLORINATION_SYSTEM\PROJECTSHEETS\S-1 GENERAL STRUCTURAL NOTES.DWG (02-11-20 12:58:17PM)

STRUCTURAL ABBREVIATIONS

&	AND
@	AT
#	NUMBER
ø	DIAMETER
AB	ANCHOR BOLT
ABS	ANCHOR BOLTS
ACI	AMERICAN CONCRETE INSTITUTE
ADJ	ADJACENT
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISI	AMERICAN IRON AND STEEL INSTITUTE
ALUM	ALUMINUM
ALT	ALTERNATE
APROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASCE	AMERICAL SOCIET OF CIVIL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS	AMERICAN WELDING SOCIETY
BLKG	BLOCKING
BLDG	BUILDING
BM	BEAM
BOT	BOTTOM
BRG	BEARING
BS	BOTH SIDES
BTWN	BETWEEN
C	CHANNEL
CALC'S	CALCULATIONS
CBC	CALIFORNIA BUILDING CODE
CC,C/C	CENTER-TO-CENTER
CF	CUBIC FOOT
CI	CAST-IRON
CJ	CONSTRUCTION JOINT
CJP	COMPLETE JOINT PENETRATION
℄	CENTERLINE
CLG	CEILING
CLK(G)	CAULK(ING)
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CNJ	CONTROL JOINT
CNTR	CENTER
COL	COLUMN
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
C.S.	CARBON STEEL
DBL	DOUBLE
DEPT	DEPARTMENT
DET	DETAIL
DIA	DIAMETER
DIM	DIMENSION
DL	DEAD LOAD
DN	DOWN
DO	DITTO
DIV	DIVISION
DR	DOOR
DWG(S)	DRAWINGS
DWL	DOWEL
(E)	EXISTING
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION
EMBED	EMBEDMENT
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EACH SIDE
EW	EACH WAY
EXP	EXPANSION
EXT	EXTERIOR
(F)	FUTURE
FD	FLOOR DRAIN
FDN	FOUNDATION
FF	FINISH FLOOR
FIN	FINISH
FLR	FLOOR
FNDN/FDN	FOUNDATION
FO_	FACE OF _____
FRMG	FRAMING
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FOOT/FEET
FTG	FOOTING
GA	GAGE/GAUGE
GALV	GALVANIZED
GI	GALVANIZED IRON
GRD	GRADE
HDG	HOT DIP GALVANIZED
HDR	HEADER
(H)/HORIZ	HORIZONTAL
HM	HOLLOW METAL
HP	HIGH POINT
HSB	HIGH STRENGTH BOLT
HSS	HOLLOW STRUCTURAL SECTION
HT	HEIGHT
HVAC	HEATING,VENTILATION,&AIR CONDITIONING
IBC	INTERNATIONAL BUILDING CODE
ICC	INTERNATIONAL CODE COUNCIL
ID	INSIDE DIAMETER
IF	INSIDE FACE
IN	INCH
INT	INTERIOR
JST	JOIST
JT	JOINT
KIP	1,000 POUNDS
KSI	KIPS PER SQUARE INCH
∠	ANGLE
LB(S)	POUNDS
LB/SF	POUND(S) PER SQUARE FOOT
LF	LINEAR FOOT
LG	LONG
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LLBB	LONG LEG BACK-TO-BACK
LONGIT	LONGITUDINAL
LP	LOW POINT
LW	LIGHT WEIGHT
MAS	MASONRY
MAT	MATERIAL
MAX	MAXIMUM
MB	MACHINE BOLT
MECH	MECHANICAL
MIN	MINIMUM
MISC	MISCELLANEOUS
MFG	MANUFACTURER
MO	MASONRY OPENING
MTL	METAL
(N)	NEW
NDT	NON-DESTRUCTIVE TEST(ING)
NIC	NOT IN CONTACT
NO	NUMBER
NOM	NOMINAL
NS	NEAR SIDE
NSG	NON-SHRINK GROUT
NTS	NOT TO SCALE
OC	ON CENTERS
OD	OUTSIDE DIAMETER
OH	OPPOSITE HAND, OVERHEAD
OPNG(S)	OPENING(S)
OPP	OPPOSITE
PCF	POUNDS PER CUBIC FOOT
PERP	PERPENDICULAR
PJP	PARTIAL JOINT PENETRATION
PLF	POUNDS PER LINEAL FOOT
PNL	PANEL
PREFAB	PREFABRICATED
PP	PARTIAL PENETRATION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT(S)	POINT(S)
PVC	POLYVINYL CHLORIDE
R, RAD	RADIUS
RD	ROOF DRAIN
RECT	RECTANGLE, RECTANGULAR
REF	REFERENCE
REINF	REINFORCING, REINFORCEMENT
REQ'D	REQUIRED
REV	REVISION
SCH	SCHEDULE
SECT	SECTION
SF	SQUARE FOOT
SHT	SHEET
SIM	SIMILAR
SLH	SHORT LEG HORIZONTAL
SLV	SHORT LEG VERTICAL
SMS	SHEET METAL SCREW
SOG	SLAB ON GRADE
SPEC(S)	SPECIFICATION(S)
SQ	SQUARE
SS, SST	STAINLESS STEEL
STD	STANDARD
STIFF	STIFFENER
STL	STEEL
STRUC	STRUCTURE
STS	SELF TAPPING SCREW
SUSP	SUSPENDED
SYM/SYMM	SYMMETRICAL
SYS	SYSTEM
T	THICKNESS
T&B	TOP AND BOTTOM
TEMP	TEMPORARY
THK	THICK
TL	TOTAL LOAD
TMS	THE MASONRY SOCIETY
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOS	TOP OF STEEL
TYP	TYPICAL
TW	TOP OF WALL
UON/ UNO	UNLESS OTHERWISE NOTED
UT	ULTRASONIC TESTING
(V)/VERT	VERTICAL
VIF	VERIFY IN FIELD
W/	WITH
W.P.	WORKING POINT
W/O	WITHOUT
WP	WATERPROOF/WORK POINT
WT	WEIGHT, STRUCTURAL TEE, WALL THICKNESS
YD	YARD

DESIGN CRITERIA

DESIGN CODES AND REFERENCES:
- CALIFORNIA BUILDING CODE, 2019 EDITION
- ACI 318-14
- ASCE 7-16

CANOPY LOADING:
ROOF DL = 5 PSF (ASSUMED)
ROOF LL = 20 PSF (ASSUMED)

SEISMIC DESIGN PARAMETERS:
ANALYSIS PROCEDURE USED: EQUIVALENT LATERAL FORCE PROCEDURE
LOCATION: 34.126 N. LAT., 117.9358 W. LONG.
RISK CATEGORY: IV
SITE CLASS: D
SEISMIC DESIGN CATEGORY: D

S_s = 1.945 S_1 = 0.867
F_a = 1.0 F_v = 1.5
S_{DS} = 1.297 S_{D1} = 0.867
IE = 1.50
R = 3 (FLAT BOTTOM GROUND SUPPORTED TANKS, MECHANICALLY ANCHORED)
R = 1.25 (STEEL ORDINARY CANTILEVER COLUMN SYSTEM)

WIND LOAD DESIGN PARAMETERS:
BASIC WIND SPEED: 115 MPH (3-SECOND GUST)
EXPOSURE CATEGORY: C
WIND DIRECTIONAL FACTOR, Kd = 0.85

SOIL DESIGN PARAMETERS:
ALLOWABLE SOIL BEARING = 1500 PSF (w/ 1/3 INCREASE FOR WIND OR SEISMIC FORCES)

SODIUM HYPOCHLORITE TANK:
WEIGHT = 270 LBS EMPTY
WEIGHT = 10,000 LBS FULL
CENTER OF GRAVITY = 2'-10"

DIAL 811
UNDERGROUND SERVICE ALERT
DIGALERT
PLAY IT SAFE. DIAL BEFORE YOU DIG!
AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING

REGISTERED PROFESSIONAL ENGINEER DALE E. WAH No. 25827 STRUCTURAL STATE OF CALIFORNIA
1/17/20

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GROUNDWATER EXTRACTION AND TREATMENT SYSTEM COMBINED REMEDY SOURCE AREA OPERABLE UNIT, ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE
CHLORINATION SYSTEM INSTALLATION

REV 9

SCALE	AS SHOWN	DESIGNED BY	D. KUANG	DRAWN BY	T. NGUYEN	DRAWING NUMBER	AS SHOWN
DATE	FEBRUARY 2020	CHECKED	J. ZIMMERLE	APPROVED	J. ZIMMERLE	JOB NUMBER	60438759

SHEET 7

DESIGN CRITERIA AND STRUCTURAL ABBREVIATIONS

DWG NO. S-2

\\USORA1PFLW001.NA.AECOMNET.COM\ORANGE\DOCS\PROJECTS\ENV\60438759 RFF RIALTO TREATMENT\900-CAD-GIS\2018_CHLORINATION_SYSTEM_PROJECT\SHEETS\S-2 STRUCTURAL ABBREVIATIONS AND DESIGN CRITERIA.DWG (02-11-20 12:58:59PM)

SPECIAL INSPECTION PROGRAM - APPLIES TO ALL TABLES

THE SPECIAL INSPECTIONS LISTED ARE IN ADDITION TO THE CALLED INSPECTIONS REQUIRED BY CBC 2019 CHAPTER 1 SECTION 110. THE SPECIAL INSPECTIONS IDENTIFIED ON PLANS ARE IN ADDITION TO, AND NOT A SUBSTITUTE FOR, THOSE INSPECTIONS REQUIRED TO BE PERFORMED BY THE GOVERNING JURISDICTION'S BUILDING INSPECTOR. THE GOVERNING JURISDICTION IS DEFINED AS THE CITY, COUNTY, OR GOVERNMENTAL UNIT THAT IS RESPONSIBLE FOR THE INSPECTIONS OF CONSTRUCTION OR WORK AS SPECIFIED IN THE CONTRACT DOCUMENTS.

SPECIAL INSPECTIONS REQUIRED FOR THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH CBC CHAPTER 17. SPECIAL INSPECTIONS SHALL BE PERFORMED BY AN APPROVED INSPECTION AGENCY U.N.O, EMPLOYED BY THE OWNER.

THE SPECIAL INSPECTOR SHALL BE CERTIFIED BY THE INTERNATIONAL CODE COUNCIL (ICC) TO PERFORM INSPECTION FOR THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION PRIOR TO THE COMPLETION OF THAT PHASE OF THE WORK.

THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL AND/OR THE ENGINEER. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF UNCORRECTED, TO THE STRUCTURAL ENGINEER AND TO THE BUILDING OFFICIAL.

THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT STATING WHETHER THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF THE INSPECTOR'S KNOWLEDGE, IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THIS CODE.

IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO PROVIDE AT LEAST 48 HOURS ADVANCE NOTICE TO THE OWNER/OWNER'S REPRESENTATIVE WHEN HIS WORK IS READY FOR ANY REQUIRED SPECIAL INSPECTIONS.

SHOP INSPECTION OF STEEL CONSTRUCTION IS NOT REQUIRED WHEN THE WORK IS DONE ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION. APPROVAL SHALL BE BASED UPON REVIEW OF THE FABRICATOR'S WRITTEN PROCEDURAL AND QUALITY CONTROL MANUALS AND PERIODIC AUDITING OF FABRICATION PRACTICES BY AN APPROVED SPECIAL INSPECTION AGENCY. AT COMPLETION OF FABRICATION, THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE BUILDING OFFICIAL STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.

CONTRACTOR RESPONSIBILITY

EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF A MAIN WIND- OR SEISMIC-FORCE-RESISTING SYSTEM, DESIGNATED SEISMIC SYSTEM OR A WIND- OR SEISMIC-RESISTING COMPONENT LISTED IN THE STATEMENT OF SPECIAL INSPECTIONS SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND THE OWNER PRIOR TO THE COMMENCEMENT OF WORK ON THE SYSTEM OR COMPONENT. THE CONTRACTOR'S STATEMENT OF RESPONSIBILITY SHALL CONTAIN ACKNOWLEDGMENT OF AWARENESS OF THE SPECIAL REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTION.

OWNER OR OWNER'S REPRESENTATIVE SHALL BE SYNONYMOUS WITH 'BUILDING OFFICIAL' IN THE FOREGOING IF THE PROJECT IS NOT UNDER THE JURISDICTION OF A BUILDING DEPARTMENT.

SPECIAL INSPECTION SHALL BE PROVIDED FOR THE FOLLOWING TYPES OF WORK PERFORMED IN THE FIELD, OR NOT PERFORMED IN AN APPROVED FABRICATION SHOP AS DEFINED ABOVE, UNLESS NOTED AS "N/A".

CONTINUOUS AND PERIODIC INSPECTIONS:

1. WHERE CONTINUOUS SPECIAL INSPECTION IS REQUIRED, THE SPECIAL INSPECTOR SHALL CONTINUOUSLY PROVIDE FULL-TIME VERIFICATION OF THE WORK.
2. WHERE PERIODIC SPECIAL INSPECTION IS REQUIRED, THE SPECIAL INSPECTOR SHALL PROVIDE VERIFICATION THAT THE PERIODIC INSPECTION WAS PERFORMED.

MAIN WIND- OR SEISMIC-FORCE RESISTING SYSTEMS, DESIGNATED SEISMIC SYSTEMS, AND SEISMIC RESISTING COMPONENTS SUBJECT TO SPECIAL INSPECTIONS:

- FOR ACTIVE MECHANICAL AND ELECTRICAL EQUIPMENT THAT MUST REMAIN OPERABLE FOLLOWING THE DESIGN EARTHQUAKE GROUND MOTION, INSPECTION/VERIFICATION THAT THE LABEL, ANCHORAGE AND MOUNTING CONFORM TO THE CERTIFICATE OF COMPLIANCE
- PERIODIC SPECIAL INSPECTION FOR INSTALLATION OF ELECTRICAL EQUIPMENT ANCHORAGE
- PERIODIC SPECIAL INSPECTION FOR INSTALLATION OF PIPING SYSTEMS AND DUCTWORK DESIGNED TO CARRY HAZARDOUS MATERIALS AND THEIR ASSOCIATED MECHANICAL UNITS

REQUIRED VERIFICATION AND INSPECTION OF SOILS:

	CONTINUOUS INSPECTION	PERIODIC INSPECTION	N/A
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	☐	■	☐
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	☐	■	☐
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	☐	■	☐
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	■	☐	☐
5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	☐	■	☐

REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION:

	CONTINUOUS INSPECTION	PERIODIC INSPECTION	N/A
1. INSPECTION OF REINFORCING STEEL, INCLUDING PLACEMENT.	☐	■	☐
2. INSPECTION OF REINFORCING STEEL WELDING IN ACCORDANCE WITH TABLE 1705.3	☐	☐	■
3. INSPECT ANCHORS CAST IN CONCRETE, PRIOR TO AND DURING PLACEMENT OF CONCRETE	☐	■	☐
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS.			
A. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS.	■	☐	☐
B. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.A.	☐	■	☐
5. VERIFY USE OF REQUIRED DESIGN MIX.	☐	■	☐
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	■	☐	☐
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	■	☐	☐
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	☐	■	☐
9. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS	☐	■	☐
10. VERIFY OF IN-SITU CONCRETE STRENGTH, PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	☐	■	☐
11. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	☐	■	☐

LEVEL C SPECIAL INSPECTION OF MASONRY:

- VERIFY f'_m IN ACCORDANCE WITH ACI 530.1, ARTICLE 1.4B PRIOR TO CONSTRUCTION AND FOR EVERY 5,000 SQ. FT. DURING CONSTRUCTION
- VERIFY PROPORTIONS OF MATERIALS IN PREMIXED OR PREBLENDED MORTAR, AND GROUT OTHER THAN SELF-CONSOLIDATING GROUT, AS DELIVERED TO THE JOB SITE.
- VERIFY SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) AS DELIVERED TO THE JOB SITE IN ACCORDANCE WITH ACI 510.1, ARTICLE 1.5B.1.b.3 FOR SELF-CONSOLIDATING GROUT.

	CONTINUOUS INSPECTION	PERIODIC INSPECTION	N/A
1. VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS	☐	☐	■
2. VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:			
a. PROPORTIONS OF SITE-MIXED MORTAR AND GROUT.	☐	☐	■
b. GRADE, TYPE, AND SIZE OF REINFORCEMENT AND ANCHOR BOLTS	☐	☐	■
c. PLACEMENT OF MASONRY UNITS AND CONSTRUCTION OF MORTAR JOINTS	☐	☐	■
d. PLACEMENT OF REINFORCEMENT AND CONNECTORS	☐	☐	■
e. GROUT SPACE PRIOR TO GROUTING	☐	☐	■
f. PLACEMENT OF GROUT	☐	☐	■
g. SIZE AND LOCATION OF STRUCTURAL ELEMENTS	☐	☐	■
h. TYPE, SIZE, AND LOCATION OF ANCHORS INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION	☐	☐	■
i. WELDING OF REINFORCING BARS	☐	☐	■
j. PREPARATION, CONSTRUCTION AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F) OR HOT WEATHER (TEMPERATURE ABOVE 90°F)	☐	☐	■
3. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS AND/OR PRISMS SHALL BE OBSERVED.	☐	☐	■

STEEL CONSTRUCTION (OTHER THAN STRUCTURAL STEEL)

	CONTINUOUS INSPECTION	PERIODIC INSPECTION	N/A
1. MATERIAL VERIFICATION OF COLD-FORMED STEEL DECK			
A. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS	☐	■	☐
B. MANUFACTURER'S CERTIFIED TEST REPORTS	☐	■	☐
2. INSPECTION OF WELDING IN ACCORDANCE WITH AWS D1.3 AND SDI QA/QC			
A. COLD-FORMED STEEL DECK			
• FLOOR AND ROOF DECK WELDS	☐	■	☐

OPEN-WEB STEEL JOISTS AND JOIST GIRDERS:

	CONTINUOUS INSPECTION	PERIODIC INSPECTION	N/A
1. INSTALLATION OF OPEN-WEB STEEL JOISTS AND JOIST GIRDERS			
A. END CONNECTIONS - WELDING OR BOLTED	☐	☐	■
B. BRIDGING - HORIZONTAL OR DIAGONAL			
• STANDARD BRIDGING	☐	☐	■
• BRIDGING THAT DIFFERS FROM SJI K OR SJI LH/DLH SPECIFICATIONS	☐	☐	■

STEEL CONSTRUCTION (STRUCTURAL STEEL):

O - OBSERVE THESE ITEMS ON A RANDOM BASIS, OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS

P - PERFORM THESE TASKS FOR EVERY LOCATION

	P	O
1. INSPECTION TASKS PRIOR TO WELDING		
A. WELDING PROCEDURE SPECIFICATIONS (WPSs) AVAILABLE	■	☐
B. MANUFACTURERS CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	■	☐
C. MATERIAL IDENTIFICATION (TYPE/GRADE)	☐	■
D. WELDER IDENTIFICATION SYSTEM	☐	■
E. FIT-UP OF GROOVE WELDS (INCLUDING GEOMETRY)	☐	■
• JOINT PREPARATION		
• DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL)		
• CLEANLINESS (CONDITION OF STEEL SURFACES)		
• TACKING (TACK WELD QUALITY AND LOCATION)		
• BACKING TYPE AND FIT (IF APPLICABLE)		
F. CONFIGURATION AND FINISH OF ACCESS HOLES	☐	■
G. FIT-UP OF FILLET WELDS	☐	■
• DIMENSIONS (ALIGNMENT, GAPS AT ROOT)		
• CLEANLINESS (CONDITION OF STEEL SURFACES)		
• TACKING (TACK WELD QUALITY AND LOCATION)		
2. INSPECTION TASKS DURING WELDING		
A. USE OF QUALIFIED WELDERS	☐	■
B. CONTROL AND HANDLING OF WELDING CONSUMABLES	☐	■
• PACKAGING		
• EXPOSURE CONTROL		
C. NO WELDING OVER CRACKED TACK WELDS	☐	■
D. ENVIRONMENTAL CONDITIONS	☐	■
• WIND SPEED WITHIN LIMITS		
• PRECIPITATION AND TEMPERATURE		
E. WPS FOLLOWED	☐	■
• SETTINGS ON WELDING EQUIPMENT		
• TRAVEL SPEED		
• SELECTED WELDING MATERIALS		
• SHIELDING GAS TYPE/FLOW RATE		
• PREHEAT APPLIED		
• INTERPASS TEMPERATURE MAINTAINED (MIN./MAX.)		
• PROPER POSITION (F, V, H, OH)		
F. WELDING TECHNIQUES	☐	■
• INTERPASS AND FINAL CLEANING		
• EACH PASS WITHIN PROFILE LIMITATIONS		
• EACH PASS MEETS QUALITY REQUIREMENTS		
3. INSPECTION TASKS AFTER WELDING		
A. WELDS CLEANED	☐	■
B. SIZE, LENGTH, AND LOCATION OF WELDS	■	☐
C. WELDS MEET VISUAL ACCEPTANCE CRITERIA	■	☐
• CRACK PROHIBITION		
• WELD/BASE-METAL FUSION		
• CRATER CROSS SECTION		
• WELD PROFILES		
• WELD SIZE		
• UNDERCUT		
• POROSITY		
D. ARC STRIKES	■	☐
E. K-AREA	■	☐
• WHEN WELDING OF DOUBLER PLATES, CONTINUITY PLATES OR STIFFENERS HAS BEEN PERFORMED IN THE K-AREA, VISUALLY INSPECT THE WEB K-AREA FOR CRACKS WITHIN 3 IN. (75MM) OF THE WELD		
F. BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	■	☐
G. REPAIR ACTIVITIES	■	☐
H. DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	■	☐
4. INSPECTION TASKS PRIOR TO BOLTING		
A. MANUFACTURER'S CERTIFICATION AVAILABLE FOR FASTENER MATERIAL	■	☐
B. FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS	☐	■
C. PROPER FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE)	☐	■
D. PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	☐	■
E. CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	☐	■
F. PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED	☐	■
G. PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	☐	■
5. INSPECTION TASKS DURING BOLTING		
A. FASTENER ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED	☐	■
B. JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION	☐	■
C. FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	☐	■
D. FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES	☐	■
6. INSPECTION TASKS AFTER BOLTING		
A. DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	■	☐
7. INSPECTION OF STEEL ELEMENTS OF COMPOSITE CONSTRUCTION PRIOR TO CONCRETE PLACEMENT		
A. PLACEMENT AND INSTALLATION OF STEEL DECK	■	☐
B. PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS	■	☐
C. DOCUMENT ACCEPTANCE OR REJECTION OF STEEL ELEMENTS	■	☐

STRUCTURAL OBSERVATION

THE STRUCTURAL ENGINEER, OR ANOTHER ENGINEER DESIGNATED BY THE STRUCTURAL ENGINEER SHALL BE RETAINED BY THE DISTRICT TO PERFORM STRUCTURAL OBSERVATION AS REQUIRED BY CBC CHAPTER 17. STRUCTURAL OBSERVATION SHALL BE PROVIDED DURING THE STAGES OF CONSTRUCTION LISTED BELOW. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE AT LEAST 48 HOURS ADVANCE NOTICE TO THE STRUCTURAL ENGINEER WHEN HIS WORK IS READY FOR STRUCTURAL OBSERVATION FOR EACH OF THESE STAGES.

	SUBMITTALS REQUIRED (■ YES ☐ NO)	N/A
1. CONCRETE: REINFORCING STEEL AND EMBEDDED STRUCTURAL ANCHORAGES PRIOR TO PLACEMENT OF CONCRETE FOR THE FOLLOWING:		
A. FOUNDATIONS	■	☐
B. SLABS-ON-GRADE (EXCEPT SITE PAVING AND FLATWORK)	☐	☐
C. WALLS	■	☐
D. STRUCTURAL FLOOR SLABS AND BEAMS NOT SUPPORTED ON-GRADE	☐	☐
E. ROOF SLABS AND BEAMS	☐	☐
2. MASONRY:		
A. REINFORCING STEEL AND EMBEDDED STRUCTURAL ANCHORAGES PRIOR TO GROUTING OF MASONRY WALLS	☐	■
3. STRUCTURAL STEEL:		
A. ERECTED COLUMN, BEAMS AND GIRDERS, PRIOR TO INSTALLATION OF ROOF AND FLOOR JOISTS, TRUSSES AND DECKING	■	☐
4. WOOD FRAMING:		
A. ROOF, FLOOR AND WALL FRAMING AND MEMBER CONNECTIONS, AND STRUTS AND CHORDS, PRIOR TO INSTALLATION OF SHEATHING OR ANY COVERING THAT WOULD CONCEAL THE STRUCTURAL FRAME	☐	■
B. PLYWOOD ROOF, FLOOR AND WALL SHEATING PRIOR TO INSTALLATION OR ROOFING AND ANY OTHER BUILDING MATERIALS THAT WOULD CONCEAL THE NAILING	☐	■

DEFERRED SUBMITTALS/CERTIFICATIONS

	SUBMITTALS REQUIRED (■ YES ☐ NO)	N/A
1. OFF-SITE FABRICATION: FABRICATORS SHALL BE CITY, COUNTY AND/OR CBC APPROVED FABRICATORS. FABRICATORS FOR ALL OFF-SITE FABRICATION OF THE ITEMS LISTED BELOW:		
A. TRUSSES	☐	■
B. GLU-LAMINATED MEMBERS	☐	■
C. PRECAST CONCRETE	☐	■
D. STRUCTURAL STEEL (MILL REPORTS AND IDENTIFICATION OF STEEL, AFFIDAVIT OF COMPLIANCE)	■	☐
E. OTHER: _____	☐	☐

2. DEFERRED SUBMITTALS:
SUBMITTAL DOCUMENTS FOR THE DEFERRED SUBMITTAL ITEMS LISTED BELOW SHALL BE DESIGNED BY A PE OR SE LICENSED IN THE STATE OF CALIFORNIA AND SUBMITTED BY THE CONTRACTOR TO THE BUILDING DEPARTMENT/APPROVAL AGENCY AND STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THEIR DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE AFOREMENTIONED.

A. PREFABRICATED TRUSSES	☐	■
B. PRECAST VAULTS	☐	■
C. CONCRETE MIX	■	☐
D. OTHER: PRE-ENGINEERED METAL CANOPY	■	☐
E. OTHER: CHEMICAL STORAGE TANK AND EQUIPMENT ANCHORAGE	■	☐

DIAL 811 DIGALERT — UNDERGROUND SERVICE ALERT

PLAY IT SAFE. DIAL BEFORE YOU DIG! — AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING

REGISTERED PROFESSIONAL ENGINEER — DALE E. WAHL — No. 25827 — STRUCTURAL — STATE OF CALIFORNIA — 1/17/20

PLANS PREPARED BY:

AECOM
999 TOWN & COUNTRY ROAD
ORANGE, CA 92868
TEL (714) 567-2400

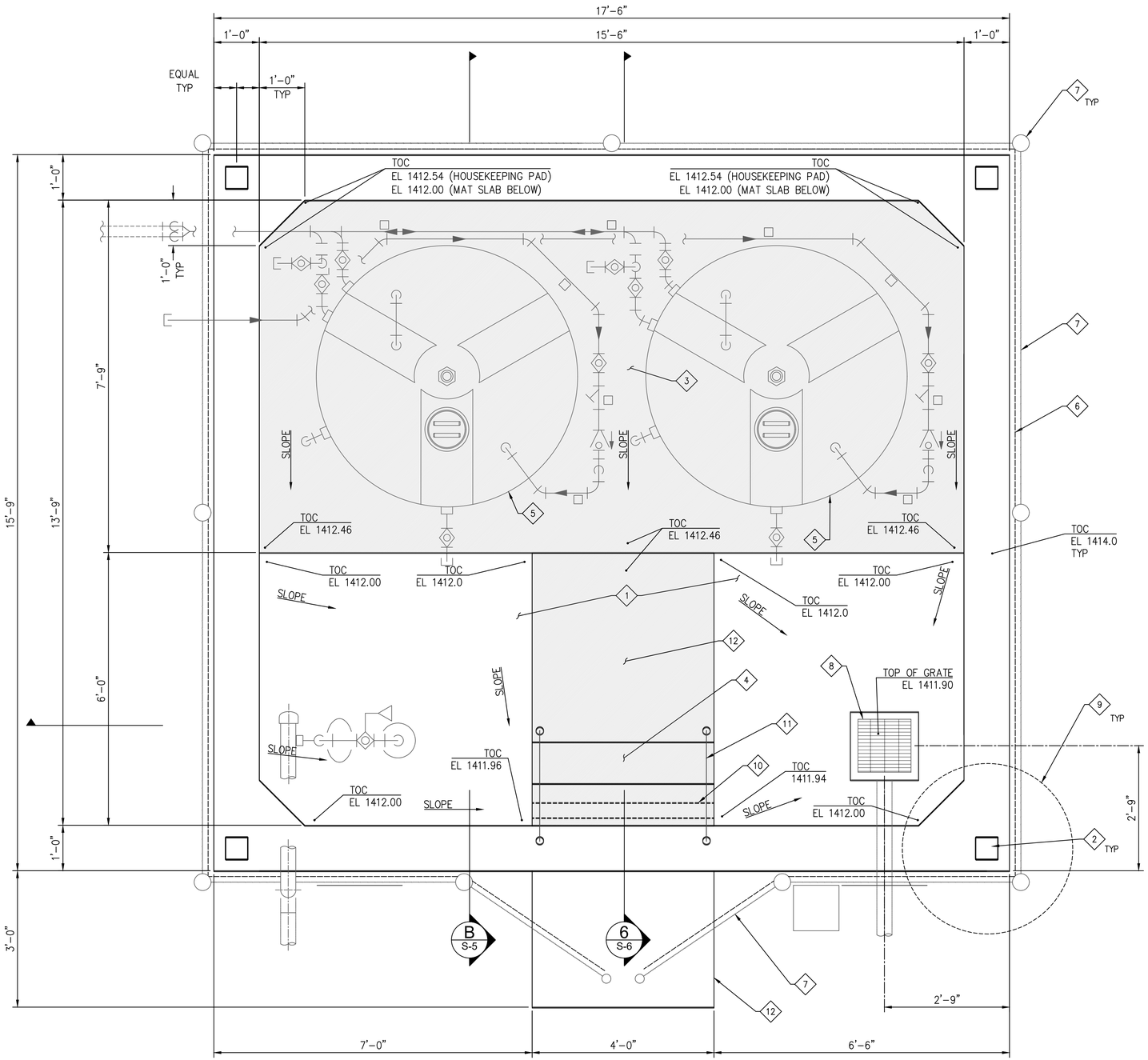
GROUNDWATER EXTRACTION AND TREATMENT SYSTEM COMBINED REMEDY SOURCE AREA OPERABLE UNIT, ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE
CHLORINATION SYSTEM INSTALLATION

REV 9

SCALE	DESIGNED BY	DRAWN BY	DRAWING NUMBER	SHEET
AS SHOWN	D. KUANG	T. NGUYEN	AS SHOWN	8
DATE	CHECKED	APPROVED	JOB NUMBER	DWG NO.
FEBRUARY 2020	J. ZIMMERLE	J. ZIMMERLE	60438759	S-3

SPECIAL INSPECTIONS AND STRUCTURAL OBSERVATIONS

\\USORA1PFLWK001.NA.AECOMNET.COM\ORANGE\DCS\PROJECTS\ENV\60438759 RFF RIALTO_TREATMENT\900-CAD-GIS\2018_CHLORINATION_SYSTEM_PROJECT\SHEETS\S-3_SPECIAL_INSPECTIONS_AND_STRUCTURAL_OBSERVATIONS.DWG (02-11-20, 12:59:25PM)



KEYNOTES

1. 14" (MIN) THK CONCRETE CONTAINMENT SLAB w/ #6 @ 12" EW, T&B
2. COLUMN FOR PRE-ENGINEERED/PRE-MANUFACTURED METAL CANOPY BOLTED ON TOP OR EMBEDDED IN WALL - TO BE DESIGNED BY CONTRACTOR
3. TANK HOUSEKEEPING PAD PER DETAIL 6 ON DRAWING S-6 (SHADED AREA)
4. CONCRETE STEPS PER DETAIL 6 ON DRAWING S-6
5. SODIUM HYPOCHLORITE STORAGE TANKS - SEE MECHANICAL DRAWINGS
6. SUN SHADE ALL AROUND CHEMICAL CONTAINMENT FACILITY - SEE MECHANICAL DRAWINGS
7. CHAINLINK GATE, FENCING, AND POSTS - SEE MECHANICAL DRAWINGS
8. 18" SQUARE x 6" DEEP SUMP w/ FRP GRATING - SEE DETAIL 8 ON DRAWING S-6
9. FOR STEM WALL CORNER REINFORCEMENT, SEE DETAIL 4 ON DRAWING S-6
10. 4" SCH 80 PVC DRAIN PIPE - SET PIPE INVERT AT TOP OF SLAB
11. HANDRAIL - SEE DETAIL 7 ON DRAWING S-6 AND MECHANICAL DRAWINGS
12. CONCRETE LANDING - SEE SECTION 6 ON DRAWING S-6

FOUNDATION PLAN

SCALE: 3/4" = 1'-0"

DIAL 811
DIGALERT
UNDERGROUND SERVICE ALERT
PLAY IT SAFE. DIAL BEFORE YOU DIG!
AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING

REGISTERED PROFESSIONAL ENGINEER DALE E. WAH No. 25827 STRUCTURAL STATE OF CALIFORNIA
1/17/20

PLANS PREPARED BY:
AECOM
999 TOWN & COUNTRY ROAD
ORANGE, CA 92868
TEL (714) 567-2400

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM COMBINED REMEDY SOURCE AREA OPERABLE UNIT, ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE CHLORINATION SYSTEM INSTALLATION

REV 9

SCALE	DESIGNED BY	DRAWN BY	DRAWING NUMBER	SHEET
AS SHOWN	D. KUANG	T. NGUYEN	AS SHOWN	9
DATE	CHECKED	APPROVED	JOB NUMBER	DWG NO.
FEBRUARY 2020	J. ZIMMERLE	J. ZIMMERLE	60438759	S-4

FOUNDATION PLAN

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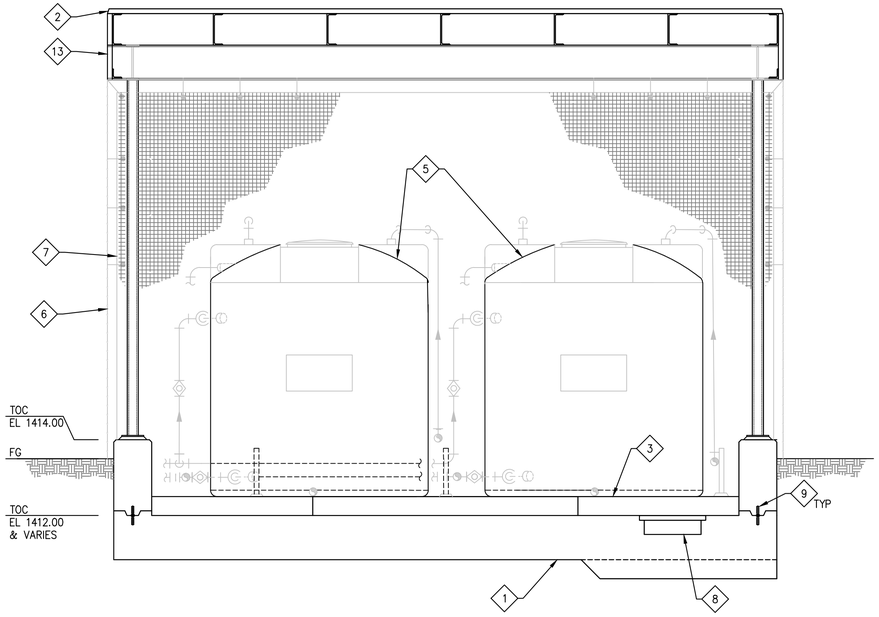
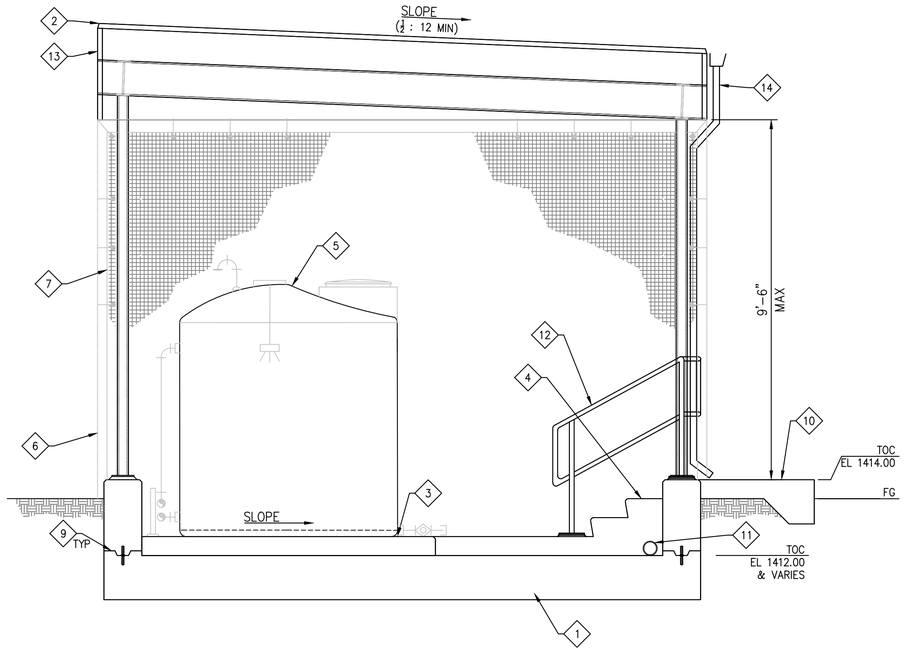


SECTION A
SCALE: 1/2" = 1'-0"



SECTION B
SCALE: 1/2" = 1'-0"

KEYNOTES

1. CONCRETE CONTAINMENT SLAB
2. PRE-ENGINEERED/PRE-MANUFACTURED METAL CANOPY - TO BE DESIGNED BY CONTRACTOR
3. TANK HOUSEKEEPING PAD PER DETAIL 6 ON DRAWING S-6
4. CONCRETE STEPS PER DETAIL 6 ON DRAWING S-6
5. SODIUM HYPOCHLORITE STORAGE TANKS - SEE MECHANICAL DRAWINGS
6. SUN SHADE ALL AROUND CHEMICAL CONTAINMENT FACILITY - SEE MECHANICAL DRAWINGS
7. CHAINLINK GATE, FENCING, AND POSTS - SEE MECHANICAL DRAWINGS
8. SUMP - SEE DETAIL 8 ON DRAWING S-6
9. STARTER WALL w/ WATERSTOP - SEE DETAIL 10 AND 11 ON DRAWING S-6
10. CONCRETE LANDING - SEE DETAIL 6 ON DRAWING S-6
11. PVC DRAIN PIPE
12. HANDRAIL - SEE DETAIL 7 ON DRAWING S-6
13. VERTICAL FASCIA SIDING
14. ROOF DRAINAGE SYSTEM WITH GUTTER AND DOWNSPOUT AT COLUMN - TO BE PROVIDED BY CONTRACTOR

0 2' 4' 6'
SCALE: 1/2" = 1'-0"

DIAL 811
DIGALERT
UNDERGROUND SERVICE ALERT
PLAY IT SAFE. DIAL BEFORE YOU DIG!
AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING

REGISTERED PROFESSIONAL ENGINEER
DALE E. WAY
No. 25827
STRUCTURAL
STATE OF CALIFORNIA
1/17/20

PLANS PREPARED BY:
AECOM
999 TOWN & COUNTRY ROAD
ORANGE, CA 92868
TEL (714) 567-2400

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM COMBINED REMEDY SOURCE AREA OPERABLE UNIT, ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE CHLORINATION SYSTEM INSTALLATION

REV 9

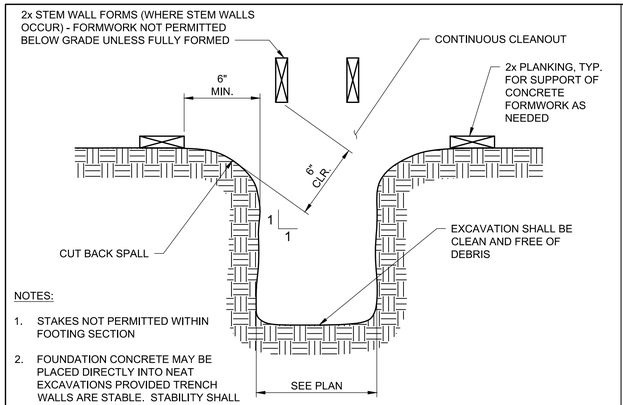
SCALE	AS SHOWN	DESIGNED BY	D. KUANG	DRAWN BY	T. NGUYEN	DRAWING NUMBER	AS SHOWN
DATE	FEBRUARY 2020	CHECKED	J. ZIMMERLE	APPROVED	J. ZIMMERLE	JOB NUMBER	60438759

SHEET 10

SECTIONS

DWG NO. S-5

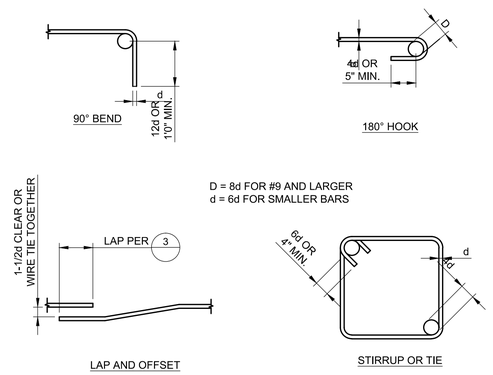
\\USORAPPEL\WO01.NA.AECOMNET.COM\ORANGE\DCS\PROJECTS\ENV\60438759.RFF RIALTO TREATMENT\900-CAD-GIS\2018_CHLORINATION SYSTEM PROJECT\SHEETS\S-5 SECTIONS.DWG (02-11-20 1:00:54PM)



NOTES:

1. STAKES NOT PERMITTED WITHIN FOOTING SECTION
2. FOUNDATION CONCRETE MAY BE PLACED DIRECTLY INTO NEAT EXCAVATIONS PROVIDED TRENCH WALLS ARE STABLE. STABILITY SHALL BE DETERMINED BY THE ENGINEER.

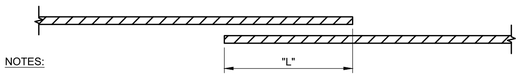
TYPICAL FOOTING EXCAVATION 1
SCALE: NTS



TYPICAL BAR BENDS 2
SCALE: 1/2" = 1'-0"

REINFORCING LAP SPLICE SCHEDULE

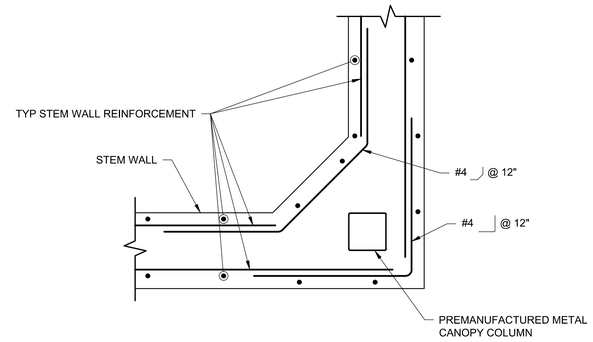
BAR	f'c = 2500	f'c = 3000	f'c = 4000	f'c = 4500
	L (inches)	L (inches)	L (inches)	L (inches)
3	24	22	19	1824
4	32	29	25	
5	39	36	31	30
6	47	43	37	35
7	69	63	54	51
8	78	72	62	59
9	88	81	70	66



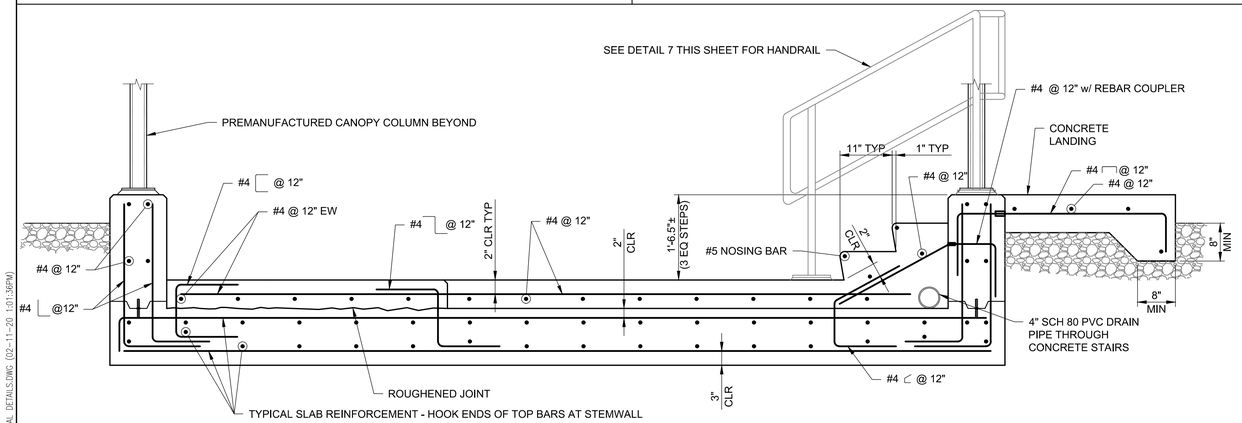
NOTES:

1. LAPS SHOWN IN THIS TABLE ARE CLASS B, CATEGORY 3 TYPE SPLICES. LAP LENGTH IS BASED UPON SMALLER OF TWO BARS BEING SPLICED WHEN NOT THE SAME SIZE.
2. INCREASE LAP LENGTHS BY A FACTOR OF 1.3 FOR HORIZONTAL REINFORCEMENT SO PLACED THAT MORE THAN 12 INCHES OF CONCRETE IS CAST IN THE MEMBER BELOW THIS REINFORCEMENT

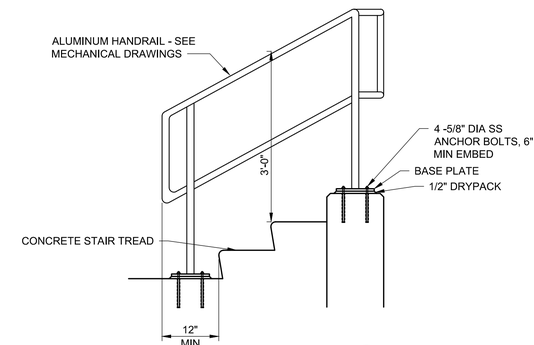
CONCRETE LAP SPLICE SCHEDULE 3
SCALE: 1/2" = 1'-0"



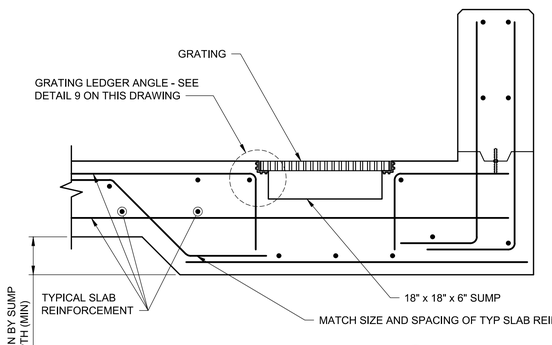
STEM WALL CORNER REINFORCEMENT 4
SCALE: 1" = 1'-0"



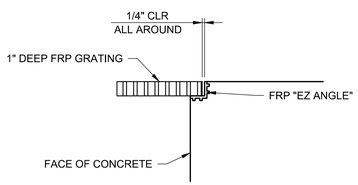
SECTION 6
SCALE: 3/4" = 1'-0"



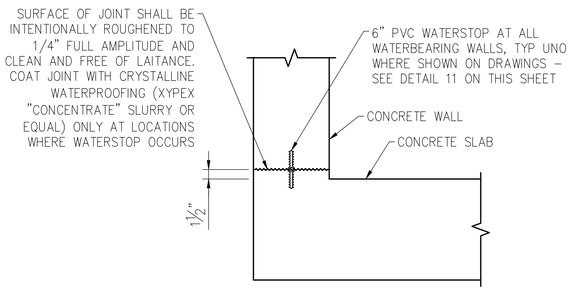
HANDRAIL 7
SCALE: 3/4" = 1'-0"



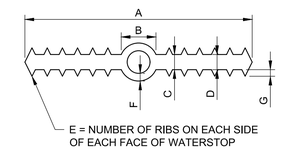
SUMP DETAIL 8
SCALE: 1" = 1'-0"



GRATING LEDGER ANGLE 9
SCALE: 1 1/2" = 1'-0"



TYPICAL STARTER WALL 10
SCALE: NTS



A	B	C	D	E	F	G	
6"	-	3/8"	1/4"	7	-	1/8"	783

NOTES:

1. NO CENTERBULB ALLOWED IN WATERSTOP FOR VERTICAL JOINTS.
2. ALL SPLICES SHALL BE MADE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. SUBMIT SHOP DRAWINGS PRIOR TO INSTALLATION OR SPLICING WATERSTOP.

WATERSTOP 11
SCALE: NTS

DIAL 811 DIGALERT — UNDERGROUND SERVICE ALERT

PLAY IT SAFE. DIAL BEFORE YOU DIG!

AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING

REGISTERED PROFESSIONAL ENGINEER — DALE E. WAH — No. 25827 — STRUCTURAL — STATE OF CALIFORNIA — 1/17/20

PLANS PREPARED BY:

AECOM

999 TOWN & COUNTRY ROAD
ORANGE, CA 92868
TEL (714) 567-2400

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM COMBINED REMEDY SOURCE AREA OPERABLE UNIT, ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE CHLORINATION SYSTEM INSTALLATION

REV 9

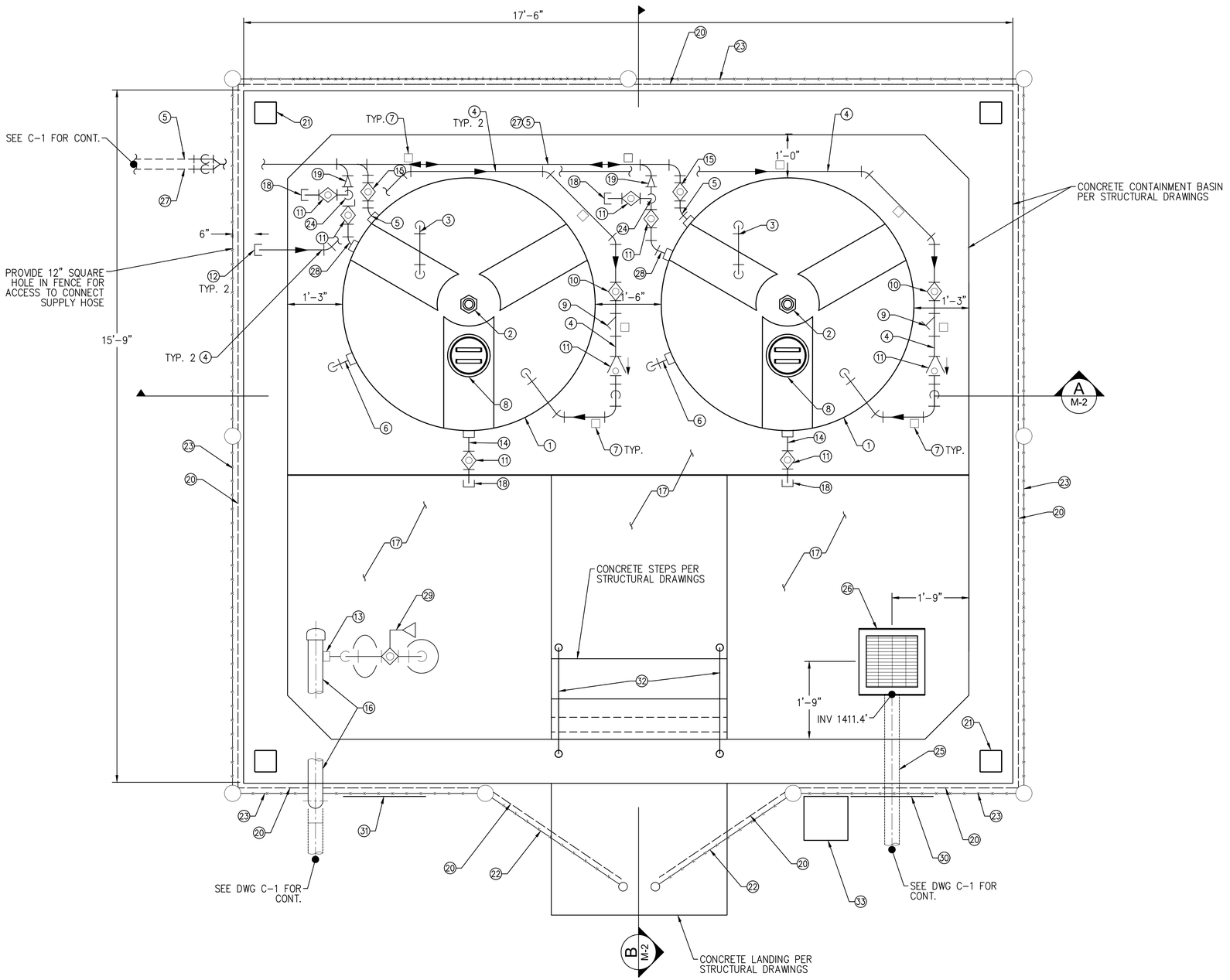
SCALE	AS SHOWN	DESIGNED BY	D. KUANG	DRAWN BY	T. NGUYEN	DRAWING NUMBER	AS SHOWN
DATE	FEBRUARY 2020	CHECKED	J. ZIMMERLE	APPROVED	J. ZIMMERLE	JOB NUMBER	60438759

SHEET 11

DWG NO. S-6

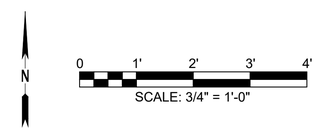
STRUCTURAL DETAILS

\\USORA1PFLWK01.NA.AECOMNET.COM\ORANGE\DCS\PROJECTS\ENVA\60438759 RIFF RAU TO TREATMENT\900-CAD-GIS\2018_CHLORINATION SYSTEM PROJECT\SHEETS\S-6 STRUCTURAL DETAILS.DWG (02-11-20 1:01:56PM)



CONSTRUCTION NOTES

1. 1000 GALLON SINGLE WALL HYPOCHLORITE STORAGE TANK (69" DIA. X 82" HEIGHT) WITH SEISMIC RESTRAINTS
2. ULTRASONIC LEVEL INDICATOR FOR HYPOCHLORITE STORAGE TANK
3. 2" SCH. 80 CPVC AIR VENT, PER DETAIL 4, DWG M-5
4. 2" SCH. 80 CPVC TANK FILL LINE
5. 3/4" SCH. 80 CPVC RECIRCULATION LINE
6. 3" SCH. 80 CPVC TANK OVERFLOW
7. PIPE SUPPORT PER PER DETAIL 2, DWG M-5, 5' OC SPACING
8. 16" DIA. HYPOCHLORITE TANK ACCESS MANWAY
9. 2" CPVC STRAINER
10. 2" CPVC BALL CHECK VALVE
11. 2" CPVC BALL VALVE
12. 2" CPVC CAMLOC QUICK DISCONNECT COUPLING WITH LOCKING CAP, CHAIN, AND TEFLON GASKET
13. 1-1/2" SST INLINE SWING CHECK VALVE
14. 2" SCH. 80 CPVC TANK DRAIN
15. 3/4" CPVC BALL VALVE
16. 1-1/2" TYPE K COPPER TUBING
17. COAT CONCRETE CONTAINMENT AREA WITH PENTOX 50 TWO-PART, PENETRATING, CHEMICAL RESISTANT, EPOXY SEALER
18. 2" SCH. 80 CPVC NPT END CAP
19. 2" X 3/4" SCH. 80 CPVC REDUCER BUSHING
20. PROVIDE SUN SHADE SCREENS ALL AROUND THE CHEMICAL CONTAINMENT FACILITY AS SHOWN. SCREENS SHALL BE SHADE CLOTH WOVEN OF POLYPROPYLENE FOR A SHADING FACTOR OF AT LEAST 85 PERCENT AND A WEIGHT OF NOT LESS THAN 5 OUNCES PER SQUARE FOOT. EACH SCREEN SHALL SPAN OVER THE VERTICAL SPACE BETWEEN THE FENCE POSTS AND BETWEEN THE TOP AND BOTTOM FENCE RAILS. SCREENS SHALL BE COMPLETE WITH GROMMETS, TIE-DOWNS, AND DEVICES FOR ANCHORING TO THE CHAIN LINK FENCE. SCREENS SHALL BE 850 SHADE CLOTH AS MANUFACTURED BY THOR TARP, A DIVISION OF ODIN INTERNATIONAL. PRIOR TO FABRICATION, SUBMIT TO THE ENGINEER FOR REVIEW DESCRIPTIVE INFORMATION, CHOICE OF COLOR AND A SAMPLE OF THE SCREEN.
21. PRE-ENGINEERED CANOPY PER SPECIFICATIONS
22. 10' HIGH X 7' WIDE CHAIN LINK FENCE DOUBLE LEAF GATE PER SPPWC STD. PLAN 600-2
23. 10' HIGH CHAIN LINK FENCE PER SPPWC STD PLAN 600-2, PROVIDE TOP RAIL IN LIEU OF TENSION WIRE AND ADDITIONAL BOTTOM RAIL FOR SUN SHADE ATTACHMENT
24. 2" X 2" SCH. 80 CPVC TEE
25. 4" SCH 80 PVC DRAIN LINE
26. 1'-6" SQUARE X 6" DEEP SUMP WITH 1-1/2" FRP GRATING AND FRAME
27. 3/4" SCH. 80 CPVC METERING PUMP SUCTION
28. 2" SCH. 80 CPVC METERING PUMP SUCTION
29. SHOWER AND EYEWASH ASSEMBLY PER DETAIL 1 DWG M-5
30. 30"X18" HAZARD IDENTIFICATION SIGN ATTACHED TO CHAIN LINK FENCE PER DETAIL 7 DWG M-5
31. NFPA SIGN ATTACHED TO CHAIN LINK FENCE PER DETAIL 6 DWG M-5
32. ALUMINUM HANDRAILING PER SPPWC STD PLAN 606-4, TYPE B
33. 12" SQUARE X 4" THICK CONCRETE SPLASH BLOCK, COORDINATE LOCATION WITH ROOF GUTTER AND DOWNSPOUT



PLAN
SCALE: 3/4" = 1'

DIAL 811 DIG ALERT
UNDERGROUND SERVICE ALERT
PLAY IT SAFE. DIAL BEFORE YOU DIG!
AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING

REGISTERED PROFESSIONAL ENGINEER
BRYAN C. PAINE
No. C64334
Exp. 06/30/21
CIVIL
STATE OF CALIFORNIA

PLANS PREPARED BY:
AECOM
999 TOWN & COUNTRY ROAD
ORANGE, CA 92868
TEL (714) 567-2400

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM COMBINED REMEDY SOURCE AREA OPERABLE UNIT, ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE CHLORINATION SYSTEM INSTALLATION

REV 9

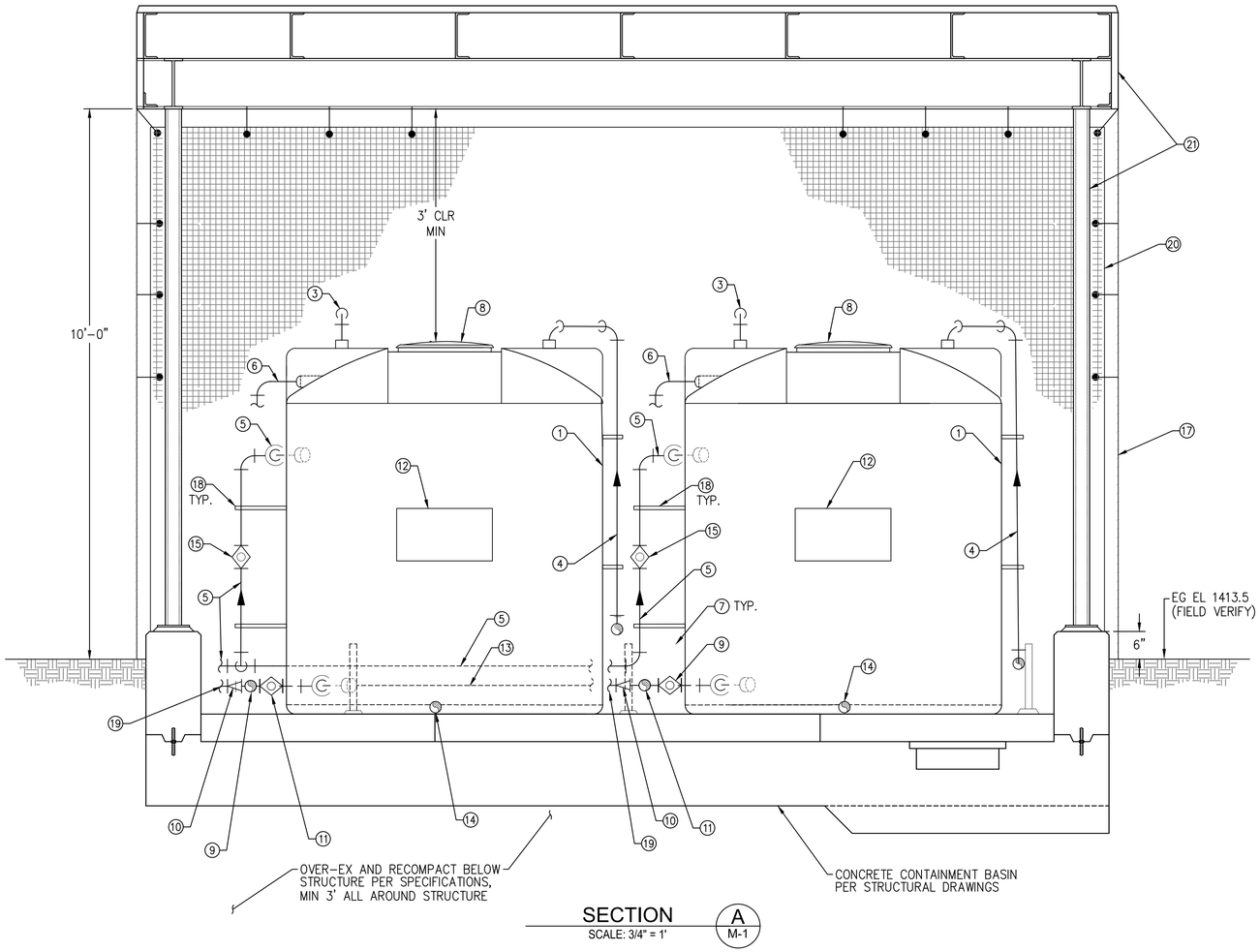
SCALE	AS SHOWN	DESIGNED BY	B. PAINE	DRAWN BY	D. LAFRANCE	DRAWING NUMBER	AS SHOWN
DATE	FEBRUARY 2020	CHECKED	J. ZIMMERLE	APPROVED	J. ZIMMERLE	JOB NUMBER	60438759

SHEET 12

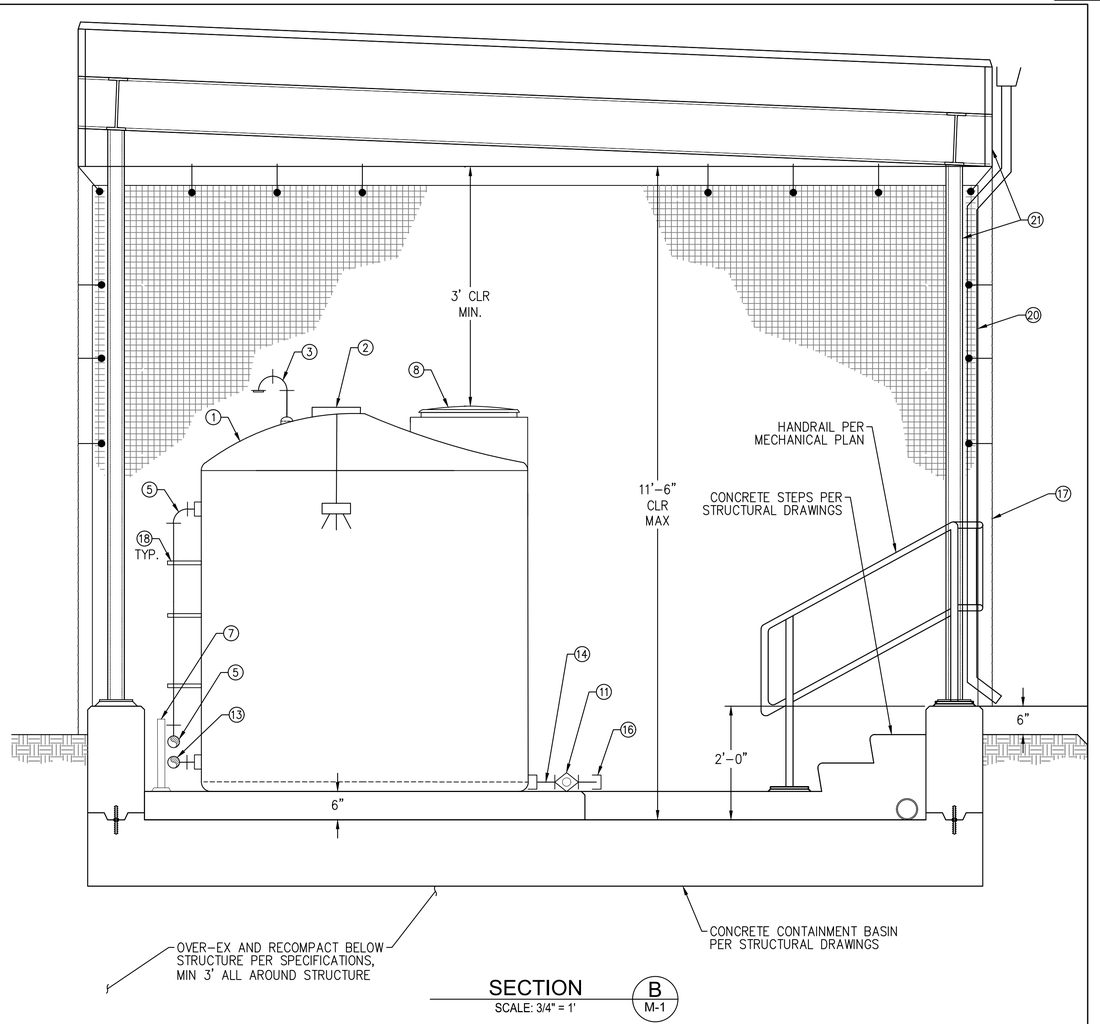
CHEMICAL TANKS ENCLOSURE PLAN

DWG NO. M-1

\\ORANGE.NA.AECOMNET.COM\ORANGE\DCS\PROJECTS\ENV\60438759 RFF RIALTO TREATMENT\900-CAD-GIS\2018_CHLORINATION SYSTEM PROJECT\SHEETS\M-1.DWG (02-12-20, 4:30:55PM)



SECTION A
SCALE: 3/4" = 1'
M-1



SECTION B
SCALE: 3/4" = 1'
M-1

CONSTRUCTION NOTES

1. 1000 GALLON SINGLE WALL HYPOCHLORITE STORAGE TANK (69" DIA. X 82" HEIGHT) WITH SEISMIC RESTRAINTS
2. ULTRASONIC LEVEL INDICATOR FOR HYPOCHLORITE STORAGE TANK
3. 2" SCH. 80 CPVC AIR VENT, PER DETAIL 4 DWG M–5
4. 2" SCH. 80 CPVC TANK FILL LINE
5. 3/4" SCH. 80 CPVC RECIRCULATION LINE
6. 3" SCH. 80 CPVC TANK OVERFLOW
7. PIPE SUPPORT PER DETAIL 2, DWG M–5
8. 16" DIA. HYPOCHLORITE TANK ACCESS MANWAY
9. 2" SCH. 80 CPVC METERING PUMP SUCTION
10. 2"X 2" SCH. 80 PVC TEE
11. 2" CPVC BALL VALVE
12. CHEMICAL TANK SIGN PER DETAIL 3 DWG M–5
13. 3/4" SCH. 80 CPVC METERING PUMP SUCTION
14. 2" SCH. 80 CPVC TANK DRAIN
15. 3/4" CPVC BALL VALVE
16. 2" SCH. 80 CPVC NPT END CAP
17. 10' HIGH CHAINLINK FENCE PER SPPWC STD PLAN 600–2, PROVIDE TOP RAIL IN LIEU OF TENSION WIRE AND ADDITIONAL BOTTOM RAIL FOR SUN SHADE ATTACHMENT
18. UNISTRUT PIPE SUPPORT FROM TANK WALL PER TANK MANUFACTURER
19. 2" X 3/4" SCH. 80 CPVC REDUCER BUSHING
20. PROVIDE SUN SHADE SCREENS ALL AROUND THE CHEMICAL CONTAINMENT FACILITY AS SHOWN. SCREENS SHALL BE SHADE CLOTH WOVEN OF POLYPROPYLENE FOR A SHADING FACTOR OF AT LEAST 85 PERCENT AND A WEIGHT OF NOT LESS THAN 5 OUNCES PER SQUARE FOOT. EACH SCREEN SHALL SPAN OVER THE VERTICAL SPACE BETWEEN THE FENCE POSTS AND BETWEEN THE TOP AND BOTTOM FENCE RAILS. SCREENS SHALL BE COMPLETE WITH GROMMETS, TIE–DOWNS, AND DEVICES FOR ANCHORING TO THE CHAINLINK FENCE. SCREENS SHALL BE 850 SHADE CLOTH AS MANUFACTURED BY THOR TARP, A DIVISION OF ODIN INTERNATIONAL. PRIOR TO FABRICATION, SUBMIT TO THE ENGINEER FOR REVIEW DESCRIPTIVE INFORMATION, CHOICE OF COLOR AND A SAMPLE OF THE SCREEN.
21. PRE–ENGINEERED CANOPY PER SPECIFICATION

N

0 1' 2' 3' 4'
SCALE: 3/4" = 1'-0"

DIAL 811
DIGALERT
UNDERGROUND SERVICE ALERT
PLAY IT SAFE. DIAL BEFORE YOU DIG!
AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING

REGISTERED PROFESSIONAL ENGINEER
BRYAN C. PAINE
No. C64334
Exp. 06/30/21
CIVIL
STATE OF CALIFORNIA

PLANS PREPARED BY:
AECOM
999 TOWN & COUNTRY ROAD
ORANGE, CA 92868
TEL (714) 567-2400

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM COMBINED REMEDY SOURCE AREA OPERABLE UNIT, ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE CHLORINATION SYSTEM INSTALLATION

REV 9

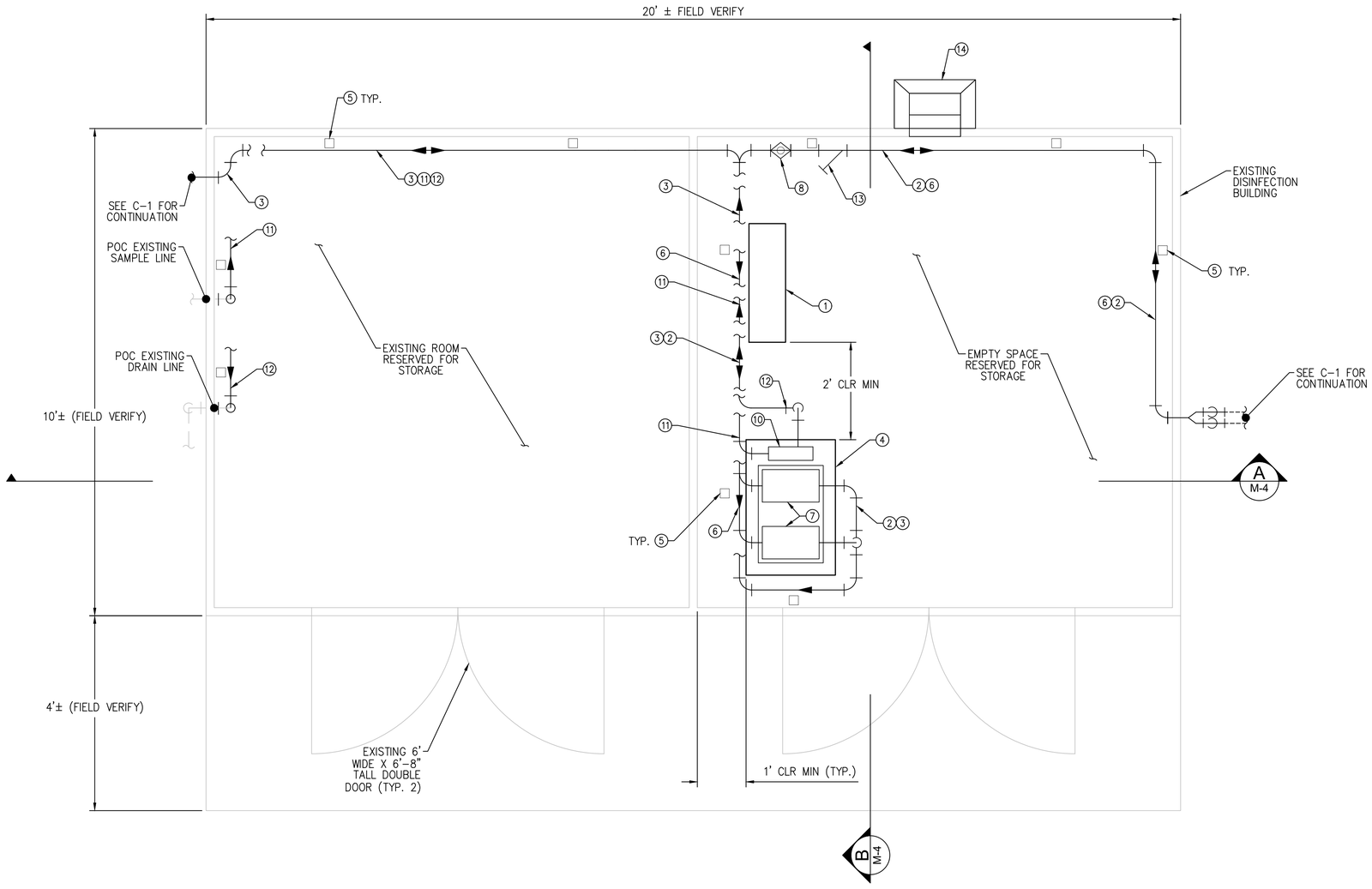
SCALE	AS SHOWN	DESIGNED BY	B. PAINE	DRAWN BY	D. LAFRANCE	DRAWING NUMBER	AS SHOWN
DATE	FEBRUARY 2020	CHECKED	J. ZIMMERLE	APPROVED	J. ZIMMERLE	JOB NUMBER	60438759

SHEET 13

CHEMICAL TANK ENCLOSURE SECTIONS

DWG NO. M-2

\\USORAPFLW001.NA.AECOMNET.COM\ORANGE\DCS\PROJECTS\ENV\60438759_RFF_RIALTO_TREATMENT\900–CAD–GIS\2018_CHLORINATION_SYSTEM_PROJECT\SHEETS\M–2.DWG (02–11–20 12:44:02PM)



PLAN

SCALE: 3/4" = 1'

CONSTRUCTION NOTES

1. METERING PUMP CONTROL PANEL, SUPPORT PER DETAIL 3 DWG M-6
2. 3/4" SCH. 80 CPVC RECIRCULATION LINE
3. 1-1/2" SCH. 80 CPVC WITH 1/2" TEFLON TUBING METERING PUMP DISCHARGE WITH LONG RADIUS ELBOWS
4. PROVIDE 12" CONCRETE HOUSEKEEPING PAD SIZED PER MANUFACTURER'S RECOMMENDATIONS, MOUNT METERING PUMP SKID TO PAD PER MANUFACTURER'S RECOMMENDATIONS, ROUGHEN EXISTING FLOOR SLAB AS REQUIRED, PROVIDE #4 DOWELS AT 12" O.C. E.W., MIN 4" EMBD. INTO EXISTING FLOOR SLAB
5. PIPE SUPPORT PER DETAIL 2, DWG M-5, 5' OC SPACING
6. 3/4" SCH. 80 CPVC METERING PUMP SUCTION
7. DUAL DOSING PUMP SKID WITH TWO PERISTALTIC METERING PUMP ASSEMBLIES, EACH ASSEMBLY SHALL BE CAPABLE OF PROVIDING 3 GPH AT 85 PSI, INSTALL SKID EQUIPMENT AND PIPING PER DETAIL 2, DWG M-6, PROJECT SPECIFICATIONS, AND P&IDS
8. 3/4" CPVC BALL VALVE (TYP. 2)
9. NOT USED
10. CHLORINE RESIDUAL ANALYZER PER DETAIL 1, DWG M-6
11. 1-1/2" SCH. 80 CPVC WITH 1/2" TEFLON TUBING SAMPLE LINE
12. 1" SCH. 80 CPVC ANALYZER DRAIN LINE, ROUTE AND CONNECT TO EXISTING DRAIN LINE AS REQUIRED
13. 3/4" CPVC STRAINER (TYP. 2)
14. WALL MOUNTED AIR CONDITIONER UNIT, CARRIER MODEL GCA 051B OR APPROVED EQUAL, MOUNT TO EXISTING BUILDING PER MANUFACTURER'S RECOMMENDATIONS

GENERAL NOTES

1. ALL PIPING AND EQUIPMENT PENETRATIONS THROUGH THE EXISTING BUILDING SHALL BE COMPLETELY SEALED AND WEATHER PROOFED AS REQUIRED.
2. CONTRACTOR SHALL FIELD VERIFY THE PLACEMENT OF ALL EQUIPMENT SHOWN HEREIN IN CONJUNCTION WITH THE EXISTING BUILDING DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO FURNISHING OR INSTALLING ANY EQUIPMENT.

N

0 1' 2' 3' 4'

SCALE: 3/4" = 1'-0"

DIAL 811 DIG ALERT

UNDERGROUND SERVICE ALERT

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AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING

REGISTERED PROFESSIONAL ENGINEER — BRYAN C. PAINE — No. C64334 — Exp. 06/30/21 — CIVIL — STATE OF CALIFORNIA

PLANS PREPARED BY:

AECOM

999 TOWN & COUNTRY ROAD
ORANGE, CA 92868
TEL (714) 567-2400

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM COMBINED REMEDY SOURCE AREA OPERABLE UNIT, ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE CHLORINATION SYSTEM INSTALLATION

SCALE	AS SHOWN	DESIGNED BY	B. PAINE	DRAWN BY	D. LAFRANCE	DRAWING NUMBER	AS SHOWN
DATE	FEBRUARY 2020	CHECKED	J. ZIMMERLE	APPROVED	J. ZIMMERLE	JOB NUMBER	60438759

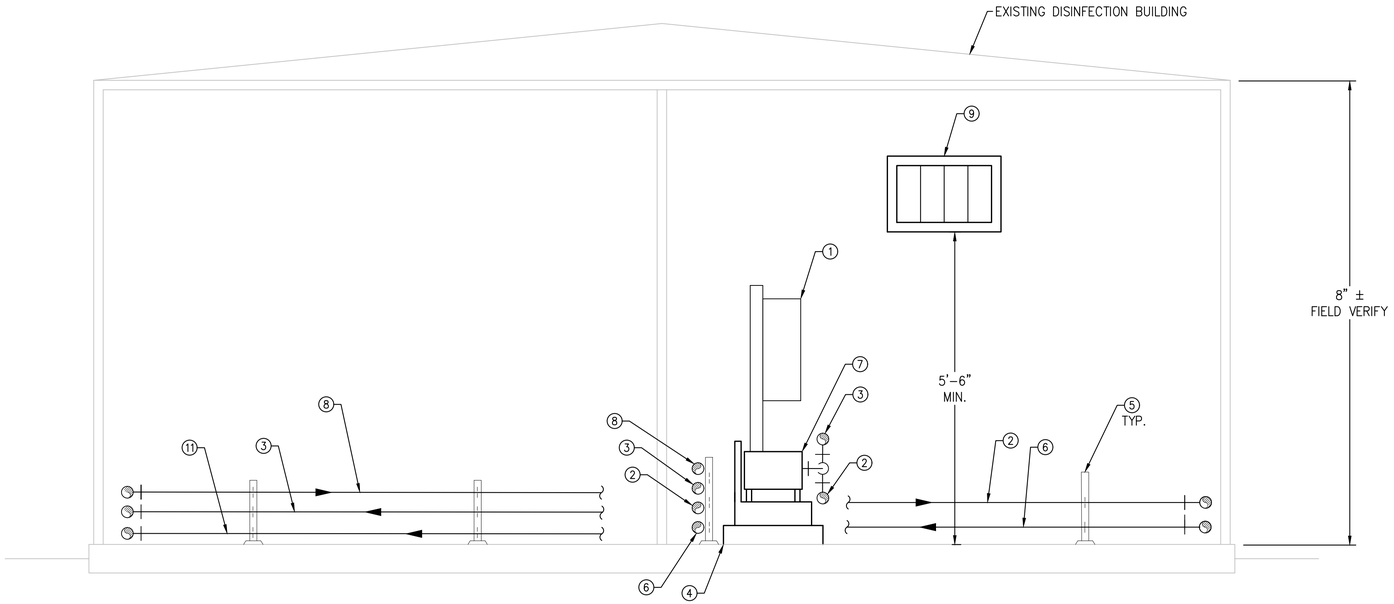
CHEMICAL FEED SYSTEM PLAN

REV 9

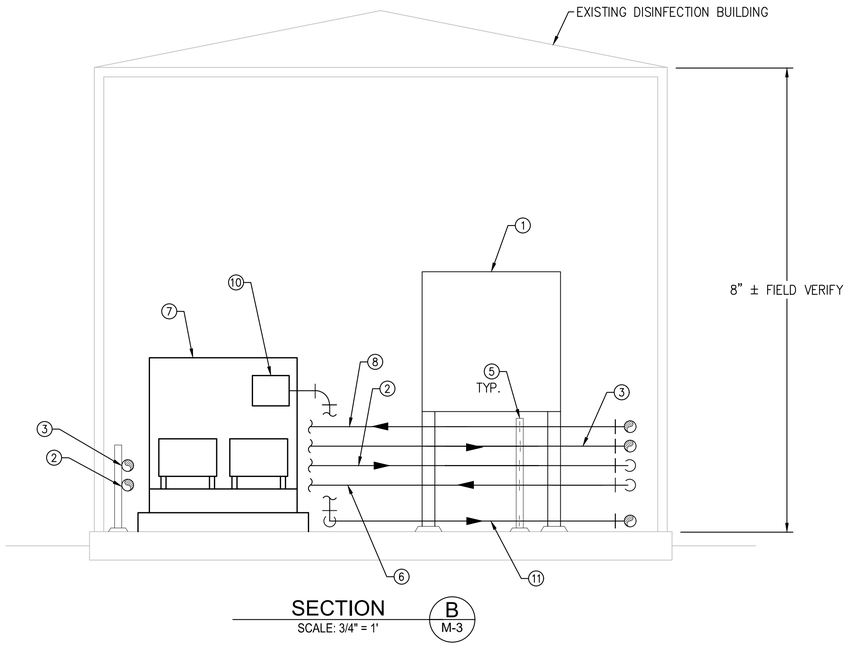
SHEET 14

DWG NO. M-3

\\USORA1FILW001.NA.AECOMNET.COM\ORANGE\DCS\PROJECTS\ENV\60438759 RFF RIALTO TREATMENT\900-CAD-GIS\2018_CHLORINATION SYSTEM PROJECT\SHEETS\M-3.DWG (02-11-20 12:49:15PM)



SECTION A
SCALE: 3/4" = 1'
M-3



SECTION B
SCALE: 3/4" = 1'
M-3

CONSTRUCTION NOTES

1. METERING PUMP CONTROL PANEL, SUPPORT PER DETAIL 3 DWG M-6
2. 3/4" SCH. 80 CPVC RECIRCULATION LINE
3. 1-1/2" SCH. 80 CPVC WITH 1/2" TEFLON TUBING METERING PUMP DISCHARGE WITH LONG RADIUS ELBOWS
4. PROVIDE 12" CONCRETE HOUSEKEEPING PAD SIZED PER MANUFACTURER'S RECOMMENDATIONS, MOUNT METERING PUMP SKID TO PAD PER MANUFACTURER'S RECOMMENDATIONS, ROUGHEN EXISTING FLOOR SLAB AS REQUIRED, PROVIDE #4 DOWELS AT 12" O.C. E.W., MIN 4" EMBD. INTO EXISTING FLOOR SLAB
5. PIPE SUPPORT PER DETAIL 2, DWG M-5, 5' OC SPACING
6. 3/4" SCH. 80 CPVC METERING PUMP SUCTION
7. DUAL DOSING PUMP SKID WITH TWO PERISTALTIC METERING PUMP ASSEMBLIES, EACH ASSEMBLY SHALL BE CAPABLE OF PROVIDING 3 GPH AT 85 PSI, INSTALL SKID EQUIPMENT AND PIPING PER DETAIL 2, DWG M-6, PROJECT SPECIFICATIONS, AND P&IDS
8. 1-1/2" SCH. 80 CPVC WITH 1/2" TEFLON TUBING SAMPLE LINE
9. WALL MOUNTED AIR CONDITIONER UNIT, CARRIER MODEL GCA 051B OR APPROVED EQUAL, MOUNT TO EXISTING BUILDING PER MANUFACTURER'S RECOMMENDATIONS
10. CHLORINE RESIDUAL ANALYZER PER DETAIL 1, DWG M-6
11. 1" SCH. 80 CPVC ANALYZER DRAIN LINE, ROUTE AND CONNECT TO EXISTING DRAIN LINE AS REQUIRED

GENERAL NOTES

1. ALL PIPING AND EQUIPMENT PENETRATIONS THROUGH THE EXISTING BUILDING SHALL BE COMPLETELY SEALED AND WEATHER PROOFED AS REQUIRED.
2. CONTRACTOR SHALL FIELD VERIFY THE PLACEMENT OF ALL EQUIPMENT SHOWN HEREIN IN CONJUNCTION WITH THE EXISTING BUILDING DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO FURNISHING OR INSTALLING ANY EQUIPMENT.

0 1' 2' 3' 4'
SCALE: 3/4" = 1'-0"

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REGISTERED PROFESSIONAL ENGINEER
BRYAN C. PAINE
No. C64334
Exp. 06/30/21
CIVIL
STATE OF CALIFORNIA

PLANS PREPARED BY:
AECOM
999 TOWN & COUNTRY ROAD
ORANGE, CA 92868
TEL (714) 567-2400

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM COMBINED REMEDY SOURCE AREA OPERABLE UNIT, ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE
CHLORINATION SYSTEM INSTALLATION

REV 9

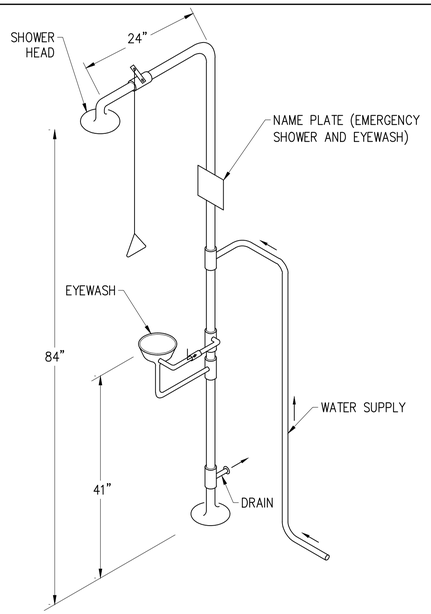
SCALE	AS SHOWN	DESIGNED BY	B. PAINE	DRAWN BY	D. LAFRANCE	DRAWING NUMBER	AS SHOWN
DATE	FEBRUARY 2020	CHECKED	J. ZIMMERLE	APPROVED	J. ZIMMERLE	JOB NUMBER	60438759

SHEET 15

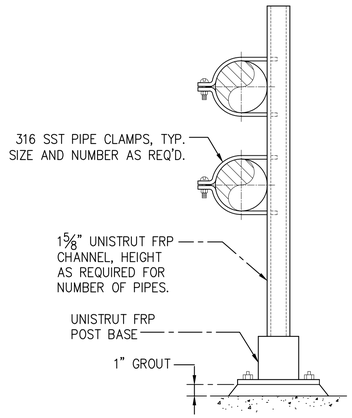
CHEMICAL FEED SYSTEM SECTIONS

DWG NO. M-4

\\USORA1PFLWO01.NA.AECOMNET.COM\ORANGE\DCS\PROJECTS\ENVA\60438759 RIFF RAALTO TREATMENT\900-CAD-GIS\2018_CHLORINATION SYSTEM PROJECT\SHEETS\M-4.DWG (02-11-20, 12:56:08PM)



EYEWASH STATION 1
NOT TO SCALE



PIPE SUPPORT 2
NOT TO SCALE

SODIUM HYPOCHLORITE
12.5% CORR/OHH

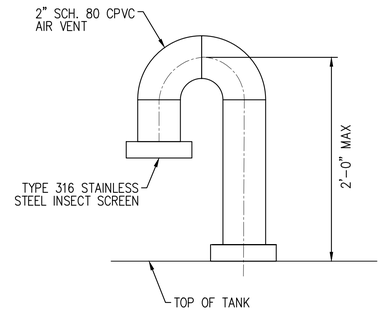
18"

30"

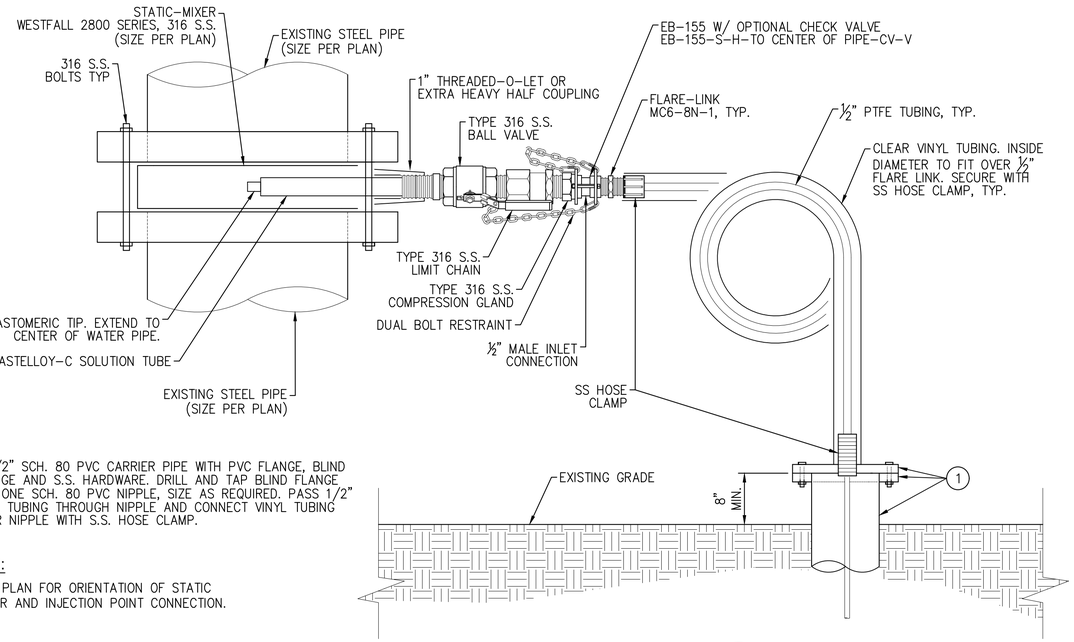
NOTES:

1. ALL LETTERS ARE A MINIMUM OF 2" IN HEIGHT.
2. SIGN MAY BE A STICKER.

TANK SIGN 3
NOT TO SCALE



TANK AIR VENT 4
NOT TO SCALE

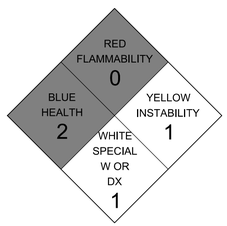


(1) 1-1/2" SCH. 80 PVC CARRIER PIPE WITH PVC FLANGE, BLIND FLANGE AND S.S. HARDWARE. DRILL AND TAP BLIND FLANGE FOR ONE SCH. 80 PVC NIPPLE, SIZE AS REQUIRED. PASS 1/2" PTFE TUBING THROUGH NIPPLE AND CONNECT VINYL TUBING OVER NIPPLE WITH S.S. HOSE CLAMP.

NOTES:

1. SEE PLAN FOR ORIENTATION OF STATIC MIXER AND INJECTION POINT CONNECTION.

SODIUM HYPOCHLORITE INJECTION 5
NOT TO SCALE

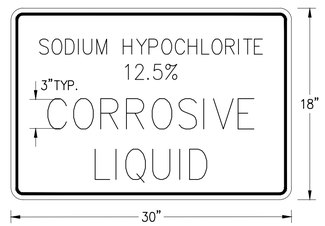


NaOCl (12.5%)

NOTES:

1. MOUNT THE SIGN ON THE ENCLOSURE AS SHOWN ON PLAN.
2. MOUNT PER NFPA 704.

NFPA SIGN 6
NOT TO SCALE



NOTE: ALL LETTERING SHALL BE IN PLAIN CAPITAL LETTERS ON A CONTRASTING BACKGROUND (WHITE ON BLACK) AND COMPLY TO OCFA STD.

HAZARD IDENTIFICATION SIGN 7
NOT TO SCALE

DIAL 811
DIGALERT
UNDERGROUND SERVICE ALERT
PLAY IT SAFE. DIAL BEFORE YOU DIG!
AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING

REGISTERED PROFESSIONAL ENGINEER
BRYAN C. PAINE
No. C64334
Exp. 06/30/21
CIVIL
STATE OF CALIFORNIA

PLANS PREPARED BY:

AECOM

999 TOWN & COUNTRY ROAD
ORANGE, CA 92868
TEL (714) 567-2400

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM COMBINED REMEDY SOURCE AREA OPERABLE UNIT, ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE CHLORINATION SYSTEM INSTALLATION

REV 9

SCALE	AS SHOWN	DESIGNED BY	B. PAINE	DRAWN BY	D. LAFRANCE	DRAWING NUMBER	AS SHOWN
DATE	FEBRUARY 2020	CHECKED	J. ZIMMERLE	APPROVED	J. ZIMMERLE	JOB NUMBER	60438759

SHEET 16

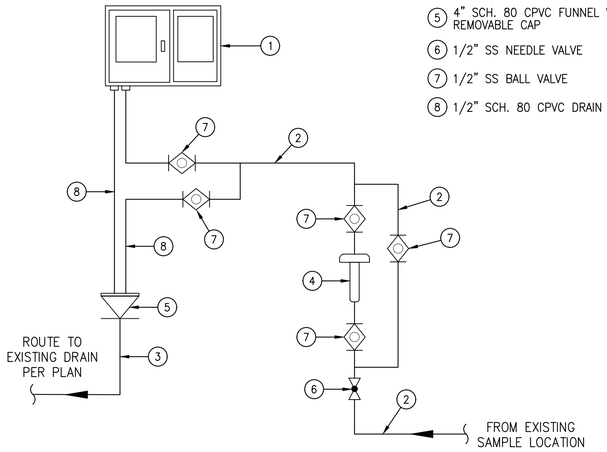
MECHANICAL DETAILS - 1

DWG NO. M-5

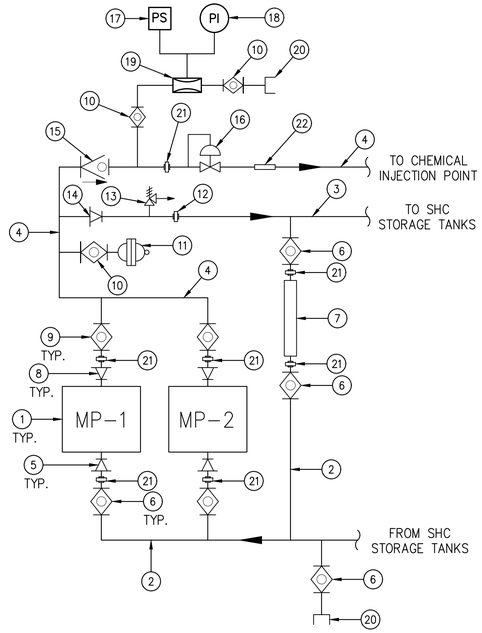
\\USORA1FPELW001.NA.AECOMNET.COM\ORANGE\DGS\PROJECTS\ENV\60438759_RFF_RIALTO_TREATMENT\900-CAD-GIS\2018_CHLORINATION_SYSTEM_PROJECT\SHEETS\M-5.DWG (02-11-20 12:56:57PM)

CONSTRUCTION NOTES

1. FREE CHLORINE ANALYZER, HACH MODEL CLF10, MOUNTED ON METERING PUMP SKID
2. 1-1/2" SCH. 80 CPVC WITH 1/2" TEFLON TUBING SAMPLE LINE AND LONG RADIUS ELBOWS
3. 1" SCH. 80 CPVC DRAIN
4. FILTER ELEMENT
5. 4" SCH. 80 CPVC FUNNEL WITH REMOVABLE CAP
6. 1/2" SS NEEDLE VALVE
7. 1/2" SS BALL VALVE
8. 1/2" SCH. 80 CPVC DRAIN



CHLORINE ANALYZER SCHEMATIC 1
NOT TO SCALE



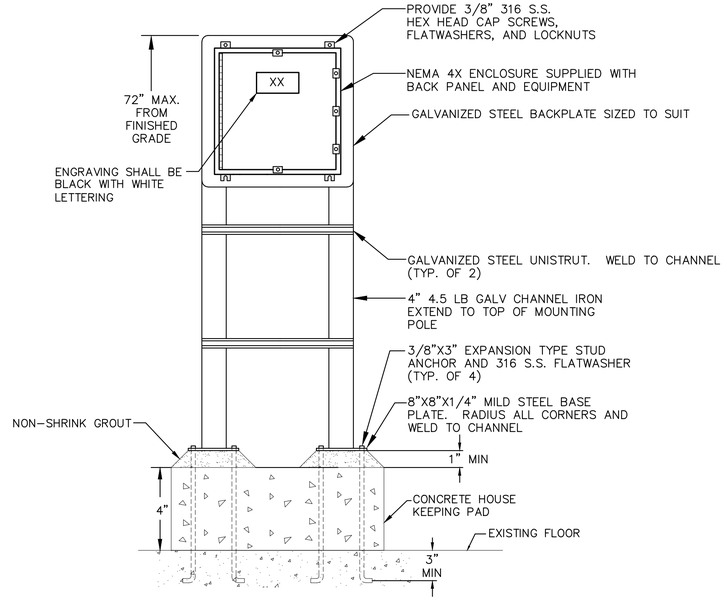
METERING PUMP SCHEMATIC 2
NOT TO SCALE

CONSTRUCTION NOTES

1. PERISTALTIC METERING PUMP, 2.5 GPH @ 80 PSI
2. 3/4" SCH. 80 CPVC SUCTION LINE
3. 3/4" SCH. 80 CPVC RECIRCULATION LINE
4. 1-1/2" SCH. 80 CPVC WITH 1/2" TEFLON TUBING DISCHARGE AND LONG RADIUS ELBOWS
5. 3/4" X 1/2" SCH. 80 CPVC REDUCER BUSHING
6. 3/4" CPVC BALL VALVE
7. CALIBRATION COLUMN
8. 1-1/2" X 1/2" SCH. 80 CPVC REDUCER BUSHING
9. 1-1/2" CPVC BALL VALVE
10. 1" CPVC BALL VALVE
11. PULSATION DAMPENER
12. 3/4" CPVC UNION
13. PRESSURE RELIEF VALVE
14. 1-1/2" X 3/4" SCH. 80 CPVC REDUCER BUSHING
15. 1-1/2" CPVC BALL CHECK VALVE
16. BACK PRESSURE VALVE
17. DIFFERENTIAL PRESSURE SWITCH
18. PRESSURE GAUGE (0-150 PSI)
19. DIAPHRAGM SEAL
20. FLUSHING CONNECTION
21. 1-1/2" CPVC UNION
22. FLOW SENSOR

GENERAL NOTES:

1. CONTRACTOR SHALL INSTALL ALL PIPING AND EQUIPMENT SHOWN HEREON IN COORDINATION WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE PROJECT SPECIFICATIONS.



STANCHION SUPPORT FOR ENCLOSURE 3
NOT TO SCALE

DIAL 811 DIGALERT UNDERGROUND SERVICE ALERT

PLAY IT SAFE. DIAL BEFORE YOU DIG!

AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING

REGISTERED PROFESSIONAL ENGINEER — BRYAN C. PAINE — No. C64334 — Exp. 06/30/21 — CIVIL — STATE OF CALIFORNIA

PLANS PREPARED BY:

AECOM

999 TOWN & COUNTRY ROAD
ORANGE, CA 92868
TEL (714) 567-2400

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM COMBINED REMEDY SOURCE AREA OPERABLE UNIT, ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE
CHLORINATION SYSTEM INSTALLATION

REV 9

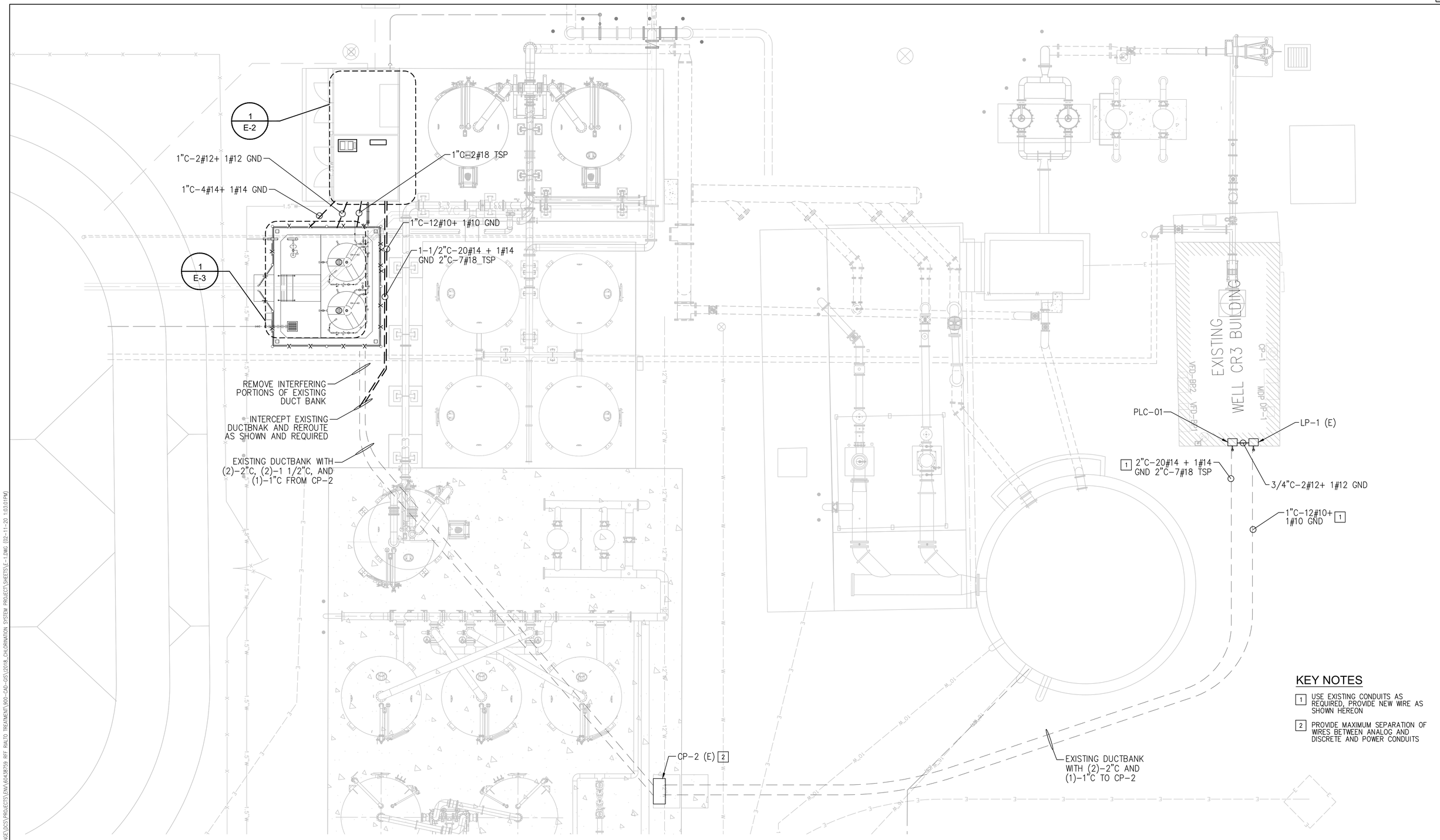
SCALE	AS SHOWN	DESIGNED BY	B. PAINE	DRAWN BY	D. LAFRANCE	DRAWING NUMBER	AS SHOWN
DATE	FEBRUARY 2020	CHECKED	J. ZIMMERLE	APPROVED	J. ZIMMERLE	JOB NUMBER	60438759

SHEET 17

MECHANICAL DETAILS - 2

DWG NO. M-6

\\USGRA1PFLWK001.NA.AECOMNET.COM\ORANGE\JOCS\PROJECTS\ENV\60438759 RFF RIALTO TREATMENT\900-CAD-GIS\2018_CHLORINATION SYSTEM PROJECT\SHEETS\M-6.DWG (02-11-20 12:57:40PM)



KEY NOTES

1. USE EXISTING CONDUITS AS REQUIRED, PROVIDE NEW WIRE AS SHOWN HEREON
2. PROVIDE MAXIMUM SEPARATION OF WIRES BETWEEN ANALOG AND DISCRETE AND POWER CONDUITS

ELECTRICAL SITE PLAN

SCALE: 1" = 60'

0 30' 60' 120'
0 1" 2"

DIAL 811 DIGALERT — UNDERGROUND SERVICE ALERT
PLAY IT SAFE. DIAL BEFORE YOU DIG! — AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING

REGISTERED PROFESSIONAL ENGINEER — ALLEN J. RANDALL — No. E9208 — ELECTRICAL — STATE OF CALIFORNIA

PLANS PREPARED BY:
AECOM
999 TOWN & COUNTRY ROAD
ORANGE, CA 92868
TEL (714) 567-2400

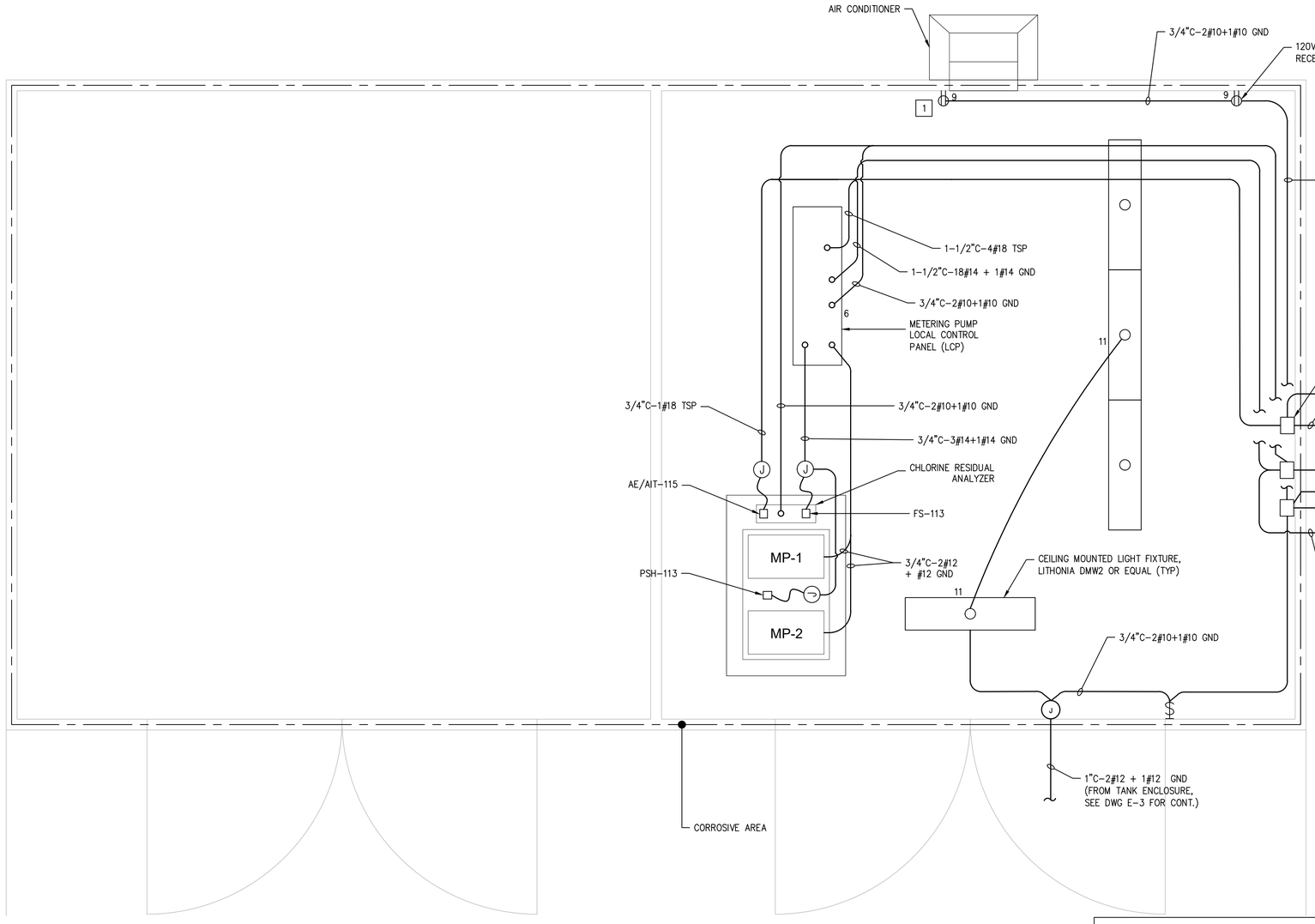
GROUNDWATER EXTRACTION AND TREATMENT SYSTEM COMBINED REMEDY SOURCE AREA OPERABLE UNIT, ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE
CHLORINATION SYSTEM INSTALLATION

SCALE	AS SHOWN	DESIGNED BY	A. RANDALL	DRAWN BY	D. LAFRANCE	DRAWING NUMBER	AS SHOWN
DATE	FEBRUARY 2020	CHECKED	J. ZIMMERLE	APPROVED	J. ZIMMERLE	JOB NUMBER	60438759

ELECTRICAL PLAN

REV 9
SHEET 18
DWG NO. E-1

\\USGRAIPFLWO01.NA.AECOMNET.COM\ORANGE\DCS\PROJECTS\ENV\60438759 RFF RIALTO TREATMENT\900-CAD-GIS\2018_CHLORINATION SYSTEM PROJECT\SHEETS\E-1.DWG (02-11-20 1:03:01PM)



ELECTRICAL SYMBOLS

- CONDUIT EXPOSED
- QUANTITY #12 CURRENT CARRYING WIRES. (EQUIPMENT GND. NOT INCLUDED IN THE COUNT) IF NO LINES ARE SHOWN PROVIDE 2#12+1#12 GND
- A-1,3 — HOMERUN TO PANEL A, CIRCUITS 1 AND 3
- J — FLEXIBLE CONDUIT CONNECTION
- PANELBOARD
- J — JUNCTION BOX, CEILING
- DUPLEX RECEPTACLE

ELECTRICAL ABBREVIATIONS

A	AMPERES
AC	ALTERNATING CURRENT
AWG	AMERICAN WIRE GAUGE
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
C.O.	CONDUIT ONLY
DWG	DRAWING
(E), EXIST	EXISTING
FIT	FLOW INDICATOR TRANSMITTER
FLEX	FLEXIBLE
FT	FLOW TRANSMITTER
G, GND	GROUND
HZ	HERTZ
JB	JUNCTION BOX
KVA	KILOVOLT-AMPERE
KW	KILOWATT
LCL	LONG CONTINUOUS LOAD
LIT	LEVEL INDICATING TRANSMITTER
LT	LEVEL TRANSMITTER
MP	METERING PUMP
P	POLE
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PSH	PRESSURE SWITCH HIGH
REC	RECEPTACLE
REF	REFERENCE
TEMP	TEMPERATURE
TYP	TYPICAL
V	VOLT
W	WATT, WIRE

NOTES

1. MOUNT RECEPTACLE ADJACENT TO AIR CONDITIONER UNIT
2. ROUTE WIRE IN EXISTING CONDUIT, REFER TO DRAWING E-1 FOR CONTINUATION

PLAN
SCALE: 1" = 1' - 0"

N

0 1 2 4
SCALE: 1" = 1'- 0"

EXISTING MINI POWERZONE LP-1

VOLTAGE: 120/240V
PHASE: 1Ø
WIRES 3W
AMPS: 60A

SOURCE: DP-1
PANEL LOCATION: INSIDE WELL BLDG
FAULT CURRENT: 10KAIC BRACED
M.L.O ☐ M.C.B ☒ 60A, 2P

	OTHER	REC.	LTG.	LOAD (WATTS) A	LOAD (WATTS) B	BREAKER	POLE	BKR. NO	BKR. NO	POLE	BREAKER	LOAD (WATTS) A	LOAD (WATTS) B	LGT.	REC.	OTHER	
EW-1 CONTROL CIRCUIT*				1000		15	1	1	2	2	25	696					EXHAUST FAN*
LIGHTING (EXTERIOR/INTERIOR)*			6		1080	20	1	3	4	2	15		2895				AIR CONDITIONER*
RECEPTACLE*		2		720		20	1	5	6	1	20	500					LCP
SPARE							1	7	8	1	20		200				AE/AIT-115
SPARE								9	10								SPARE
AIR CONDITIONER + RECEPTACLE	1			720				11	12								SPARE
LIGHTING + RECEPTACLE		1	6		540			13	14								SPARE
SUBTOTAL WATTS				2440	1620			0	0			1196	3075				SUBTOTAL WATTS

TOTAL WATTS A PHASE 3636
TOTAL WATTS B PHASE 4695

MAX COMM. PHASE AMPS 35
TOTAL CONNECTED KVA 8.3
TOTAL DEMAND KVA 8.3
TOTAL AMPS 34.7

*EXISTING LOADS

DIAL 811 DIGALERT UNDERGROUND SERVICE ALERT
PLAY IT SAFE. DIAL BEFORE YOU DIG! AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING

CALIFORNIA REGISTERED PROFESSIONAL ENGINEER ALLEN J. RANDALL No. E9206 ELECTRICIAN STATE OF CALIFORNIA

PLANS PREPARED BY:
AECOM
999 TOWN & COUNTRY ROAD
ORANGE, CA 92868
TEL (714) 567-2400

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM COMBINED REMEDY SOURCE AREA OPERABLE UNIT, ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE CHLORINATION SYSTEM INSTALLATION

REV 9

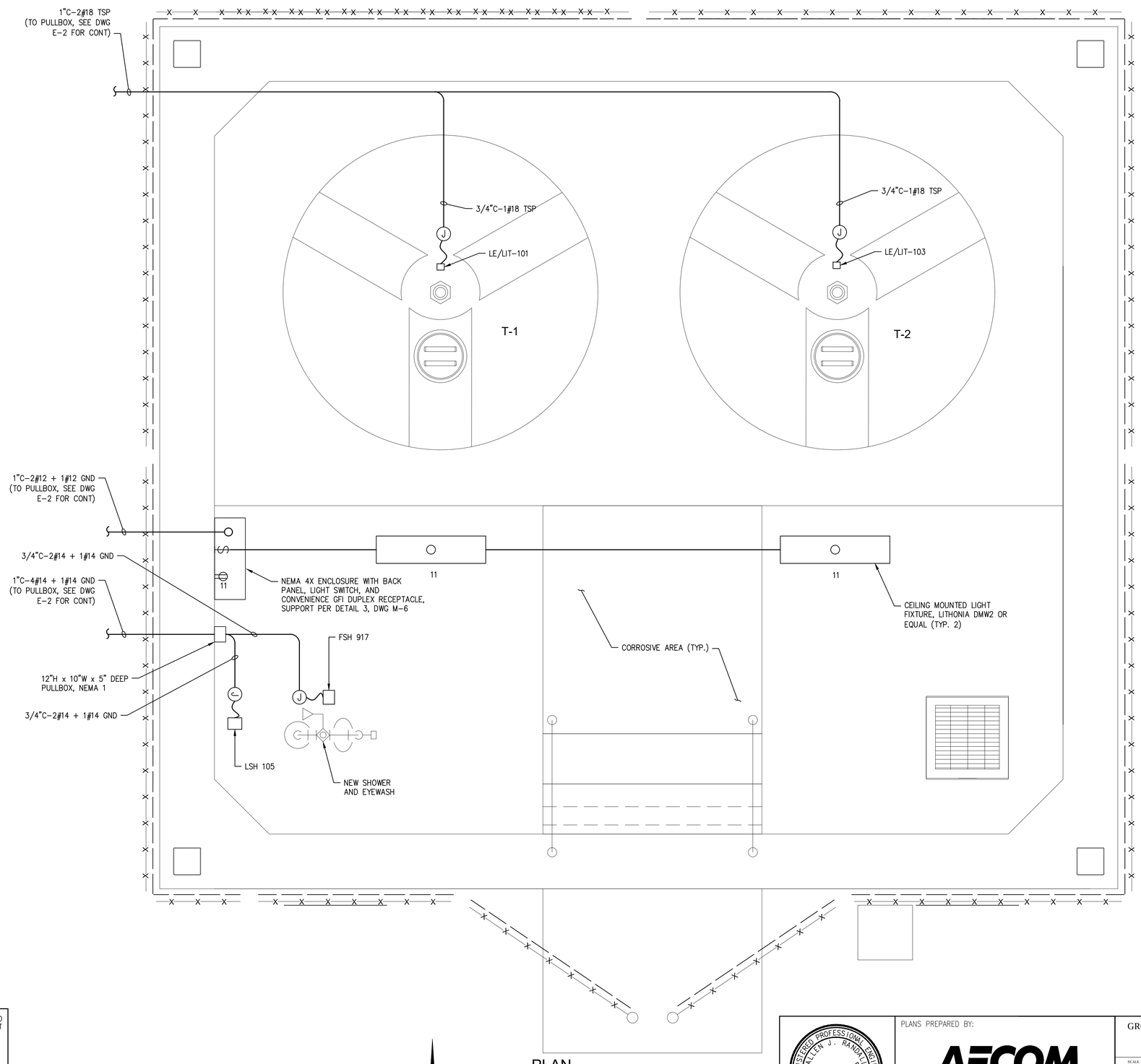
SCALE	AS SHOWN	DESIGNED BY	A. RANDALL	DRAWN BY	D. LAFRANCE	DRAWING NUMBER	AS SHOWN
DATE	FEBRUARY 2020	CHECKED	J. ZIMMERLE	APPROVED	J. ZIMMERLE	JOB NUMBER	60438759

SHEET 19

ELECTRICAL DETAIL PLAN -1

DWG NO. E-2

\\USORA1FILWI01.NA.AECOMNET.COM\ORANGE\DCS\PROJECTS\ENVA\60438759 RIFF RAU TO TREATMENT\900-CAD-GIS\2018_CHLORINATION SYSTEM PROJECT\SHEETS\E-2.DWG (02-11-20 1:05:48PM)



PLAN
SCALE: 1" = 1' - 0"
0 1 2 4
SCALE: 1" = 1'- 0"

ELECTRICAL SYMBOLS

- CONDUIT EXPOSED
- QUANTITY #12 CURRENT CARRYING WIRES. (EQUIPMENT GND. NOT INCLUDED IN THE COUNT) IF NO LINES ARE SHOWN PROVIDE 2#12+1#12 GND
- A-1,3 — HOMERUN TO PANEL A, CIRCUITS 1 AND 3
- FLEXIBLE CONDUIT CONNECTION
- PANELBOARD
- JUNCTION BOX, CEILING
- DUPLEX RECEPTACLE

ELECTRICAL ABBREVIATIONS

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AWG	AMERICAN WIRE GAUGE
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CKT	CIRCUIT
C.O.	CONDUIT ONLY
DWG	DRAWING
(E), EXIST	EXISTING
FIT	FLOW INDICATOR TRANSMITTER
FLEX	FLEXIBLE
FSH	FLOW SWITCH HIGH
FT	FLOW TRANSMITTER
G, GND	GROUND
HZ	HERTZ
JB	JUNCTION BOX
KVA	KILOVOLT-AMPERE
KW	KILOWATT
LCL	LONG CONTINUOUS LOAD
LIT	LEVEL INDICATING TRANSMITTER
LT	LEVEL TRANSMITTER
MP	METERING PUMP
P	POLE
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PSH	PRESSURE SWITCH HIGH
REC	RECEPTACLE
REF	REFERENCE
TEMP	TEMPERATURE
TYP	TYPICAL
V	VOLT
W	WATT, WIRE

DIAL 811
DIGALERT
UNDERGROUND SERVICE ALERT
PLAY IT SAFE. DIAL BEFORE YOU DIG!
AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING

REGISTERED PROFESSIONAL ENGINEER
ALLEN J. RANDALL
No. E9206
ELECTRICAL
STATE OF CALIFORNIA

PLANS PREPARED BY:
AECOM
999 TOWN & COUNTRY ROAD
ORANGE, CA 92868
TEL (714) 567-2400

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM COMBINED REMEDY SOURCE AREA OPERABLE UNIT, ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE CHLORINATION SYSTEM INSTALLATION

SCALE	AS SHOWN	DESIGNED BY	A. RANDALL	DRAWN BY	D. LAFRANCE	DRAWING NUMBER	AS SHOWN
DATE	FEBRUARY 2020	CHECKED	J. ZIMMERLE	APPROVED	J. ZIMMERLE	JOB NUMBER	60438759

ELECTRICAL DETAIL PLAN - 2

REV 9
SHEET 20
DWG NO. E-3

\\USORA1FILW001.NA.AECOMNET.COM\ORANGE\DCS\PROJECTS\ENVA\60438759 RFF RIALTO TREATMENT\900-CAD-GIS\2018_CHLORINATION SYSTEM PROJECT\SHEETS\E-3.DWG (02-11-20 1:06:33PM)

INSTRUMENT TAG IDENTIFICATION

	PRIMARY LOCATION (b)NORMALLY ACCESSIBLE TO OPERATOR	FIELD MOUNT	AUXILIARY LOCATION (b)NORMALLY ACCESSIBLE TO OPERATOR
DISCRETE INSTRUMENTS	LCP		LCP
SHARED DISPLAY, SHARED CONTROL	LCP		LCP
COMPUTER FUNCTION	LCP		LCP
PROGRAMMABLE LOGIC CONTROL	LCP		LCP

(a) *DESIGNATIONS SUCH AS 100 (LOCAL CONTROL BOARD NO. 100), 200 (LOCAL CONTROL BOARD NO.200), ETC., ARE USED WHEN NECESSARY TO SPECIFY INSTRUMENT OR FUNCTION LOCATION.*

(b) *NORMALLY INACCESSIBLE OR BEHIND–THE–PANEL DEVICES OR FUNCTIONS ARE DEPICTED BY USING THE SAME SYMBOLS BUT WITH DASHED HORIZONTAL BARS, I.E.*

SINGLE INSTRUMENT OR OTHER COMPONENT HAVING MULTIPLE FUNCTIONS

(XXX) *SOFTWARE OR LOGIC RESIDENT IN DISTRIBUTED CONTROL SYSTEM (DCS) AT PROGRAMMABLE LOGIC CONTROLLER (PLC) XXX. SEE ASSOCIATED LOGIC DIAGRAMS.*

(XXX) *PANEL MOUNTED PILOT LIGHT WITH PANEL NUMBER DESIGNATION(i.e. XXX = 100, 200, ETC.).*

FY * *INSTRUMENT PANEL MOUNTED WITH COMPUTING OR CONVERTING FUNCTION*

CONVERT %

E – VOLTAGE
I – CURRENT
P – PNEUMATIC
A – ANALOG
B – BINARY
H – HYDRAULIC
O – ELECTROMAGNETIC, SONIC
R – RESISTANCE (ELECT.)
D – DIGITAL
PF – PULSE FREQUENCY

COMPUTE *

SUMMING	Σ	AVERAGING	Σ/n
SUBTRACTOR	–	RATIO	I:I
MULTIPLYING	X	DIFFERENCE	Δ
DIVIDING	÷	HIGH SELECTING	>
ROOT EXTRACTION	√	LOW SELECTING	<
PROPORTIONAL	P	INTEGRAL	I
DERIVATIVE	R		

(XXX) DESIGNATIONS OF CONTROL FUNCTIONS ASSOCIATED INSTRUMENT OR OTHER COMPONENTS.

AC – AUTO/CLOSE
AHC – AUTO/HOLD/CLOSE
AM – AUTO/MANUAL
C – CLOSE
DEV – DEVIATION
ES – EMERGENCY STOP
HOA – HAND/OFF/AUTO
HOR – HAND/OFF/REMOTE
LOS – LOCKOUT STOP
LR – LOCAL/REMOTE
N.C. – NORMALLY CLOSED
N.O. – NORMALLY OPEN
MOA – MANUAL/OFF/AUTO
O – OPEN
OL – OVERLOAD (MOTOR)
OO – ON/OFF
OCA – OPEN/CLOSE/AUTO
OSC – OPEN/STOP/CLOSED
POT – POTENTIOMETER
RST – RESET
RL – RAISE/LOWER
RSL – RAISE/STOP/LOWER
SD – SHUTDOWN
SEL – SELECT
SP – SET POINT
SR – START/RESET
SS – STOP/START
WA – WARNING ALARM

ISA FUNCTION IDENTIFICATION TABLE

	FIRST–LETTER		SUCCEEDING–LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION				
C	CONDUCTIVITY			CONTROL	CLOSED
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			
G	GAGE		GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOTOR, MOISTURE	MOMENTARY			MIDDLE, INTERMEDIATE
N	TORQUE		ISOLATE	ISOLATOR	
O	USER SPECIFIED		ORIFICE, RESTRICTION		OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	RUN	X AXIS		COMPUTE, CONVERT	
Y	EVENT, STATE OR PRESENCE	Y AXIS		*DRIVER, ACTUATOR, FINAL*	
Z	POSITION, DIMENSION	Z AXIS		CONTROL ELEMENT	

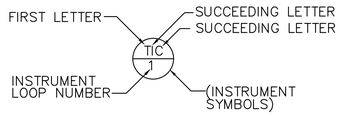
TYPICAL FORMAT:

TIC–1 – INSTRUMENT IDENTIFICATION OR TAG NUMBER
TIC – FUNCTIONAL IDENTIFICATION
T – FIRST–LETTER
IC – SUCCEEDING–LETTER(S)
1 – LOOP NUMBER

EXPANDED FORMAT:

10–PAH–1A — TAG NUMBER
10 — OPTIONAL PREFIX
A — OPTIONAL SUFFIX

I UNDEFINED INTERLOCK DEVICE



MECHANICAL EQUIPMENT SYMBOLS

CENTRIFUGAL PUMP
VERTICAL TURBINE PUMP
COMPRESSOR OR BLOWER
EJECTOR
METERING PUMP
CHEMICAL INJECTION QUILL
PROGRESSING CAVITY PUMP
GEAR PUMP
PERISTALTIC PUMP
MIXER
STATIC MIXER

PROCESS AND SIGNAL LINE SYMBOLS

PROCESS LINE (1)
INSTRUMENT OR CONNECTION TO PROCESS
ELECTRIC SIGNAL
PF — ELECTRIC PULSE FREQUENCY SIGNAL (0–100 CYCLE/SEC., 0–150 PULSE/MIN., etc.)
PD — ELECTRIC PULSE DURATION SIGNAL (15 SEC., 3/12 SEC = 0 %, etc.)
PNEUMATIC SYMBOL (2)
HYDRAULIC SYMBOL
CAPILLARY TUBE
ELECTROMAGNETIC OR SONIC SIGNAL (3)
INTERNAL SYSTEM LINK (SOFTWARE OR DATA LINK)
MECHANICAL LINK
CONNECTING LINES
FIELD INSTRUMENT/ DEVICE
X | I–1 — CONTINUED ON DWG I–__ AT A SIMILAR ARROW WITH LETTER X.
VAR. — CONTINUED ON MULTIPLE SHEETS
PROCESS INTERFACE CONNECTION POINT NOT SHOWN IN DRAWINGS

VALVE AND ACTUATOR SYMBOLS

BUTTERFLY
GATE VALVE
KNIFE GATE
CHECK VALVE
BALL VALVE
GLOBE VALVE
DIAPHRAGM
PLUG
ECCENTRIC PLUG
LUBRICATED PLUG
3–WAY GLOBE
BALL CHECK VALVE
MOTOR OPERATED BUTTERFLY
PRESSURE REDUCING REDUCING REGULATOR
SOLENOID VALVE
3–WAY SOLENOID
NEEDLE VALVE
PINCH VALVE
ROTARY VALVE
FLEX COUPLER
DIAPHRAGM ACTUATED VALVE
BACKPRESSURE VALVE
MOTOR OPERATED BALL VALVE
DRAIN VALVE & HOSE COUPLING
PRESSURE RELIEF VALVE
BACKFLOW PREVENTER
REDUCER
STRAINER
CALIBRATION CHAMBER
PRESSURE INDICATOR PULSATION DAMPENER

(1) REFER TO DWG G–3 FOR PIPING SERVICE SCHEDULE.

(2) THE PNEUMATIC SIGNAL SYMBOL APPLIES TO A SIGNAL NOT A SUPPLY SOURCE, USING ANY AS A MEDIUM. IF A GAS OTHER THAN AIR IS USED, THE GAS IS IDENTIFIED BY NOTE ON THE SIGNAL.

(3) ELECTROMAGNET PHENOMENA INCLUDE HEAT, RADIO WAVES, NUCLEAR RADIATION AND LIGHT.

INPUT/OUTPUT INTERFACE SYMBOLS

= DIGITAL OUTPUT
= ANALOG OUTPUT
= DIGITAL INPUT
= ANALOG INPUT

GENERAL NOTES

1. *ADDITIONAL INSTRUMENTATION AND CONTROL SYMBOLS MAY BE USED AS REQUIRED. SYMBOLS AND NOMENCLATURE ARE BASED ON ISA STANDARDS S5.1, S5.2, S5.4.*
2. *SEE ASSOCIATED ELECTRICAL AND MECHANICAL SYMBOL SHEETS FOR ADDITIONAL SYMBOLS AND ABBREVIATIONS.*
3. *FOR PIPE SIZES, MATERIAL, AS WELL AS DETAILS OF METER COUPLING AND OTHER MECHANICAL EQUIPMENT (E.G. VALVE, PUMP ETC.) SEE PROCESS AND INSTRUMENTATION DIAGRAMS, MECHANICAL DRAWINGS AND SPECIFICATIONS.*
4. *POWER SUPPLIES FOR LOOPS OR SYSTEMS SHALL BE FURNISHED BY THE INSTRUMENTATION MANUFACTURER TO MEET THE PARTICULAR CHARACTERISTICS (E.G. VOLTAGE AND CURRENT REQUIREMENTS) OF COMPONENTS IN EACH LOOP OR SYSTEM.*
5. *THOSE ITEMS IDENTIFIED BY AN ASTERISK SHALL BE PROVIDED BY THE SYSTEM PROCESS EQUIPMENT SUPPLIER.*
6. *P&ID'S DO NOT DISTINGUISH NEW FROM EXISTING MECHANICAL AND STRUCTURAL SYSTEMS. REFER TO 'M' SHEETS.*

DEVICE SYMBOLS

M — MAGNETIC FLOWMETER
ORIFICE PLATE
FLOW TUBE
J — ANNUBAR
PROPELLER METER
FE — ROTAMETER
PD — POSITIVE DISPLACEMENT METER
INLINE DIAPHRAGM SEAL
SECONDARY PROCESS DIAPHRAGM SEAL
ULTRASONIC LEVEL INSTRUMENT
PI XXXX — PRESSURE INDICATOR
LSH XXXX — LEVEL FLOAT SWITCH
CORIOLIS METER

AM AQUEOUS AMMONIA
SH SODIUM HYPOCHLORITE
SPL SAMPLE
D DRAIN
V VENT'

DIAL 811
DIGALERT
UNDERGROUND SERVICE ALERT
PLAY IT SAFE. DIAL BEFORE YOU DIG!
AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING

REGISTERED PROFESSIONAL ENGINEER
ALLEN J. RANDALL
No. E9206
ELECTRICAL
STATE OF CALIFORNIA

PLANS PREPARED BY:
AECOM
999 TOWN & COUNTRY ROAD
ORANGE, CA 92868
TEL (714) 567-2400

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM COMBINED REMEDY SOURCE AREA OPERABLE UNIT, ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE CHLORINATION SYSTEM INSTALLATION

REV 9

SCALE	DESIGNED BY	DRAWN BY	DRAWING NUMBER	SHEET
AS SHOWN	K. RAITHATHA	D. LAFRANCE	AS SHOWN	21
DATE	CHECKED	APPROVED	JOB NUMBER	DWG NO.
FEBRUARY 2020	J. ZIMMERLE	J. ZIMMERLE	60438759	N-1

INSTRUMENTATION LEGEND

\\USORAPPLIM001.NA.AECOM.NET.COM\ORANGE\DCS\PROJECTS\ENV\60438759_RFF RIALTO TREATMENT\900–CAD–GIS\2018_CHLORINATION SYSTEM PROJECT\SHEETS\N–1.DWG (02–11–20 1:07:18PM)

HMI

PLC-01

YAR 101A
YAR 101B
YAR 103A
YAR 103B
LAH 105
HS 111A
YIR 111B
YAR 111C
YIR 111D
SIK 111
SIR 111
HS 112A
YIR 112B
YAR 112C
YIR 112D
SIK 112
SIR 112
AIK 115
AIR 115
YAR 917

SHUT DOWN
SHUT DOWN
PUMP CONTROL LOGIC
PID
AC 115
TD
KY 113
ENABLE

LSHL 101
LSLL 101
LSHL 103
LSLL 103
AI
LAH 105

AI LN 101
AI LN 103
A
DO YN 111A
DI YN 111B
DI YN 111C
DI YN 111D
AO SC 111
AI SN 111
DO YN 112A
DI YN 112B
DI YN 112C
DI YN 112D
AO SC 112
AI SN 112
DI YN 114
DI YN 113
AI AN 115
DI YN 917

CALL
AUTO
FAIL
RUN
SPEED COMMAND
SPEED FEEDBACK
CALL
AUTO
FAIL
RUN
SPEED COMMAND
SPEED FEEDBACK
HIGH PRESSURE
LOW FLOW
CL2

PUMP 1
PUMP 2
SODUIM HYPO CHLORITE FEED SYSTEM LOCAL CONTROL PANEL

EMERGENCY SHOWER & EYEWASH
FSH 917
FROM PLANT WATER

TANK FILL CONNECTION
LE/LT 101
SODUIM HYPO CHLORITE TANK
T-1

CALIBRATION CHAMBER
SODUIM HYPO CHLORITE METERING PUMP 1
MP-1

PULSATION DAMPENER
PSH 113
PI 113
AE/AIT 115
FS 113
TO INJECTION LINE

TANK FILL CONNECTION
LE/LT 103
SODUIM HYPO CHLORITE TANK
T-2

SODUIM HYPO CHLORITE METERING PUMP 2
MP-2

LSH 201
CONCRETE CONTAINMENT BASIN

DIAL 811
DIGALERT
UNDERGROUND SERVICE ALERT
PLAY IT SAFE. DIAL BEFORE YOU DIG!
AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING

REGISTERED PROFESSIONAL ENGINEER
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STATE OF CALIFORNIA

PLANS PREPARED BY:
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TEL (714) 567-2400

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM COMBINED REMEDY SOURCE AREA OPERABLE UNIT, ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE
CHLORINATION SYSTEM INSTALLATION

REV 9

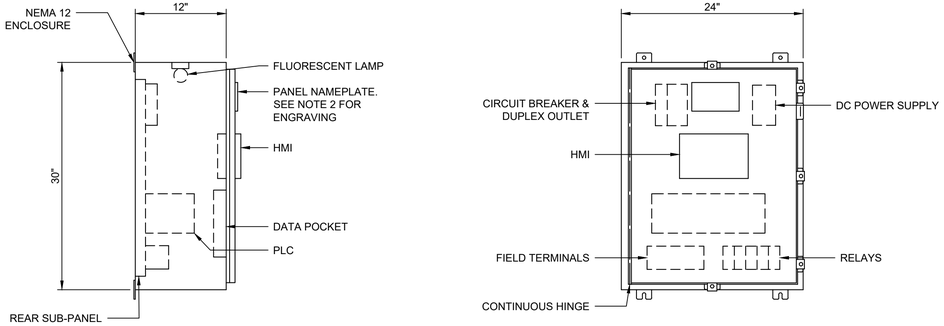
SCALE	AS SHOWN	DESIGNED BY	K. RAITHATHA	DRAWN BY	D. LAFRANCE	DRAWING NUMBER	AS SHOWN
DATE	FEBRUARY 2020	CHECKED	J. ZIMMERLE	APPROVED	J. ZIMMERLE	JOB NUMBER	60438759

SHEET 22

CHEMICAL FEED SYSTEM P&ID

DWG NO. N-2

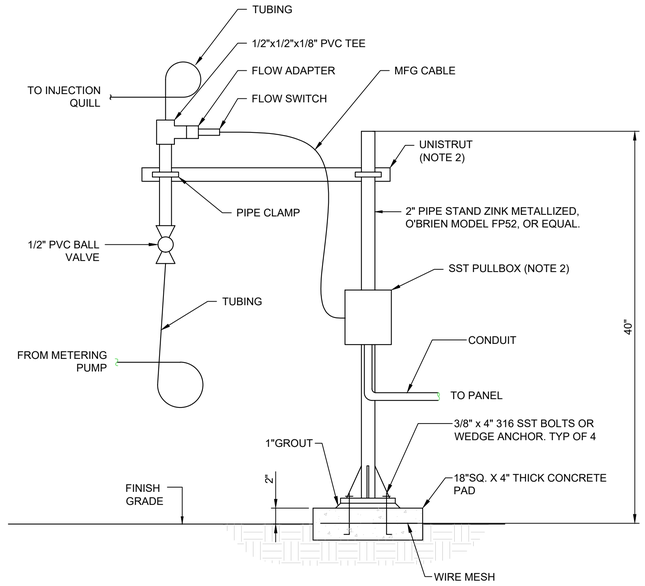
\\USGRAFPLW001.NA.AECOMNET.COM\ORANGE\DCS\PROJECTS\ENV\60438759 RFF RIALTO TREATMENT\900-CAD-GIS\2018_CHLORINATION SYSTEM PROJECT\SHEETS\N-2.DWG (02-11-20, 1:07:56PM)



PLC-01 PANEL

1

SCALE: NONE



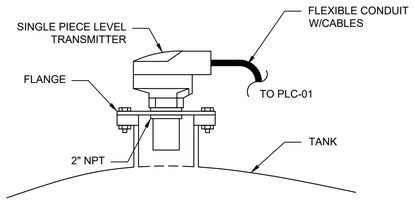
FLOW SWITCH DETAIL

2

SCALE: NONE

NOTES

1. UNLESS OTHERWISE NOTED, ALL HARDWARE SHALL BE 316 SST.
2. SECURE TO PIPE STAND USING U-BOLTS.



ULTRASONIC TANK LEVEL SENSOR MOUNTING

3

SCALE: NONE

DIAL 811
DIGALERT
UNDERGROUND
SERVICE ALERT
PLAY IT SAFE.
DIAL BEFORE
YOU DIG!
AT LEAST TWO
WORKING DAYS
PRIOR TO EXCAVATING

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GROUNDWATER EXTRACTION AND TREATMENT SYSTEM COMBINED REMEDY SOURCE AREA OPERABLE UNIT, ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE
CHLORINATION SYSTEM INSTALLATION

REV 9

SCALE	AS SHOWN	DESIGNED BY	K. RAITHATHA	DRAWN BY	D. LAFRANCE	DRAWING NUMBER	AS SHOWN
DATE	FEBRUARY 2020	CHECKED	J. ZIMMERLE	APPROVED	J. ZIMMERLE	JOB NUMBER	60438759

SHEET 23

INSTRUMENTATION DETAILS

DWG NO. N-3

\\USORAPFLW001.NA.AECOMNET.COM\ORANGE\DCS\PROJECTS\ENV\60438759_RFT_RIALTO_TREATMENT\900-CAD-GIS\2018_CHLORINATION_SYSTEM_PROJECT\SHEETS\N-3.DWG (02-11-20 1:08:31 PM)

Amendment to Four Party Implementation Agreement
(Regarding Contingent Water Supply to Colton)

This Amendment amends the Four Party Implementation Agreement made and entered into effective September 1, 2015, by and between Emhart, Rialto, Colton, and the County ("4-Party IA") to set forth the procedures and process to minimize or eliminate any disruption of distribution of domestic water supply through the Rialto municipal water system to Colton in the event of an interruption of operation of the Combined Remedies.

Recitals

Whereas, terms defined in the 4-Party IA and used in this Amendment shall have the meanings set forth in the 4-Party IA.

Whereas, to facilitate operation of the Combined Remedies, Colton has leased its water rights in the Basin to Emhart and the County, and Rialto has leased certain of its water rights in the Basin to the County, as described in Paragraph V. of the 4-Party IA.

Whereas, as set forth in the 4-Party IA, upon startup, the Combined Remedies will pump water from the Basin, treat that water at the Combined Treatment Plant to remove perchlorate and VOCs, and deliver the treated water to Rialto.

Whereas, Rialto will receive all water treated by the Combined Treatment Plant, and deliver to Colton a volume of water equivalent to the Colton Water Rights utilized by the County and Emhart at the Combined Treatment Plant.

Whereas, Paragraph V.B.1.b. of the 4-Party IA provides that "Colton shall, at Emhart's request, take all reasonable actions to manage its municipal water supply system, including if necessary, curtailing production at other Colton-owned water production wells in the Basin, to ensure that its water rights leased to Emhart as provided in [4-Party IA] Paragraph V can be utilized for the Work."

Whereas Paragraph III.A.2. of the 4-Party IA provides that, subject to the terms of the Work Consent Decree, Emhart is responsible, *inter alia*, for the cost of the design, permitting, installation, and/or construction of the additional piping and infrastructure necessary to deliver water to the Colton municipal water supply system pursuant to Emhart's lease of Colton Water Rights either through the existing Rialto municipal water supply system or by some other means agreed to by the Parties in writing.

Whereas, Colton has leased its Colton Water Rights in the Basin to the County and Emhart as set forth in Paragraph V. of the 4-Party IA, and if Emhart and the County use the maximum amount of those Colton Water Rights for the Combined Remedies, Colton would have to stop pumping water from its Well Nos. 15 and 17, both of which have been impacted by perchlorate and are connected to a resin treatment system (the "Domecq Treatment System") that removes perchlorate prior to distributing the pumped water to Colton's water system.

Whereas, Well Nos. 15 and 17 are among the primary water supply wells for the Western Zone of Colton's water system.

Whereas, in the event of an interruption or disruption to water delivered from Rialto to Colton, unless Colton takes steps, such as using water rights it would otherwise lease to Emhart, to keep the Domecq Treatment System on standby, Colton cannot immediately restart Well Nos. 15 and 17.

Whereas, due to health and safety considerations, Colton does not intend to cease pumping and treatment operations at Well Nos. 15 and 17 unless there is an adequate contingent water supply that can supply the water needs of Colton's Western Zone in the event of an interruption or disruption to the operation of the Combined Treatment Plant or the distribution of water supply from Rialto to Colton.

Whereas, the Parties desire to provide procedures and process for the continued delivery of domestic water supply from Rialto to Colton in the event of an interruption or disruption to the operation of the Combined Remedies.

Amendment

Now, therefore, in consideration of the terms, conditions and mutual covenants contained herein, the sufficiency of which are hereby acknowledged, the Parties agree to amend the 4-Party IA as follows:

1. **Defined Terms.** Terms defined in the 4-Party IA and used in this Amendment shall have the meanings set forth in the 4-Party IA.

2. **Backup Water Supply and Priority.** In the event that an interruption or disruption of the operation of the Combined Remedies threatens to impact Rialto's ability to supply water to Colton on a schedule that will meet Colton's minimum water needs as set forth in the operative Water Management Plan, subject to ongoing adjustment as set forth in Paragraph VI. of the 4-Party IA, the adjustment of which shall not be unreasonably denied, either Rialto, as operator of the Combined Remedies, or Colton shall promptly notify the Parties, and the Parties shall take steps to deliver water to meet Colton's minimum water needs in the following order:

(a) **Emhart and County's Option to Provide Alternative Backup Water.** Depending on the nature of the interruption or disruption to the Combined Remedies operation, the County and Emhart may direct pumping from Rialto-3, Miro-2, Miro-3, or EW-1, using Colton Water Rights, and Rialto shall deliver to Colton a volume of water equivalent to such supplemental pumping volume pursuant to Paragraph VI. of the 4-Party IA.

(b) **Rialto Well No. 5.** To the extent that the County and Emhart do not take the actions pursuant to Paragraphs 2.(a) or the actions taken are not sufficient to meet Colton's minimum water needs, Rialto will continue to deliver water to Colton, as necessary to meet Colton's minimum water needs, via the Randall Connector, and supplement water supply in the Rialto municipal water supply system by pumping an equivalent volume of water

from its well, known as Rialto Well No. 5, located on Etiwanda Avenue, east of Cactus Avenue.

i. Rialto's extraction of water at Rialto Well No. 5 and delivery of water to Colton via the Randall Connector, as required by Paragraph 2.(b), shall be pursuant to Colton Water Rights and any such extraction shall reduce the water rights leased by Colton to Emhart, as set forth in Paragraph V. of the 4-Party IA.

ii. The Parties recognize and acknowledge that Colton Water Rights are subject to the 1961 Decree and the 4-Party IA, and the exercise of Colton's Water Rights by Rialto and Emhart combined shall not exceed the amount of rights available as set forth in Paragraph V. of the 4-Party IA. To the extent the exercise of Colton Water Rights exceeds the amount Colton can pump without any penalties, fines, or assessments under the 1961 Decree, the Party(ies) responsible for the exceedance shall be liable for any penalties, fines, or assessments Colton would otherwise have to pay for exceeding its water rights.

iii. Rialto will deliver to Colton a volume of water equivalent to the volume pumped at Rialto Well No. 5 using Colton Water Rights at cost. Such cost shall be calculated based on Rialto's cost of operating Rialto Well No. 5 and any related lifting and/or chemical cost for treating water delivered to Colton.

iv. If Rialto Well No. 5 is not operable or cannot supply sufficient water to meet Colton's domestic water needs, Rialto shall provide notice to Colton and proceed to deliver water to Colton pursuant to Paragraph 2.(c).

(c) **Baseline Feeder.** If (i) Rialto Well No. 5 is not operable, (ii) Colton notifies Rialto that Rialto cannot utilize Colton Water Rights, or (iii) Rialto Well No. 5 cannot supply sufficient water to meet Colton's minimum water needs, Rialto shall continue to deliver water to Colton via the Randall Connector, as necessary to meet Colton's minimum water needs, and take delivery of an equivalent volume of water from its "Baseline Feeder" connection by utilizing Rialto's water rights in the Bunker Hill Basin. The Baseline Feeder is operated by San Bernardino Valley Municipal Water District and provides fully treated water pumped from two wells in the Bunker Hill Basin.

Rialto will sell the water delivered to Colton pursuant to Paragraph 2.(c) at cost. Such cost shall be calculated based on the amount Rialto would have to pay to utilize the Baseline Feeder for itself and any related lifting or replenishment cost for treating water to facilitate water delivery to Colton. As of 2020, the cost to Rialto for using water from the Baseline Feeder is

approximately $155 per acre-foot, including both cost per acre-foot of water and replenishment costs. This cost may change in the future. In lieu of paying this cost, Colton has the option of transferring its water rights in the Bunker Hill Basin in amount equal to the amount of water delivered to Colton pursuant to this Paragraph 2.(c) and paying any additional lifting costs necessary to pump and deliver Colton's water from the Bunker Hill Basin to Colton's municipal water system.

If the "Baseline Feeder" connection is insufficient to satisfy Colton's water needs, Rialto shall provide notice to Colton and proceed to deliver water to Colton pursuant to Paragraph 2.(d).

(d) **Encanto Connection.** Rialto has a connection at Encanto through the City of San Bernardino's water system. If the sources identified in Paragraphs 2.(a) through (c) above are insufficient to satisfy Colton's minimum water needs, Rialto will continue to deliver water to Colton, as necessary to meet Colton's minimum water needs, via the Randall Connector, and supplement water supply in the Rialto municipal water supply system by utilizing the Encanto connection. Rialto shall deliver such water to Colton at cost, currently estimated to be $227 per acre-foot. This cost may change in the future.

(e) If the sources identified above are insufficient to satisfy Colton minimum water needs, Rialto, Colton, the County, and Emhart shall meet and confer in good faith to assure Colton's water supply. If Rialto supplies the water, it shall do so at cost.

(f) Upon notice from Rialto that the disruption or interruption of the Combined Remedies has been resolved, normal operation pursuant to the operative Water Management Plan shall resume, provided that the Water Management Plan shall be updated to reflect the amount of Colton Water Rights already exercised pursuant to Paragraphs 2.(a) and (b) above.

3. **Colton's Determination of Water Needs.** In determining the amount of water Rialto is to supply to Colton for purposes of backup water pursuant to Paragraph 2. above, Colton shall, within its reasonable discretion, determine whether it can reduce the water needed from Rialto by management of Colton's municipal water supply system. Nothing in this amendment modifies Paragraph V.B.1.b. of the 4-Party IA.

4. **Notice.** Due to urgency concerns related to public health and safety risks caused by an interruption or disruption to water delivery, except as specifically provided otherwise, the notice described in Paragraph 2. above can be provided in writing, verbally, or via electronic mail, phone call, voicemail or any other reasonable means of communication.

5. **Dispute Resolution.** Any dispute regarding this amendment that is not resolved by the good faith negotiation set forth in Paragraph 2.(e) above shall be resolved pursuant to Paragraph XII of the 4-Party IA.

FOR EMHART INDUSTRIES, INC.:

By: _____
Emhart Industries, Inc.

Date: _____

FOR THE CITY OF RIALTO:

By: _____
City of Rialto

Date: _____

FOR THE CITY OF COLTON:

By: _____
City of Colton

Date: _____

FOR THE COUNTY OF SAN BERNARDINO:

By: _____
County of San Bernardino

Date: _____

2015 San Bernardino Valley RUWMP

Appendix H

AGREEMENT BETWEEN ORANGE COUNTY WATER DISTRICT AND CITY OF RIVERSIDE CONCERNING WATER RIGHTS

THIS AGREEMENT, dated as of July 24, 2006 is by and between ORANGE COUNTY WATER DISTRICT ("OCWD") and CITY OF RIVERSIDE ("CITY") (collectively, the "Parties").

EXPLANATORY RECITALS

A. In 1969, the Orange County Superior Court entered a stipulated judgment in *Orange County Water District v. City of Chino, et al.*, Orange County Superior Court No. 117628 (the "1969 Judgment") declaring rights in the Santa Ana River Watershed as between the water users located in the area shown on Exhibit A to the 1969 Judgment which lies upstream from Prado Dam (the "Upper Area") and the water users located in the area shown on Exhibit A to the 1969 Judgment which lies downstream from Prado Dam (the "Lower Area")(the areas shown on Exhibit A to the 1969 Judgment constitute the "Watershed"). OCWD and the City were parties in that case and to certain stipulations that led to the 1969 Judgment.

B. Pursuant to the 1969 Judgment and the stipulations leading to it, "water users and other entities in Lower Area have rights, as against all Upper Area claimants, to receive an average annual supply of 42,000 acre feet of Base Flow at Prado, together with the right to all Storm Flow reaching Prado Reservoir. Water users and other entities in Upper Area have rights in the aggregate, as against all Lower Area claimants, to divert, pump, extract, conserve, store and use all surface and ground water supplies originating within Upper Area without interference or restraint by Lower Area claimants, so long as Lower Area receives the water to which it is entitled under this Judgment and there is compliance with all of its provisions."

C. In addition, pursuant to the 1969 Judgment and the stipulations leading to it, "OCWD and the Lower Area Users are enjoined and restrained from pumping, producing and exporting or directly or indirectly causing water to flow from Upper to Lower Area, except as to salvage of evapo-transpiration losses . . . . The acquisition by Upper Districts or other Upper Area entities of Lower Area water rights shall in no way affect or reduce Lower Area's entitlement; and the acquisition of Upper Area water rights by OCWD or other Lower Area entities shall be deemed to be included within the aggregate entitlement of Lower Area and shall not increase said entitlement."

D. Further, pursuant to the 1969 Judgment and the stipulations leading to it, "[i]nsofar as Lower Area claimants are concerned, Upper Area water users and other entities may engage in unlimited water conservation activities, including spreading, impounding and other methods, in the area above Prado Reservoir, so long as Lower Area receives the water to which it is entitled under the Judgment and there is compliance with all of its provisions. Lower Area water users and other entities may make full conservation use of Prado Dam and reservoir, subject only to flood control use."

E. Further pursuant to the Stipulation for Judgment filed concurrently with the 1969 Judgment, "Water quality requirements, objectives and policy are a function of the Santa Ana River Basin Regional Water Quality Control Board and such other governmental agencies now in existence or as may be hereafter created or vested with such regulatory power. The provisions in the Judgment relating to quality are not to be construed or deemed to affect, or in any way detract from the right of any party hereto to urge such Board or other appropriate agency to take action designed to change or enforce water quality requirements, objectives and policy."

"Any of the undersigned defendants who participate directly in the management or control of sewage or other water treatment facilities agree that any water or effluent deposited by them into the Santa Ana River or its stream bed will not be of a lesser quality than will meet the present requirements of Santa Ana River Basin Regional Water Quality Control Board."

F. On September 3, 1999, OCWD petitioned the State Water Resources Control Board ("SWRCB") to modify the Declaration of Fully Appropriated Stream Status to allow the SWRCB to accept a water right application, later numbered Application 31174, that had been submitted previously by OCWD to the SWRCB (the "OCWD Application"). After evidentiary hearings on September 21, 2000, the SWRCB issued Order WR 2000-12, *In the Matter of the Petitions to Revise Declaration of Fully Appropriated Streams to Allow Processing of Specified Applications to Appropriate Water From the Santa Ana River*. That Order amended the Declaration of Fully Appropriated Streams, as adopted by SWRCB Order WR 98-08, to allow for processing of the OCWD Application and other applications. On January 11, 2002, the SWRCB thereupon publicly noticed the OCWD Application. The City protested the OCWD Application, alleging *inter alia* that in the application OCWD sought water rights in contravention of the 1969 Judgment. On August 9, 2002, the SWRCB accepted the City's protest and on October 18, 2002 OCWD responded to the City's protest. OCWD contends and the City disputes that the OCWD Application is consistent with the rights and obligations declared under the 1969 Judgment.

G. In furtherance of the OCWD Application, OCWD drafted an Environmental Impact Report ("OCWD's EIR"), which was circulated for public comment. In response to comments it received, OCWD revised its EIR and on March 30, 2006 recirculated the revised EIR for public comment.

H. The City is currently preparing a Programmatic EIR for its Recycled Water Master Plan ("PEIR"). This Recycled Water Master Plan is described in the City's PEIR. As part of its Recycled Water Master Plan, the City anticipates using treated effluent that is currently discharged into the Santa Ana River in excess of the City's obligation to discharge 15,250 afy into the River. The City represents that the PEIR and the Recycled Water Master Plan recognize and are consistent with the City's obligation to continue discharging 15,250 afy into the River and its other obligations under the 1969 Judgment.

I. The Parties have discussed their claims of right to divert, extract, use, conserve, store, or sell waters, including reclaimed waters. The Parties intend by this Agreement to resolve the City's protest to the OCWD Application.

J. The Parties agree that conjunctive use of water and utilization of reclaimed water to the maximum extent feasible within the SAR Watershed are important measures to maximize beneficial use of the water resources of the People of California.

AGREEMENTS

NOW THEREFORE the Parties agree as follows:

1. AFFIRMATION OF THE 1969 JUDGMENT

The Parties each acknowledge and affirm their respective rights and obligations, and those of the other Party, as set forth in the 1969 Judgment. Nothing in this Agreement is intended to diminish or abridge those rights and obligations.

OCWD also represents that nothing in the OCWD Application is intended to diminish rights of the Upper Area parties as they are set forth in the 1969 Judgment and OCWD agrees that it will not seek to compel City to continue to release flows in excess of those required under the 1969 Judgment. OCWD agrees that it will comply with all applicable provisions of the 1969 Judgment.

The Parties will ask the SWRCB to incorporate the entire 1969 Judgment into any permit/license to divert water resulting from its application.

The City represents that nothing in its Recycled Water Master Plan is intended to diminish rights of the Lower Area entities as they are set forth in the 1969 Judgment. The City agrees that it will comply with all applicable provisions of the 1969 Judgment.

2. DISMISSAL OF CITY'S PROTEST

Within 21 days after the effective date of this Agreement, the City will notify the SWRCB that the City withdraws its protest to the OCWD Application, subject to the request that the SWRCB's final order on the OCWD Application and any permit or license issued pursuant thereto incorporate the 1969 Judgment and this Agreement.

3. PEIR

Without waiving OCWD's rights to protect water quality of the water reaching Prado Dam, as long as the City is in material compliance with this agreement, OCWD will not bring, or join in, or assist in any protest before the SWRCB related to the City's Application No. 31372 to Appropriate Water from the Santa Ana River and/or any Change Petition(s) related to the subject of that Application (i.e., the City's appropriation of its treated effluent) nor will OCWD bring, or join in, or assist in any court or administrative action to challenge the City's PEIR, subject to the express condition that the City will not contend in any forum, now or in the future, that OCWD's

forbearance on the PEIR operates to bar, preclude or otherwise undermine OCWD's position that native water shall not be exported from the Watershed. Nothing herein prevents OCWD from challenging future environmental documentation or future projects. The parties will timely meet and confer in good faith with respect to any such challenges.

4. OCWD'S EIR

As long as OCWD is in material compliance with this Agreement, City will not bring or join in or assist in any court or administrative action to challenge OCWD's recirculated EIR, and the City will not make any other comments on OCWD's EIRs, draft or final, for projects covered by OCWD's Application.

5. NO CHALLENGE TO CITY'S CONSERVATION EFFORTS

Without waiving OCWD's rights to protect water quality of the water reaching Prado Dam, OCWD will not object to or bring, join in, or assist in any court or administrative action to challenge the City on projects to conserve and use recycled water within the Watershed, as long as such projects are consistent with the 1969 Judgment.

6. SPECIFIC ENFORCEMENT

The Parties agree that violation of the provisions of this Agreement cannot be adequately compensable in damages, and that the Parties lack an adequate remedy at law, and therefore agree that in any action to enforce this Agreement, this Agreement may be specifically enforced by any court of competent jurisdiction and any violation or threatened violation thereof may be enjoined.

The undersigned covenant and represent that they are duly and properly authorized to execute this Agreement and thereby bind the Party for whom they sign.

ORANGE COUNTY WATER DISTRICT

By: _____
Philip L. Anthony, President

Date: 6-7-06

By: _____
Virginia Grebbien, General Manager

Date: 6-13-06

APPROVED AS TO FORM
By _____
General Counsel for
Orange County Water District

CITY OF RIVERSIDE

By: _____
Michael J. Beck, Assistant City Manager

Date: July 24, 2006

Attest
By: _____
City Clerk

Date: July 24, 2006

APPROVED AS TO FO
CITY ATTORNEY'S OFFICE
_____
Deputy City Attorney

RECORDED PLEASE RETURN TO:

San Bernardino Valley
Water Conservation District
303 Brookside Avenue
Redlands, CA 92373

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NO FEE
A

RECORDED IN OFFICIAL RECORDS
SEP 9 1976 AT 8 A.M.
V. DENNIS WARDLE
CLERK-RECORDER
SAN BERNARDINO COUNTY, CALIF.

SANTA ANA RIVER – MILL CREEK

COOPERATIVE WATER PROJECT AGREEMENT

MAY 3, 1976

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SANTA ANA RIVER - MILL CREEK

COOPERATIVE WATER PROJECT AGREEMENT

This Agreement is concluded by and between the Parties hereto to provide for the efficient and economical use of Local and Import Water supplies and shall be known as "The Cooperative Water Project Agreement," hereinafter sometimes referred to as "Agreement."

1. RECITALS

The Eligible Entities (as hereinafter defined), other than the San Bernardino Valley Municipal Water District, have water rights, including in certain cases water rights on the Santa Ana River and on Mill Creek, and have, in many cases for over seventy years, exercised those water rights for the purpose of supplying water to the water users of their respective Entities. Such Entities also have existing facilities which they have used for the development, diversion, and transmission of water from their respective sources of supply.

The San Bernardino Valley Water Conservation District has been engaged for many years in conserving and spreading water from the Santa Ana River and Mill Creek for the purpose of groundwater replenishment pursuant to rights which it holds for such purpose.

The San Bernardino Valley Municipal Water District has a contract with the State of California Department of Water Resources pursuant to the State Water Project under which it is importing a water supply into the San Bernardino Valley. Said District is presently engaged in the construction of local distribution facilities to make Import Water available for direct delivery, including groundwater recharge.

Pursuant to engineering studies which indicate that all of the Eligible Entities, as defined herein, will benefit from a cooperative water supply plan, it is the desire of the Parties to provide for the Parties' beneficial use of existing Local Water and of the available Import Water supply on an integrated basis utilizing various exchanges and transfers in order to provide the most economical, efficient, and dependable supply possible at a minimum of expense to water users and the taxpayers and to conserve energy. The studies indicate that the plan is of mutual benefit to all of the Eligible Entities and that

there will be no adverse effects or penalties to any of them or to other Entities not signatory to this Agreement.

2. DEFINITIONS

As used herein, the following terms shall have the meanings set forth below:

a. Entity: An individual, partnership, corporation (including a mutual water company), or public agency.

b. Eligible Entity: Any Entity eligible to become a Party hereto as set forth in Section 3, below.

c. Party: Any Eligible Entity signatory to this Agreement in accordance with its terms and conditions.

d. Management Committee: The committee comprised of one representative from each Party to this Agreement.

e. Project Manager: The San Bernardino Valley Water Conservation District or any other public agency appointed by the Management Committee and approved by the San Bernardino Valley Municipal Water District, acting under the supervision of the Management Committee.

f. Import Water: Water imported by and belonging to San Bernardino Valley Municipal Water District pursuant to its contract with the State of California Department of Water Resources from the State Water Project.

g. Local Water: All water supplies, except Import Water, available to an Entity.

h. Entitlement Water: Local Water to which a Party has an entitlement as described in Exhibit A, which water rights are not necessarily any Party's total claim to water rights in the respective source listed. This definition is solely for purposes of this Agreement and not for the purpose of defining or establishing water rights with respect to any Party.

i. Exchange Water: Local Water or Import Water delivered to a Party in exchange for Entitlement Water. The quantity of Exchange Water delivered to a Party plus Deferred Exchange Water Credits earned by a Party shall be equal to the quantity of that Party's Entitlement Water delivered to and used by the Management Committee.

j. Simultaneous Exchange: Delivery of Exchange Water substantially at the same time the Party's Entitlement Water is being delivered to others. Unless otherwise provided in the rules adopted by the Management Committee, delivery of Simultaneous Exchange Water shall be at the same rate of flow and completed within 24 hours of the delivery of Entitlement Water.

k. Deferred Exchange: Delivery of Entitlement Water to others for a future delivery of Exchange Water. Deferred Exchange shall be made only as provided in Section 5f below.

l. Deferred Exchange Water Credit: A water credit for the quantity of Entitlement Water delivered to others in a Deferred Exchange.

m. Supplemental Water: Any water requested by and delivered to a Party other than said Party's Entitlement Water or Exchange Water.

n. Cooperative Water Project Facilities: Certain facilities constructed or to be constructed and owned and maintained by San Bernardino Valley Municipal Water District which shall be operated by the San Bernardino Valley Municipal Water District in accordance with the Project Manager's instructions to effectuate this Agreement, subject to the provisions of Section 15. These facilities are shown conceptually on Plate I herein.

o. Associated Water Facilities: Water facilities at or near the mouth of Santa Ana Canyon and Mill Creek owned by various Parties to this Agreement which shall be operated by the owners thereof in accordance with the Project Manager's instructions to effectuate this Agreement, as shown generally on Plates 2 and 3 herein.

p. Cooperative Water Project: Those facilities and the operational plan defined herein that permit the substitution of Exchange Water for Entitlement Water.

q. Historical Conditions: Methods and facilities used to take Entitlement Water into the respective distribution systems of the Parties prior to construction of the Cooperative Water Project Facilities.

r. Edison Company: The Southern California Edison Company, a corporation organized under the laws of the State of California.

s. Year: A calendar year unless specified otherwise.

t. State Contract: Contract between the State of California Department of Water Resources and the San Bernardino Valley Municipal Water District for a Water Supply, dated December 30, 1960, and all amendments thereto, heretofore or hereafter concluded.

3. ELIGIBLE ENTITIES

The following Entities shall be eligible to become Parties to this Agreement:

a. Bear Valley Mutual Water Company, a mutual water company, hereinafter referred to as "Bear Valley."

b. City of Redlands, a municipal corporation, hereinafter referred to as "Redlands."

c. Crafton Water Company, a mutual water company, hereinafter referred to as "Crafton."

d. East San Bernardino County Water District, a county water district organized and existing under the County Water District Law, Water Code Sections 30000, et seq, hereinafter referred to as "East San Bernardino." EVWD

e. Lugonia Water Company, a mutual water company, hereinafter referred to as "Lugonia."

f. North Fork Water Company, a mutual water company, hereinafter referred to as "North Fork."

g. Redlands Water Company, a mutual water company, hereinafter referred to as "Redlands Water."

h. San Bernardino Valley Munici al Water District, a municipal water district organized and existing under the Municipal Water District Law of 1911, Water Code Sections 71000, et seq, hereinafter referred to as "Valley District."

i. San Bernardino Valley Water Conservation District, a water conservation district organized and existing under the Water Conservation District Law of 1931, Water Code Sections 74000, et seq, hereinafter referred to as "Conservation District."

j. Yucaipa Valley County Water District, a county water district organized and existing under the County Water District Law, Water Code Sections 30000, et seq, hereinafter referred to as "Yucaipa District."

4. CONSTRUCTION OF COOPERATIVE WATER PROJECT FACILITIES

Subject to availability of funds, to budgetary, supply, and construction restraints, and to obtaining necessary approvals, permits, and agreements, Valley District shall design and construct the Cooperative Water Project Facilities so as to provide for delivery of water at the maximum flow rates and at the delivery points hereinafter specified. Each of the Parties shall have reasonable opportunity to inspect and study the Valley District's plans and specifications for all Cooperative Water Project Facilities during the planning stage and prior to the solicitation of bids for the construction thereof and may make comments and recommendations thereon to Valley District. Valley District shall make all reasonable efforts to commence construction of the first increment of the Cooperative Water Project Facilities, which consist of the facilities listed in Exhibit D, on or before

April 1, 1977, and bring the first increment to completion with reasonable diligence thereafter. Construction of additional increments will be scheduled by Valley District on a basis of need to meet water demands as determined by Valley District in consultation with the Management Committee. The obligations of Valley District hereunder shall be subject to the following specific conditions:

a. Facilities shown on Exhibit D which are required exclusively or primarily to deliver water to an Eligible Entity which does not become a Party to this Agreement by the effective date of this Agreement need not be built as a part of the first increment of the Cooperative Water Project Facilities nor at any subsequent time until the Eligible Entity shall become a Party.

b. The construction of facilities which would be physically, legally, or economically usable only in the event of the conclusion of the agreement with Edison Company provided for in Section 10 hereof shall be contingent upon the satisfactory conclusion of such an agreement.

c. The construction of facilities which are subject to a requirement of obtaining an approval or permit either for the construction of or for the use of such facilities shall be contingent upon obtaining such approval or permit in form satisfactory to Valley District. Valley District shall attempt to obtain all necessary approvals and permits with reasonable diligence.

d. Valley District with the advice of the Management Committee will schedule the construction of the facilities listed in Exhibit D to keep expenditures within the funds available to Valley District for construction of said facilities.

5. DELIVERY PROVISIONS

a. General

Subject to the delivery of Exchange Water by the Management Committee to replace any Entitlement Water delivered pursuant hereto, each of the Parties having Entitlement Water hereby makes available to the Management Committee said Party's supply of Entitlement Water for delivery and use pursuant to the terms of this Agreement.

East San Bernardino hereby makes available to the Management Committee, for exchange, water it is entitled to receive from North Fork by virtue of its ownership of North Fork stock. However, at such time as North Fork becomes a Party to this Agreement, East San Bernardino shall no longer be required to make the water from its stock ownership in North Fork available for exchange.

The Management Committee may cause delivery of water to be made to any Party entitled to and/or requesting said delivery from any source available to the Management Committee. In exercising its discretion hereunder, the Management Committee shall act on the basis of securing the maximum efficiency and economy in the use of the Local and Import Water supplies available to it.

All water deliveries shall be subject to:

(1) Rules and regulations adopted by the Management Committee.

(2) Scheduling requirements of the Management Committee.

(3) Payment of any charge imposed therefor.

(4) Limitations of available water supplies and capacity in the delivery facilities (including Valley District's Foothill Pipeline).

b. Import Water

Valley District hereby makes Import Water available to the Management Committee as scheduled for delivery and use as Exchange Water and Supplemental Water, subject to the availability of Import Water from the State Water Project, the equal rights of others within the boundaries of Valley District to receive Import Water, requirements for water service other than pursuant hereto, all of the requirements imposed by Valley District's contract with the State of California Department of Water Resources, and all applicable laws and regulations of water service.

c. Exchange Water and Supplemental Water

The Management Committee shall cause to be delivered to each of the Parties Exchange Water to replace any Entitlement Water made available by such Party and used by the Management Committee by Simultaneous Exchange, unless otherwise scheduled by the Party concerned and approved by the Management Committee. Exchange Water shall be delivered to each of the Parties at the points and up to the maximum instantaneous rates of flow specified in Exhibit B.

In addition to such deliveries, the Management Committee shall schedule Supplemental Water deliveries to any Party requesting the same.

d. Use of Cooperative Water Project Facilities to Convey Entitlement Water

A Party may request from the Management Committee delivery of any portion of its Entitlement Water through the Cooperative Water Project Facilities subject to availability of capacity in said facilities and to scheduling limitations.

Nothing in this Agreement shall be construed as authorizing the transport of Entitlement Water outside the boundaries of Valley District without prior approval of the Management Committee; however, in the case of a Party whose own boundaries extend beyond the boundaries of Valley District, that Party may transport Entitlement Water anywhere within its own boundaries.

e. Local Water

The Management Committee shall cause to be delivered to Valley District upon request Local Water if made available by a Party or Parties at flow rates, times, and at the delivery points specified by Valley District to the extent possible, using Cooperative Water Project Facilities, subject to Valley District delivering to the Management Committee an equal quantity of Import Water at the flow rates, times, and to delivery points as required to permit the Management Committee to make said delivery of Local Water to Valley District.

f. Deferred Exchange Water

All Parties with Deferred Exchange Water Credits shall be entitled to receive Deferred Exchange Water for such credits upon request. A Party's Deferred Exchange Water Credits shall be utilized by said Party within a two-year period subsequent to the accumulation of Deferred Exchange Water Credits, unless approved otherwise by the Management Committee.

g. Priorities

After provision for deliveries is made to Valley District and the San Gorgonio Pass Water Agency pursuant to Section 15 of this Agreement, then in case of scheduling, water availability, or facility constraints in any portion of the Cooperative Water Project Facilities, water deliveries in such portion shall be scheduled by the Management Committee on the following basis:

(1) First priority shall be given to Simultaneous Exchange Water.

(2) Second priority shall be given to Deferred Exchange Water.

(3) Third priority shall be given to Supplemental Water.

(4) Fourth priority shall be given to Entitlement Water delivered through Cooperative Water Project Facilities.

(5) Fifth priority shall be any use of the Cooperative Water Project Facilities by parties other than Eligible Entities.

h. Instructions

The Project Manager shall issue all instructions as directed by the Management Committee necessary to deliver water under the terms of this Agreement to the Parties using the Cooperative Water Project Facilities and the Associated Water Facilities.

6. MANAGEMENT

a. Management Committee

A Management Committee comprised of one person representing each of the Parties is hereby established.

(1) Duties: The Management Committee shall be responsible for:

(a) Setting operating rules, regulations, and policies not covered herein;

(b) Approving or disapproving requests for scheduling deliveries of water;

(c) Supervising the work of the Project Manager;

(d) Assisting in resolving disputes between Parties; and,

(e) Advising Valley District on pertinent design, construction, operations, and pricing policies.

(2) Appointments and Terms: Each of the members of the Management Committee shall be appointed by the Party he represents and shall serve at the pleasure of the appointing Party for a period of four (4) years and/or until appointment of a replacement. Notice of appointments shall be filed with the Project Manager. Members shall receive no compensation for their services; provided that in each case the appointing Party may provide such compensation as it deems appropriate.

(3) Quorum and Vote Required for Action: A majority of the members of the Management Committee not in default of this Agreement shall constitute a quorum for the transaction of business, and the vote of a majority of all of the members of the Committee shall be required to take any action.

(4) Officers: At its first meeting in each Year, the Management Committee shall select a chairman and such other officers as it may require. The Management Committee shall select a secretary who may be, but need not be, a member of the Management Committee. Said secretary shall keep an accurate record of all of its proceedings.

(5) Meetings and Notices: The Management Committee shall hold regular meetings at places and times to be specified in the rules to be adopted by the Management Committee. Notice of the scheduled or regular meetings and of any changes in time or place thereof shall be mailed to all persons who shall have filed a request therefor in writing with the Management Committee.

(a) Special meetings may be called at any time by the chairman or by any three (3) members of the Management Committee and shall be noticed as required by Government Code Section 54956.

(b) All meetings of the Management Committee shall be held in conformance with the requirements of Government Code Sections 54950, et. seq.

(6) Incurring of Expenses: Except as herein specifically provided, the Management Committee shall not be authorized to incur any expense on behalf of any or all of the Parties without the written consent of such Party or Parties.

b. Project Manager

Subject to the supervision of the Management Committee, the administration and management of the Cooperative Water Project Facilities shall be the responsibility of the Project Manager, which shall act as the executive arm of the Management Committee with the duty and responsibility to implement Management Committee rules, regulations, and policies and to direct the rate, time, place, and source of all water deliveries from the Cooperative Water Project Facilities and the Associated Water Facilities in accordance with the Management Committee's instructions.

c. Administrative Expenses

Expenses of the Project Manager and expenses of the Management Committee, except compensation for the services of the Management Committee members, shall be paid by Valley District. Valley District's payments for these expenses shall not exceed the budgeted amount set forth in an annual agreement between Valley District, the Project Manager, and the Management Committee without the consent of Valley District. Said agreement shall include terms and conditions of payment and rates of compensation for all services to be provided under said agreement.

7. OWNERSHIP AND OPERATION OF FACILITIES

Each of the Parties hereto shall retain the ownership of its own facilities together with full responsibility for their operation, maintenance, and replacement. The Associated

Water Facilities shall be operated in accordance with the Management Committee's instructions. The Cooperative Water Project Facilities shall be operated in accordance with the Project Manager's instructions to effectuate this Agreement, subject to the provisions of Section 15.

8. WATER QUALITY

All water delivered pursuant to this Agreement will be untreated and shall be of a quality suitable for its intended use, it being understood that suitability is to be determined by a rational method which includes consideration of the quality of the local water used prior to the adoption and implementation of this Agreement. This Agreement is adopted with the understanding that the present quality of Local, Exchange, Entitlement, Supplemental, and Import Water appears to be suitable for the intended uses. Each of the Parties agrees to operate its facilities so that the quality of the water is not impaired or degraded during diversion, transportation, or delivery.

If any Party is in violation of any water quality standards imposed on said Party by any governmental agency or unit because the quality of Exchange Water being delivered to said Party is lower than the quality of said Party's Entitlement Water, then said Party shall be entitled to revert to its Historical Conditions until the Exchange Water quality allows reasonable compliance with such standards.

9. RECORDS

Each Party hereto shall maintain such records and shall file such reports as may be reasonably required by the Management Committee and as may be required by law to protect any water rights affected hereby. In the event any of the Parties shall fail to maintain such records, the Management Committee may direct the Project Manager to estimate and maintain such records for such Party, and such Party shall be charged with the cost thereof.

The Project Manager shall be responsible for maintaining records on all water delivered pursuant to this Agreement.

The Management Committee shall have the right to measure flows of water as needed to satisfy the provisions of this Agreement; necessary access for said measurements will be provided without charge to the Management Committee by the Parties to this Agreement.

10. EDISON COMPANY AGREEMENTS

There are existing agreements between certain Parties to this Agreement and the Edison Company, including, but not limited to, a Grant Deed from Edison Company to Crafton dated February 27, 1929, and a Grant Deed from Crafton to Edison Company dated December 18, 1931. Valley District shall undertake with reasonable diligence to make the new arrangements and agreements with the Edison Company, Crafton and Bear Valley necessitated by the Cooperative Water Project Agreement and to use its best efforts therefor, provided that any such agreement which may in any way alter, modify, change, or affect the rights of any Party hereto under any existing agreements shall not be effective without the consent of such Party.

11. SHORTAGE OF SUPPLY OR TEMPORARY REDUCTION OR CESSATION OF DELIVERIES

a. Scheduled Shutdowns

Each of the Parties shall notify the Project Manager of a scheduled shutdown of any facility that would cause interruption of the Cooperative Water Project.

b. Interruption of Service

In the event of interruption of service in any portion of either the Cooperative Water Project Facilities or the Associated Water Facilities, the Project Manager may, to the extent possible, continue limited operations, and Parties whose delivery of Exchange Water has been interrupted will accrue Deferred Exchange Water Credit for such Exchange Water not delivered during the interruption of service, and such Deferred Exchange Water Credit shall not be subject to the two-year limitation stated in Section 5f but shall maintain its validity until used.

c. Temporary Discontinuance

If the Project Manager is unable to deliver quantities and qualities of water as provided for in this Agreement, it will immediately notify all the affected Parties that the Exchange Program is going to be temporarily discontinued until delivery schedules can be met or until the cause of the interruption is remedied.

After receiving notice of the temporary discontinuance of the Cooperative Water Project, each Party may revert to its Historical Condition.

When the Project Manager is again able to deliver the quantities and qualities of water as scheduled, it shall immediately notify the Parties and resume deliveries.

d. Continuity of Service

When it is necessary to interrupt service, the Project Manager and the Parties shall cooperate to minimize the down time and to restore service to all Parties as soon as possible.

12. BREACH

a. Right to Revert to Historical Conditions

In addition to any other remedies provided by law, in the event the terms and conditions of this Agreement are not complied with and there are no reasonable alternatives, any Party adversely affected by such breach and which is not itself in default may withhold delivery of its Entitlement Water and revert to its Historical Conditions until such breach is remedied.

b. Preliminary Determination of Serious Breach

A preliminary determination that such a breach has occurred may be made (1) by the Party concerned, with the concurrence of the Project Manager, or (2) without the concurrence of the Project Manager, in the manner hereinafter specified. In the event a Party claims such a breach has occurred and the Project Manager disagrees, the Party claiming breach has occurred shall poll other members of the Management Committee and, if any other two (2) members agree that such a breach has occurred, those members shall so certify to the Project Manager a breach has occurred. Immediately upon any preliminary determination that such breach has occurred, the Project Manager shall cause the Party claiming the breach to receive its Entitlement Water under Historical Conditions.

c. Rights to Judicial Relief Unaffected by Preliminary Determination

Nothing herein shall prevent any Party from seeking judicial relief either before or after any preliminary determination, and no preliminary determination shall be binding upon or affect the rights of any Party in connection with such a judicial proceeding.

13. WITHDRAWAL FROM THE COOPERATIVE WATER PROJECT AGREEMENT

No Party shall be entitled to withdraw from this Agreement without the written consent of all other Parties.

14. PROVISIONS WITH RESPECT TO PRESERVATION, TRANSFER, CONDEMNATION, AND DEFENSE OF WATER RIGHTS

With respect to the water rights to produce and use the Entitlement Water set forth in Exhibit A, it is agreed between the Parties hereto that the following shall apply:

a. Non-Use of Water

No Party hereto will lose any such water right by non-use, by use by another Party, by exchange, or by prescription.

b. Transfer

Each Party hereto may sell, mortgage, transfer, or otherwise alienate any such rights, provided that in the event of any such sale, transfer, foreclosure, or alienation of such rights, the transferee shall take such rights subject to the terms and conditions of this Agreement and shall be bound thereby. Prior to the consummation of any such sale, transfer, foreclosure, or alienation, the prospective transferee shall execute an instrument expressly assuming all of the obligations of the transferor under this Agreement with respect to such rights and deliver said instrument to the Management Committee. Until such instrument is so executed and delivered, such transaction shall be void.

c. Rights

The execution of this Agreement by the Parties hereto shall not be construed as constituting any alteration in the respective priorities or terms of any of the rights held by any of the Parties or any admission with respect to any of the rights or claims set forth herein. Between the Parties hereto the Management Committee shall consider that each Party has the rights claimed until otherwise instructed by the Party claiming such right or by the determination of the court with jurisdiction so to do.

d. Condemnation

Each of the Parties hereto, to the extent allowed by law, undertakes not to condemn or take, without consent of the owner thereof, any water rights, sources of water supply, water diversion, production or transmission facilities, or corporate stock owned by any Party hereto, which is subject to the terms of this Agreement, so long as the owner thereof is not in default hereunder.

e. Defense

Each of the Parties hereto shall be responsible for the defense of any rights claimed or asserted by it to produce and use the Entitlement Water set forth in Exhibit A hereto. As against anyone not a Party to this Agreement, Valley District shall defend this Cooperative Water Project Agreement and all rights arising from it.

f. Covenant and Lien

The provisions of this Agreement are hereby declared to be for the benefit of the water rights of the Parties hereto to produce and use the Entitlement Water set forth in Exhibit A. Said provisions are hereby made a covenant binding upon the owners of each such water right and their successors, heirs, transferees, and assigns for the benefit of the owners of each such other water right and their successors, heirs, transferees and assigns. The benefits and burdens of said covenant shall run with said water rights of the Parties hereto.

Each of the Parties hereto hereby grants a lien upon the said water rights to the other Parties hereto to secure its obligations hereunder, which lien shall be appurtenant to the said water rights of the other Parties hereto.

g. Successors and Assigns

Each and all of the terms, conditions, and provisions hereof shall inure to the benefit of and be binding upon the Parties hereto and their respective successors, heirs, transferees, and assigns.

h. None of the provisions of this Section 14 shall apply to or preclude Bear Valley from voluntarily or involuntarily transferring to Big Bear Municipal Water District, free and clear of any obligations of Bear Valley under this Agreement, all of the rights of Bear Valley to impound the natural water supply of Bear Valley behind Bear Valley Dam and later release such water which would otherwise flow in the Santa Ana River.

15. USE OF COOPERATIVE WATER PROJECT FACILITIES FOR DELIVERY OF WATER BY VALLEY DISTRICT

a. Use of Facilities

The Cooperative Water Project Facilities shall be available to Valley District for use as part of its water transmission facilities and may be used by it for the delivery of water to any Entity, whether a Party hereto or not.

b. San Gorgonio Pass Water Agency

Valley District has a contract with the San Gorgonio Pass Water Agency (Pass Agency) dated July 16, 1970, under which the Pass Agency has the option to obtain capacity in certain water transmission facilities constructed by Valley District and to receive deliveries of water or the right to operate the facilities, all upon the terms specified therein. The Cooperative Water Project Facilities to be constructed by Valley District constitute a portion of the water transmission facilities subject to the said contract, and in the event the Pass Agency exercises its option with respect thereto shall be constructed, maintained, and operated in compliance with the terms of the said contract.

SECTION 1611 of the CIVIL CODE

Ascertainment of Consideration:

When a contract does not determine the amount of the consideration nor the method by which it is to be ascertained or when it leaves the amount thereof to the discretion of an interested party, the consideration must be so much money as the object of the contract is reasonably worth.

16. WATER CHARGES AND PAYMENT PROVISIONS

Charges for water deliveries made under this Agreement and provisions for payment shall be as listed below.

Said charges shall be reasonable and shall conform to the applicable provisions of Section 1611 of the Civil Code, State of California.

a. Charge for Supplemental Water

The charges to be made by the Project Manager to any Party to this Agreement for Supplemental Water per acre-foot shall be computed by the following formula:

$$\text{Supplemental Water Charge per Acre-Foot} = E - S + C \quad \underline{\text{or}} \quad E - S + P + L$$

whichever is greater

where:

E = The variable operation, maintenance, power, and replacement component of the Department of Water Resources Transportation Charge per acre-foot* incurred by Valley District.

S = Direct water spreading costs per acre-foot spread by the Conservation District,. not to exceed $3.00 per acre-foot.

C = Dollar amount equal to power generation credit per acre-foot from Devil Canyon power generation plant.

P = Cost of energy incurred by Valley District to convey Supplemental or Entitlement Water to said Party per acre-foot.

L = Power loss charges incurred by Valley District in conveying Supplemental or Entitlement Water to said Party per acre-foot.**

As defined in Section 26 of the State Contract.

***Power loss charges are defined as those charges resulting from the loss of electric power generation from existing hydroelectric plants on Mill Creek and Santa Ana River.*

1986

If Valley District sets any charges upon a basis which, if applied, would result in a lower charge than is provided for above, then charges computed on said basis shall be substituted for the charges provided for above as long as said basis is in effect.

The charges for Supplemental Water provided for in this Agreement shall be in effect for a period beginning with the effective date of this Agreement and ending ten (10) years thereafter; beginning ten (10) years after the effective date of this Agreement the charges to Parties to this Agreement shall be as set by Valley District.

b. Simultaneous Exchange Water Charge

There are to be no charges made by the Project Manager to any Party for Simultaneous Exchange Water under the terms and conditions of this Agreement.

c. Deferred Exchange Water Charge

The charge to be made by the Project Manager to any Party to this Agreement for Deferred Exchange Water shall be the amount of all additional costs required to deliver water on the Deferred Exchange basis over and above the amount of the costs for making said deliveries on a Simultaneous Exchange basis.

d. Charges for Conveyance of Entitlement Water through Cooperative Water Project Facilities

Charges to be made by the Project Manager for the use of the Cooperative Water Project Facilities by Parties to this Agreement for conveyance of Entitlement Water shall be as follows: During the period beginning with the effective date of this Agreement and ending ten (10) years thereafter, $2.50 per acre-foot + P + L as P and L are defined above. Beginning ten (10) years after the effective date of this Agreement, these charges shall be as set by Valley District, except that they shall not exceed the following: The amount of all costs for making such deliveries including, but not limited to, operations, maintenance, energy, repair, replacement, overhead, and capital costs.

In the event the Management Committee with the approval of Valley District decides to convey all or any portion of the 9 cfs presently going from the forebay of Santa Ana Powerhouse No. 3 to the Boullioun Box through the Cooperative Water Project Facilities, that portion shall be exempt from any conveyance charge.

e. Provisions of Payment

Provisions for payment to the Project Manager by the Parties to this Agreement for water charges are as follows:

(1) The Project Manager shall provide monthly invoices to each Party of monies due the Project Manager.

(2) The Parties to this Agreement shall make payment to the Project Manager within thirty (30) days after receipt of said invoices.

(3) The Project Manager shall remit to Valley District all payments received under this Section within five (5) days of receipt.

17. ADDITIONAL PARTIES

After the effective date of this Agreement, additional Entities may become Parties hereto upon application to and approval by the Management Committee and written consent of all of the Parties not in default of this Agreement.

18. AMENDMENTS

This Agreement may be amended at any time by written agreement signed by all of the Parties.

19. OPINIONS AND DETERMINATIONS

Where the terms of this Agreement provide for action to be based upon the opinion, judgment, approval, review, or determination of any Party hereto, such terms are not intended to be and shall never be construed as permitting such opinion, judgment, approval, review, or determination to be arbitrary, capricious, or unreasonable.

20. NOTICE

Any notice pursuant hereto shall be deemed to have been properly given if delivered personally or if enclosed in a properly addressed envelope and deposited in the United States mail for delivery First Class, postage prepaid.

Unless and until formally notified otherwise, notice may be given to each of the Parties addressed as follows:

Bear Valley Mutual Water Company
101 East Olive Avenue
Redlands, California 92373

City of Redlands
P. O. Box 280
Redlands, California 92373

Crafton Water Company
P. O. Box 627
Mentone, California 92359

East San Bernardino County Water District
P. O. Box 3427
San Bernardino, California 92413

Lugonia Water Company
101 East Olive Avenue
Redlands, California 92373

North Fork Water Company
P. O. Box 3427
San Bernardino, California 92413

Redlands Water Company
101 East Olive Avenue
Redlands, California 92373

San Bernardino Valley Municipal Water District
P. O. Box 5906
San Bernardino, California 92412

San Bernardino Valley Water Conservation District
303 Brookside Avenue
Redlands, California 92373

Yucaipa Valley County Water District
P. O. Box 458
Yucaipa, California 92399

21. APPROVALS REQUIRED, EFFECTIVE DATE, AND MECHANICS OF EXECUTION

This Agreement shall become effective among the Parties executing the same sixty (60) days after it shall have been executed by the Conservation District, Valley District, Bear Valley, Crafton, Redlands, and Redlands Water.

This Agreement may be executed in counterparts so that the same copy need not be signed by each of the Parties hereto. Upon execution of each counterpart, said counterpart shall be delivered to the Conservation District and, when the required number of counterparts has been received, the Conservation District shall give notice to each of the Eligible Entities hereunder stating the date of execution of the last required counterpart and the date 60 days thereafter upon which the Agreement shall become effective. Upon such effective date, this Agreement shall become effective among all of the Eligible Entities which have executed said Agreement by said effective date, and the Conservation District shall attach all of the signature pages from the counterparts to one copy of the Agreement and shall mail a copy of the conformed Agreement to each of the Parties executing the same. From and after the effective date, any non-signatory Entity shall be eligible to become a Party hereto only in the manner provided in Section 17.

IN WITNESS WHEREOF, the parties do execute this Agreement herein by act of their duly authorized representatives undersigned.

DATED: May 5-1976

BEAR VALLEY MUTUAL WATER COMPANY

By Donald S C Anderson
President

Betty Farquhar
Secretary

Approved:
SURR & HELLYER
By Robert J Birschbach
Attorney

DATED May 6, 1976

SANTA ANA RIVER – MILL CREEK
COOPERATIVE WATER PROJECT AGREEMENT

MAY 3, 1976

STATE OF CALIFORNIA)
: ss.
COUNTY OF SAN BERNARDINO)

On this 6th day of May, 1976, before me, the undersigned a Notary Public in and for said County and State, personally appeared ROBERT J. BIERSCHBACH, a member of the law firm of SURR & HELLYER, known to me to be the person who executed the foregoing instrument on behalf of said law firm, and acknowledged to me that such law firm executed the same.

WITNESS my hand and official seal.

(OFFICIAL SEAL)
MOIRE E. ALEXANDER
NOTARY PUBLIC - CALIFORNIA
SAN BERNARDINO COUNTY
My Commission Expires Oct. 26, 1978

Moire E. Alexander
Notary Public

STATE OF CALIFORNIA)
: ss.
COUNTY OF SAN BERNARDINO)

On this 6th day of May, 1976, before me, the undersigned, a Notary Public in and for said County and State, personally appeared DONALD C. S. ANDERSON, known to me to be the President, and BETTY FARQUHAR, known to me to be the Secretary, of BEAR VALLEY MUTUAL WATER COMPANY, a corporation, the corporation that executed the within instrument, and known to me to be the persons who executed said instrument on behalf of said corporation, and acknowledged to me that such corporation executed the same.

WITNESS my hand and official seal.

OFFICIAL SEAL
PATRICIA L. MERRITT
NOTARY PUBLIC CALIFORNIA
PRINCIPAL OFFICE IN
SAN BERNARDINO COUNTY
My Commission Expires October 2, 1979

Patricia L. Merritt
Notary Public

IN WITNESS WHEREOF, the parties do execute this Agreement herein by act of their duly authorized representatives undersigned.

DATED: June 15, 1976

CITY OF REDLANDS

By _____
Mayor

By _____
City Clerk

Approved:

_____
Attorney

OFFICIAL SEAL
LORETTA C. POYZER
NOTARY PUBLIC - CALIFORNIA
SAN BERNARDINO COUNTY
My Commission Expires June 3, 1977

State of California)
County of San Bernardino) SS

On June 15, 1976, before me, the undersigned, a Notary Public in and for said State, personally appeared Charles G. DeMirjyn, known to me to be the Mayor, and Peggy A. Moseley, known to me to be the City Clerk of the City of Redlands that executed the within Instrument, on behalf of the City of Redlands and acknowledged to me that the City of Redlands executed the within instrument pursuant to its City Council meeting of June 15, 1976.

WITNESS my hand and official seal.

_____
Loretta C. Poyzer
DATED _____

SANTA ANA RIVER – MILL CREEK
COOPERATIVE WATER PROJECT AGREEMENT

MAY 3, 1976

IN WITNESS WHEREOF, the parties do execute this Agreement herein by act of their duly authorized representatives undersigned.

CRAFTON WATER COMPANY

By _____
President

_____
Secretary

Approved:

_____
Attorney

DATED June 16, 1976

SANTA ANA RIVER – MILL CREEK
COOPERATIVE WATER PROJECT AGREEMENT

MAY 3, 1976

BOOK 9008 PAGE 21

STATE OF CALIFORNIA
COUNTY OF SAN BERNARDINO } SS.

On June 16, 1976 before me, the undersigned, a Notary Public in and for said County and State, personally appeared Ralph F. Sechrest, known to me to be the President, and Peggy A. Jacinto, known to me to be Secretary of the corporation that executed the within Instrument, known to me to be the persons who executed the within Instrument on behalf of the corporation therein named, and acknowledged to me that such corporation executed the within instrument pursuant to its by-laws or a resolution of its board of directors.

Signature Alice E. Smith

Alice E. Smith
Name (Typed or Printed)
Notary Public in and for said County and State

FOR NOTARY SEAL OR STAMP

OFFICIAL SEAL
ALICE E SMITH
NOTARY PUBLIC CALIFORNIA
PRINCIPAL OFFICE IN
SAN BERNARDINO COUNTY
My Commission Expires December 29, 1978

IN WITNESS WHEREOF, the parties do execute this Agreement herein by act of their duly authorized representatives undersigned.

EAST SAN BERNARDINO
COUNTY WATER DISTRICT

By Philip A. Davis
President

Bennie R. Eastwood
Secretary

Approved:

Robert J. Jarvis
Attorney

DATED August 9, 1976

SANTA ANA RIVER – MILL CREEK
COOPERATIVE WATER PROJECT AGREEMENT

MAY 3, 1976

BOOK 9008 PAGE 30

STATE OF CALIFORNIA,
COUNTY OF SAN BERNARDINO } ss.

ON August 9, 19 76,
before me, the undersigned, a Notary Public in and for said State, personally appeared

Philip A. Disch, Bonnie R. Eastwood and Robert J. Farrell, known to me,

to be the person s whose name s are subscribed to the within Instrument,
and acknowledged to me that they executed the same.

WITNESS my hand and official seal.

ELISABETH PERKINS
NOTARY PUBLIC
SAN BERNARDINO COUNTY
CALIFORNIA
My Commission Expires February 26, 1978

Elisabeth Perkins

Notary Public in and for said State.

ACKNOWLEDGMENT—General—Wolcotts Form 233—Rev. 3-64

IN WITNESS WHEREOF, the parties do execute this Agreement herein by act of their duly authorized representatives undersigned.

LUGONIA WATER COMPANY

By _____
President

_____
Secretary

Approved:

_____
Attorney

DATED May 20, 1976

STATE OF CALIFORNIA)
) ss.
County of San Bernardino)

On May 20, 1976, before me, the undersigned, a Notary Public in and for said County and State, personally appeared G. R. REES, BETTY FARQUHAR and EDWIN B. HALES, known to me to be the persons whose names are subscribed to the within instrument and acknowledged that they executed the same.

_____
EDWIN R. HALES, Notary Public

OFFICIAL SEAL
EDWIN R. HALES
NOTARY PUBLIC - CALIFORNIA
PRINCIPAL OFFICE IN
SAN BERNARDINO COUNTY
My Commission Expires March 13, 1978

SANTA ANA RIVER – MILL CREEK
COOPERATIVE WATER PROJECT AGREEMENT

MAY 3, 1976

IN WITNESS WHEREOF, the parties do execute this Agreement herein by act of their duly authorized representatives undersigned.

SANTA ANA RIVER - MILL CREEK

COOPERATIVE WATER PROJECT AGREEMENT

MAY 3, 1976

NORTH FORK WATER COMPANY

By Arnold L. Wright
President

Howard H Hendricks
Secretary

Approved:

Howard F. Green
Attorney

Dated: 8-4-76

STATE OF CALIFORNIA
COUNTY OF SAN BERNARDINO } ss.

On AUGUST 4th 1976 before me, the undersigned, a Notary Public in and for said State, personally appeared ARNOLD L. WRIGHT, known to me to be the President, and HOWARD H HENDRICKS known to me to be the Secretary of the Corporation that executed the within Instrument, known to me to be the persons who executed the within Instrument on behalf of the Corporation therein named, and acknowledged to me that such corporation executed the within instrument pursuant to its by-laws or a resolution of its board of directors.

WITNESS my hand and official seal.

(Seal) Leroy H. Roebke

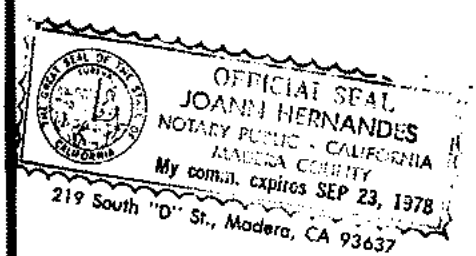
NAME (TYPED OR PRINTED)
Notary Public in and for said State

LEROY H. ROEBKE
NOTARY PUBLIC
SAN BERNARDINO COUNTY
CALIFORNIA
My Commission Expires May 11 1979

Acknowledgment—Corp.—Wolcotts Form 224-S

LEROY H. ROEBKE
NOTARY PUBLIC
SAN BERNARDINO COUNTY
CALIFORNIA
My Commission Expires May 11, 1979

STATE OF CALIFORNIA
COUNTY OF Madera } ss.



On this 10th day of August in the year one thousand nine hundred and -76- before me, the undersigned, a Notary Public, State of California, duly commissioned and sworn, personally appeared Denslow Green

known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same.

IN WITNESS WHEREOF I have hereunto set my hand and affixed my official seal in the County of Madera the day and year in this certificate first above written.

Notary Public, State of California

My commission expires 9-23-78

Cowdery's Form No. 32—Acknowledgement—General (C. C. Sec. 1190a) Printed 12/72

IN WITNESS WHEREOF, the parties do execute this Agreement herein by act of their duly authorized representatives undersigned.

REDLANDS WATER COMPANY

By _____
President

_____
Secretary

Approved:

_____
Attorney

DATED June 7 1976

SANTA ANA RIVER – MILL CREEK
COOPERATIVE WATER PROJECT AGREEMENT

MAY 3, 1976

TO 449 C
(Corporation)

STATE OF CALIFORNIA
COUNTY OF San Bernardino } SS.

On June 7, 1976 before me, the undersigned, a Notary Public in and for said State, personally appeared Lloyd Yarbrough

known to me to be the _____ President, and Betty Farquhar

known to me to be _____ Secretary of the corporation that executed the within Instrument, known to me to be the persons who executed the within Instrument on behalf of the corporation therein named, and acknowledged to me that such corporation executed the within instrument pursuant to its by-laws or a resolution of its board of directors.

WITNESS my hand and official seal.

Signature Elaine V. Leathy

Elaine V. Leathy
Name (Typed or Printed)

OFFICIAL SEAL
ELAINE V. LEATHY
NOTARY PUBLIC - CALIFORNIA
SAN BERNARDINO COUNTY
My Commission Expires April 11, 1977

(This area for official notarial seal)

STAPLE HERE

IN WITNESS WHEREOF, the parties do execute this Agreement herein by act of their duly authorized representatives undersigned.

SAN BERNARDINO VALLEY
MUNICIPAL WATER DISTRICT

By _____
President

_____
Secretary

Approved:

_____
Attorney

DATED July 6, 1976

SANTA ANA RIVER – MILL CREEK
COOPERATIVE WATER PROJECT AGREEMENT

MAY 3, 1976

BOOK 9008 PAGE 37

STATE OF CALIFORNIA,
COUNTY OF SAN BERNARDINO } ss.

ON July 6, 1976,
before me, the undersigned, a Notary Public in and for said State, personally appeared

Lloyd Yount, LeRoy Holmes, and James W. Dilworth

known to me,
to be the persons whose names are subscribed to the within Instrument,
and acknowledged to me that they executed the same.

WITNESS my hand and official seal.

Brenda M. McCullough
Notary Public in and for said State.

OFFICIAL SEAL
BRENDA M. McCULLOUGH
NOTARY PUBLIC - CALIFORNIA
SAN BERNARDINO COUNTY
My Commission Expires July 11, 1977

ACKNOWLEDGMENT—General—Wolcotts Form 233—Rev. 3-64

IN WITNESS WHEREOF, the parties do execute this Agreement herein by act of their duly authorized representatives undersigned.

SAN BERNARDINO VALLEY
WATER CONSERVATION DISTRICT

By _____
President

_____
Secretary

Approved:

_____
Attorney

DATED June 7, 1976

STATE OF CALIFORNIA]
COUNTY OF SAN BERNARDINO] ss.

On June 7, 1976, before me, a Notary Public in and for said State, personally appeared ROBERT T. PAINE, known to me to be the President, and W. J. HILTGEN, known to me to be the Secretary, of SAN BERNARDINO VALLEY WATER CONSERVATION DISTRICT, the corporation that executed the within instrument, and known to me to be the persons who executed the within instrument on behalf of the said corporation, and acknowledged to me that such corporation executed the same pursuant to its by-laws or a resolution of its board of directors.

WITNESS my hand and official seal.

_____
RICHARD A. MULLIGAN

RICHARD A. MULLIGAN
NOTARY PUBLIC
SAN BERNARDINO COUNTY
CALIFORNIA
My Commission Expires October 30, 1977

STATE OF CALIFORNIA
COUNTY OF SAN BERNARDINO } ss.

ON JUNE 7, 19 76,
before me, the undersigned, a Notary Public in and for said State, personally appeared
RICHARD A. MULLIGAN

, known to me,
to be the person whose name is subscribed to the within instrument,
and acknowledged to me that he executed the same.

WITNESS my hand and official seal.

(OFFICIAL SEAL)
SHERRY L. TUCKER
NOTARY PUBLIC - CALIFORNIA
SAN BERNARDINO COUNTY
My Commission Expires Jan. 13, 1980

Sherry L. Tucker
Notary Public in and for said State.

ACKNOWLEDGMENT—General—Wolcotts Form 231—Rev. 3-64

IN WITNESS WHEREOF, the parties do execute this Agreement herein by act of their duly authorized representatives undersigned.

YUCAIPA VALLEY COUNTY
WATER DISTRICT

By _____
President

_____
Secretary

Approved:

_____
Attorney

DATED August 26, 1976

SANTA ANA RIVER – MILL CREEK
COOPERATIVE WATER PROJECT AGREEMENT

MAY 3, 1976

STATE OF CALIFORNIA }
COUNTY OF San Bernardino } SS.

On August 26, 1976, before me, the undersigned, a Notary Public in and for said State, personally appeared Geno Gasponi known to me to be the ..... President, and Ira B. Pace, known to me to be the ..... Secretary of the ~~Corporation~~ water district that executed the within Instrument, known to me to be the persons who executed the within Instrument on behalf of the Corporation therein named, and acknowledged to me that such Corporation executed the same, and acknowledged to me that such Corporation executed the within Instrument pursuant to its by-laws or a resolution of its board of directors.

WITNESS my hand and official seal.

* to be known as water district

(Seal)

OFFICIAL SEAL
JUNE I. HODGINS
NOTARY PUBLIC
PRINCIPAL OFFICE IN
SAN BERNARDINO COUNTY
My Commission Expires Sept. 23, 1977

June I. Hodgins
(Notary Public's Signature)

(Name - *Typed or Printed*)
Notary Public in and for said State

2307
MIS 3513 8-63* 25 Corporation Notarial Acknowledgment

EXHIBIT A

ENTITLEMENTS TO WATER

Santa Ana River

The general features for conveying Santa Ana River water are shown on Plate 2 herein.

Edison Company diverts water from the Santa Ana River at the confluence of Bear Creek and the Santa Ana River. This use of water is based on an agreement with Bear Valley and a license issued to the Edison Company by the Federal Power Commission.

Water so diverted is conveyed by the Edison Company through a series of tunnels, flumes, and canals through Santa Ana Powerhouse No. 1 and Santa Ana Powerhouse No. 2 to the forebay of Santa Ana Powerhouse No. 3.

At the forebay to Powerhouse No. 3 Bear Valley takes delivery of up to nine (9) cfs, which is conveyed through the Bear Valley High Line (capacity controlled by Crafton Heights Pipeline Company).

The remaining water in the Edison Company facility is dropped through Powerhouse No. 3. At the tailrace of Powerhouse No. 3 certain quantities of water are delivered into the facilities of North Fork and certain quantities are delivered into the Redlands Canal of Bear Valley.

There is an agreement between North Fork and Bear Valley which sets forth the entitlements to water of the respective parties. Said agreement is recorded in the official records of San Bernardino County, State of California, Agreement File E, pages 178 - 187, dated July 3, 1885.

There is an agreement between Bear Valley and Lugonia (South Fork). This agreement sets forth the entitlement to water of the respective parties.

It is the intention of this Cooperative Water Project Agreement that the Management Committee and/or Parties to this Agreement will not do anything which will in any way diminish or interfere with the quantities of water each of the Parties referred to in the two agreements above is entitled to receive as its respective proportionate share of the available supply.

The Conservation District diverts storm flows and waters in excess of the needs of the aforementioned companies at the mouth of Santa Ana Canyon for the purpose

of spreading and percolating to replenish the groundwater supply. The diversion by the Conservation District is covered by Licenses Nos. 2831 and 2832 issued by the State of California.

Redlands Water diverts water from a tunnel at the mouth of Santa Ana Canyon. Water is conveyed from the tunnel to the Redlands Aqueduct via a pipeline located on the west side of Greenspot Road.

Mill Creek

The general features of conveying Mill Creek water are shown on Plate 3 herein.

Edison Company diverts water from Mill Creek near Forest Home in Mill Creek Canyon. This use of water is based on agreements with certain water purveyors and a license issued to the Edison Company by the Federal Power Commission.

Water is conveyed through Edison Company facilities, including Mill Creek Powerhouses Nos. 3, 2, and 1.

After passing through Mill Creek Powerhouse No. 1, water is conveyed across Mill Creek to a point where it is divided; some going to Redlands, some to Crafton, and that portion above the needs of the two parties being returned to the channel of Mill Creek for spreading.

The amount of water each of the two Entities receives is based upon the ownership of "Zanja hours" per certain deeds and other factors as determined between Redlands and Crafton.

It is the intent of this Cooperative Water Project Agreement that the Management Committee and/or the Parties to this Agreement will not do anything which will in any way diminish or interfere with the quantities of water each of the Parties is entitled to receive as its respective proportionate share of the available supply.

The Conservation District has historically diverted stormflows and water in excess of the needs of Redlands and Crafton for the purpose of spreading and percolating to replenish the groundwater supply.

EXHIBIT B

ENTITLEMENT WATER

MAXIMUM INSTANTANEOUS RATES OF FLOW AND DELIVERY POINTS

(See Plates 2 and 3 attached hereto.)

Maximum Instantaneous Rates of Flow

Redlands
Crafton

32 cfs together.

Bear Valley
Lugonia
North Fork

88 cfs together.

Conservation District

The maximum instantaneous rate of flow that would be available if there was no Cooperative Water Project and all Parties were operating under Historical Conditions.

Delivery Points

Redlands - Mill Creek

Into the influent pipeline into Redlands' Henry Tate Filter Plant at a point within the Plant site located south of Mill Creek Road in the Northeast Quarter of Section 22, T. 1 S., R. 2 W., SBB&M.

Crafton - Mill Creek

Into the Zanja near the Boullioun Box and into the influent pipeline into the Redlands' Henry Tate Filter Plant.

Conservation District - Santa Ana and Mill Creek

a. Mill Creek - In the channel of Mill Creek above the existing intake structure located on the south bank of Mill Creek in the Northeast Quarter of Section 21, T. 1 S., R. 2 W., SBB&M.

EXHIBIT B
Continued

b. Santa Ana - The existing main canal of the Conservation District located on the south side of Greenspot Road in the Northeast Quarter of Section 7, T. 1 S., R. 2 W., SBB&M.

North Fork and Bear Valley - Santa Ana

At the existing North Fork Box located on the north side of the Conservation District main canal in the Southwest Quarter of the Southwest Quarter, Section 4, T. 1 S., R. 2 W., SBB&M, and up to 3 cfs at the East Highlands Company weir.

Bear Valley and Lugonia - Santa Ana

Into the Redlands Aqueduct above the Mentone Reservoir.

Redlands Water - Santa Ana

Into the Redlands Aqueduct above the Mentone Reservoir.

East San Bernardino - Santa Ana

Into the North Fork Canal at or above elevation 1720 feet.

EXHIBIT C

DETERMINATION AND MEASUREMENT OF EXCHANGEABLE WATER

Santa Ana

The quantity of water in the Santa Ana River available for exchange shall be determined as follows:

The quantity of water measured at the USGS gage on the Edison Company canal located below the tailrace of Santa Ana Powerhouse No. 2.

The amount of Santa Ana River water available for exchange shall not exceed 88 cfs.

The quantity of water in the tunnel belonging to Redlands Water available for exchange shall be as measured at the tunnel outlet located on the west side of Greenspot Road at the mouth of Santa Ana Canyon.

Mill Creek

The quantity of water in Mill Creek available for exchange shall be determined as follows:

The quantity of water that would go through Edison Company's Mill Creek No. 1 hydro-plant if there were no upstream diversion.

The total amount of Mill Creek water available for exchange shall not exceed 32 cfs.

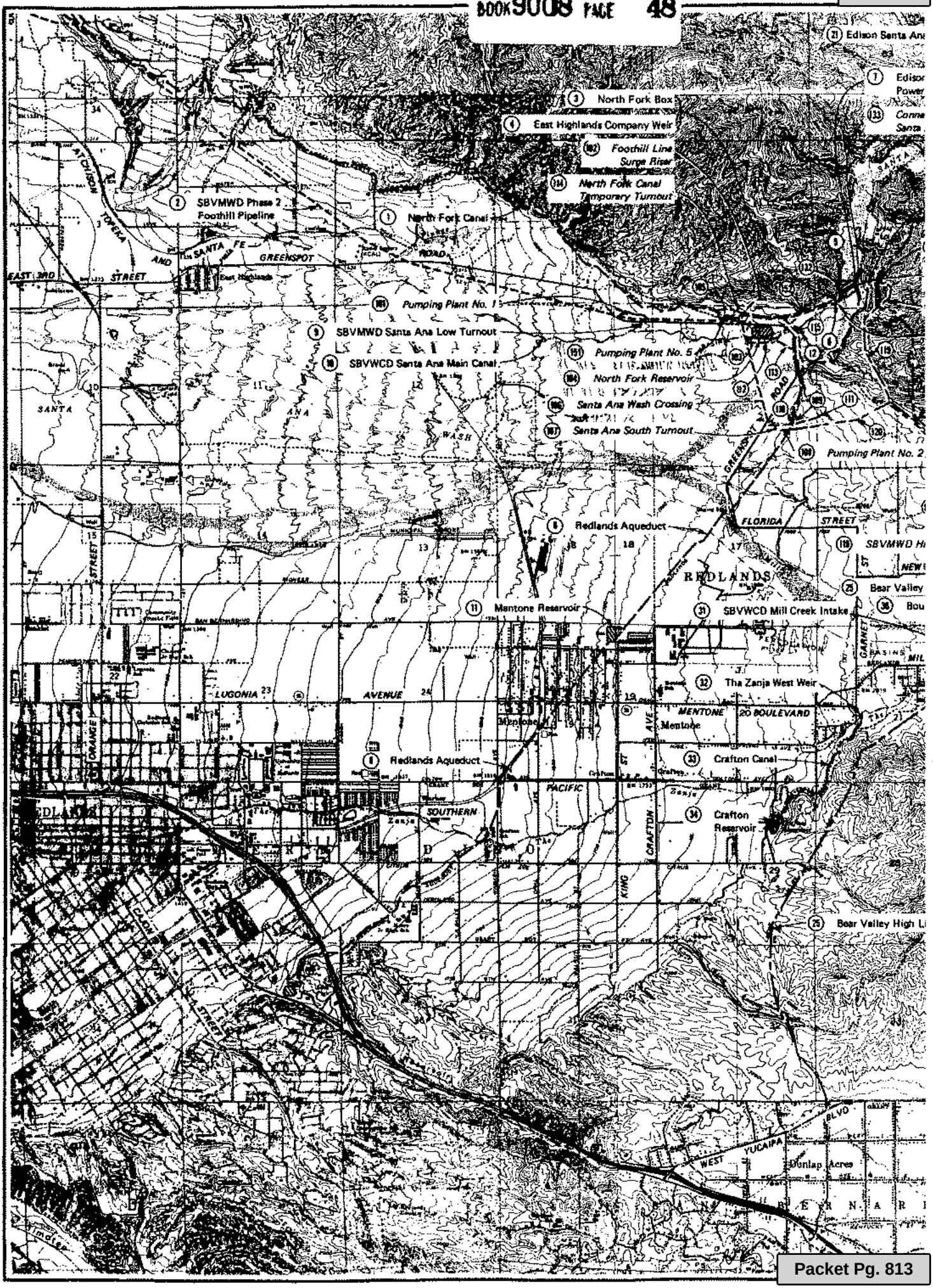
EXHIBIT D

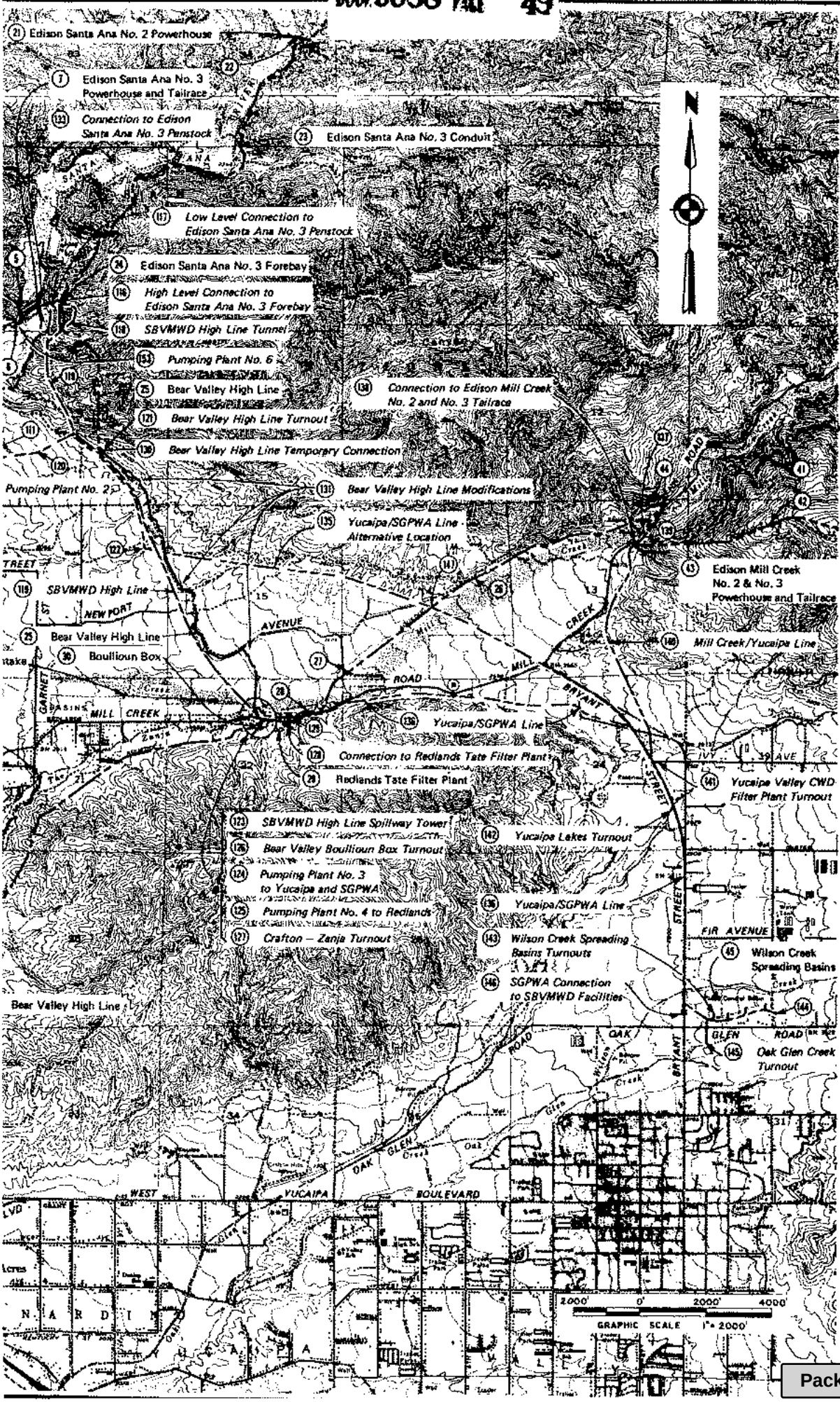
FACILITIES TO BE CONSTRUCTED AS THE FIRST INCREMENT OF THE COOPERATIVE WATER PROJECT

Description	Minimum Capacity in cfs	Key Number on Plate 1
North Fork Canal Temporary Turnout	30	114
Pumping Plant No. 5	12	151
Pumping Plant No. 5 Discharge Line	12	152
Foothill Pipeline to Redlands Aqueduct Turnout	30	115
SBVMWD High Line	25	119
Pumping Plant No. 4 to Redlands	20	125
Connection to Redlands Tate Filter Plant	32	128
Crafton - Zanja Turnout	10	127
Turnout to Mill Creek above Conservation District Spreading Intake	25	
Pumping Plants and Pipelines Connecting SBVMWD Phase 2 Foothill Pipeline to SBVMWD High Line	As Needed	See Note 1

Note 1

Precise location to be determined in final design.


3 North Fork Box
4 East Highlands Company Weir
102 Foothill Line Surge Riser
104 North Fork Canal Temporary Turnout
2 SBVMWD Phase 2 Foothill Pipeline
1 North Fork Canal
101 Pumping Plant No. 1
9 SBVMWD Santa Ana Low Turnout
10 SBVWCD Santa Ana Main Canal
191 Pumping Plant No. 5
104 North Fork Reservoir
106 Santa Ana Wash Crossing
107 Santa Ana South Turnout
108 Pumping Plant No. 2
6 Redlands Aqueduct
11 Mentone Reservoir
31 SBVWCD Mill Creek Intake
32 Tha Zanja West Weir
33 Crafton Canal
34 Crafton Reservoir
25 Bear Valley
26 Bear Valley High Li
SANTA FE AND GREENSPOT ROAD
EAST 3RD STREET
SANTA ANA WASH
REDLANDS
LUGONIA AVENUE
MENTONE
FLORIDA STREET
PACIFIC SOUTHERN
Zanja
ORANGE
CRAFTON
KING
GARNET
WEST YUCAIPA BLVD
Dunlap Acres


21 Edison Santa Ana No. 2 Powerhouse
7 Edison Santa Ana No. 3 Powerhouse and Tailrace
133 Connection to Edison Santa Ana No. 3 Penstock
23 Edison Santa Ana No. 3 Conduit
117 Low Level Connection to Edison Santa Ana No. 3 Penstock
24 Edison Santa Ana No. 3 Forebay
116 High Level Connection to Edison Santa Ana No. 3 Forebay
118 SBVMWD High Line Tunnel
153 Pumping Plant No. 6
25 Bear Valley High Line
121 Bear Valley High Line Turnout
139 Bear Valley High Line Temporary Connection
Pumping Plant No. 2
131 Bear Valley High Line Modifications
135 Yucaipa/SGPWA Line - Alternative Location
134 Connection to Edison Mill Creek No. 2 and No. 3 Tailrace
43 Edison Mill Creek No. 2 & No. 3 Powerhouse and Tailrace
160 Mill Creek/Yucaipa Line
118 SBVMWD High Line
25 Bear Valley High Line
30 Boulloun Box
136 Yucaipa/SGPWA Line
128 Connection to Redlands Tate Filter Plant
29 Redlands Tate Filter Plant
141 Yucaipa Valley CWD Filter Plant Turnout
172 SBVMWD High Line Spillway Tower
176 Bear Valley Boulloun Box Turnout
124 Pumping Plant No. 3 to Yucaipa and SGPWA
125 Pumping Plant No. 4 to Redlands
127 Crafton – Zanja Turnout
142 Yucaipa Lakes Turnout
136 Yucaipa/SGPWA Line
143 Wilson Creek Spreading Basins Turnouts
146 SGPWA Connection to SBVMWD Facilities
45 Wilson Creek Spreading Basins
145 Oak Glen Creek Turnout
Bear Valley High Line
N
2000' 0' 2000' 4000'
GRAPHIC SCALE 1" = 2000'

FACILITY LIST

EXISTING AND ASSOCIATED WATER FACILITIES

Key Number	Facility Description
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2	SBVMWD Phase 2 Foothill Pipeline
3	North Fork Box
4	East Highlands Company Weir
5	SBVWCD Santa Ana Intake Headgate
6	SBVWCD Santa Ana Three Way Box
7	Edison Santa Ana No. 3 Powerhouse and Tailrace
8	Redlands Aqueduct
9	SBVMWD Santa Ana Low Turnout
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11	Mentone Reservoir
12	Redlands Water Tunnel
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22	Bear Valley Santa Ana Canyon Well No. 2
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42	Edison Mill Creek No. 3 Conduit
43	Edison Mill Creek No. 2 & No. 3 Powerhouse and Tailrace
44	Edison Mill Creek No. 1 Stream Diversion Structures and Pipeline
45	Wilson Creek Spreading Basins

COOPERATIVE WATER PROJECT FACILITIES

Key Number	Facility Description
101	*Pumping Plant No. 1*
102	*Foothill Line Surge Riser*
103	*North Fork Reservoir Inlet System*
104	*North Fork Reservoir*
105	*North Fork Reservoir Outlet System*
106	*Santa Ana Wash Crossing*
107	*Santa Ana South Turnout*
108	*Pumping Plant No. 2*
109	*Foothill Pipeline to Redlands Aqueduct Turnout*
110	*Redlands Aqueduct Turnout to Foothill Line*
111	*Pumping Plant No. 2 Surge Riser*
112	*SBVWCD Santa Ana Main Canal Relocation*
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115	*Redlands Aqueduct Temporary Connection*
151	*Pumping Plant No. 5 to North Fork Box and Pumping Plant No. 6*
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153	*Pumping Plant No. 6 to SBVMWD High Line*
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143	*Wilson Creek Spreading Basins Turnouts*
144	*Mill Creek/Yucaipa/SGPWA Line Surge Riser*
145	*Oak Glen Creek Turnout*
146	*SGPWA Connection to SBVMWD Facilities*
147	*Connection Yucaipa/SGPWA Line – Alternative Location/Edison Mill Creek No. 1 Conduit*

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BECHTEL INCORPORATED
SAN FRANCISCO

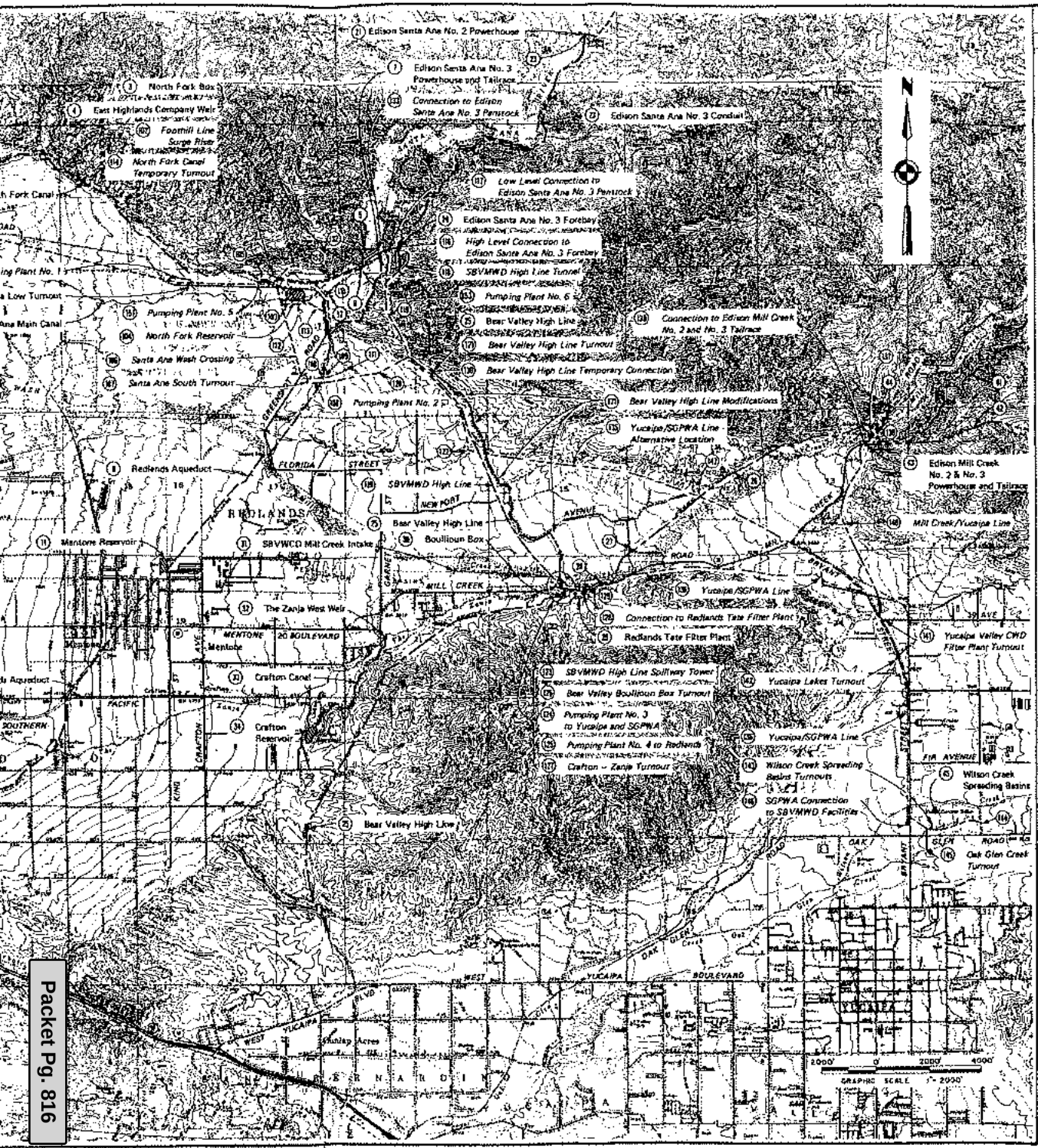
SAN BERNARDINO VALLEY
MUNICIPAL WATER DISTRICT

WATER TRANSMISSION PROJECT

SANTA ANA RIVER AND MILL CREEK
COOPERATIVE WATER PROJECT AGREEMENT

CONCEPTUAL PLAN OF COOPERATIVE WATER PROJECT FACILITIES AND ASSOCIATED WATER FACILITIES

JOB NO.	DRAWING NO.	REV.
7843	PLATE 1	



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SAN FRANCISCO

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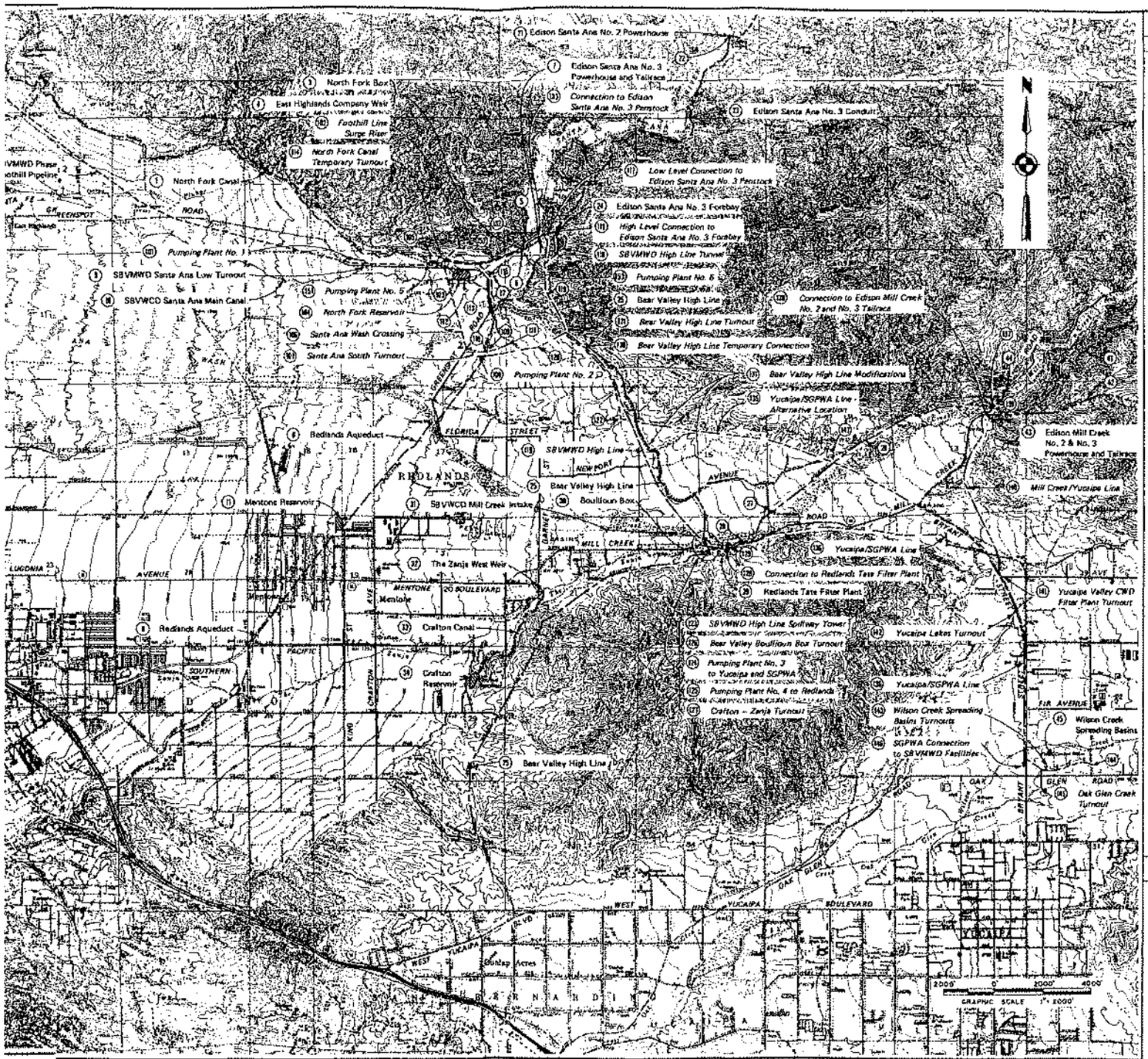
WATER TRANSMISSION PROJECT

SANTA ANA RIVER AND MILL CREEK COOPERATIVE WATER PROJECT AGREEMENT

CONCEPTUAL PLAN OF COOPERATIVE WATER PROJECT FACILITIES AND ASSOCIATED WATER FACILITIES

JOB NO. 7843

DRAWING NO. PLATE 1



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WATER TRANSMISSION PROJECT

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CONCEPTUAL PLAN OF COOPERATIVE WATER PROJECT FACILITIES AND ASSOCIATED WATER FACILITIES

JOB NO.	DRAWING NO.
7843	PLATE 1

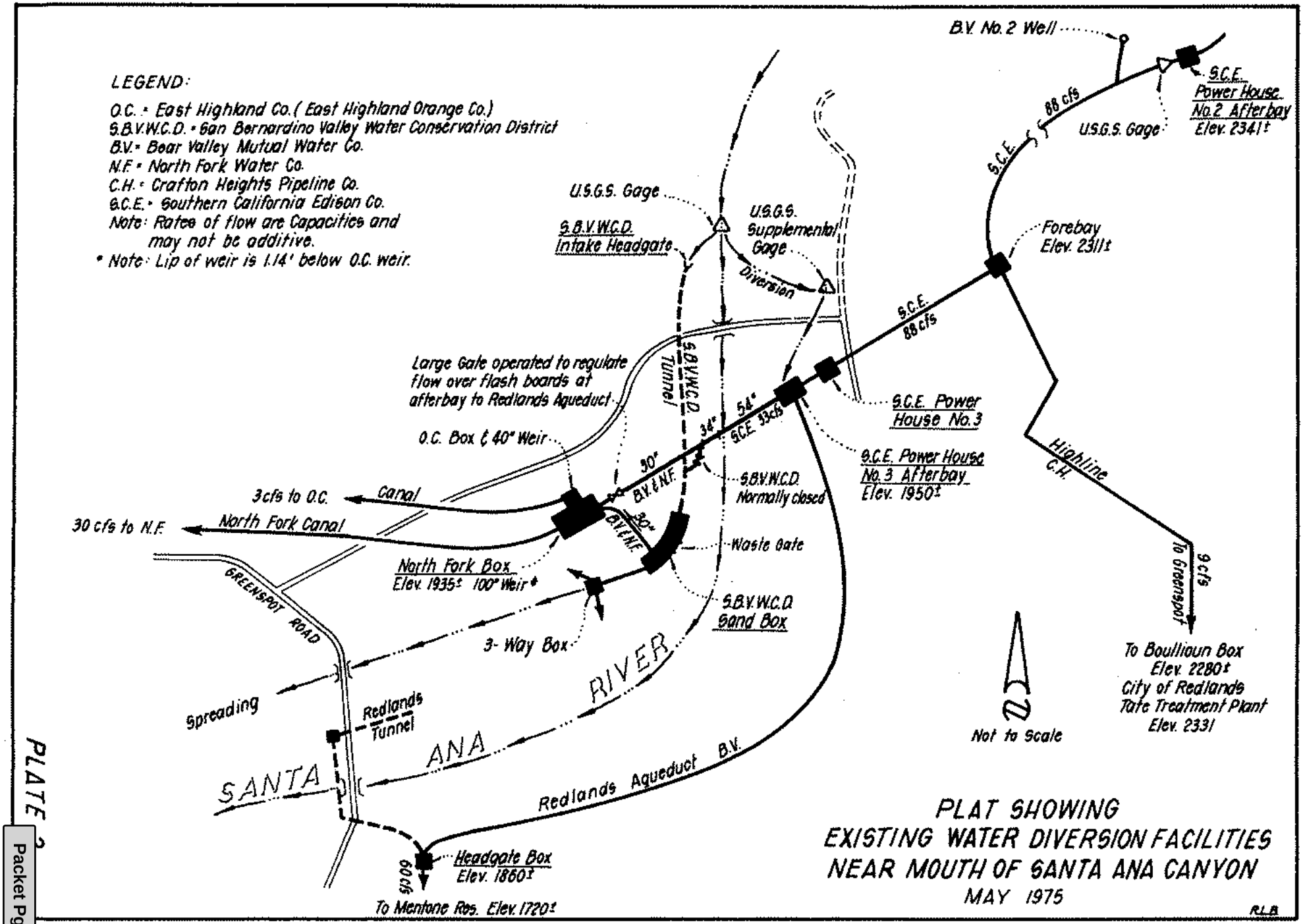
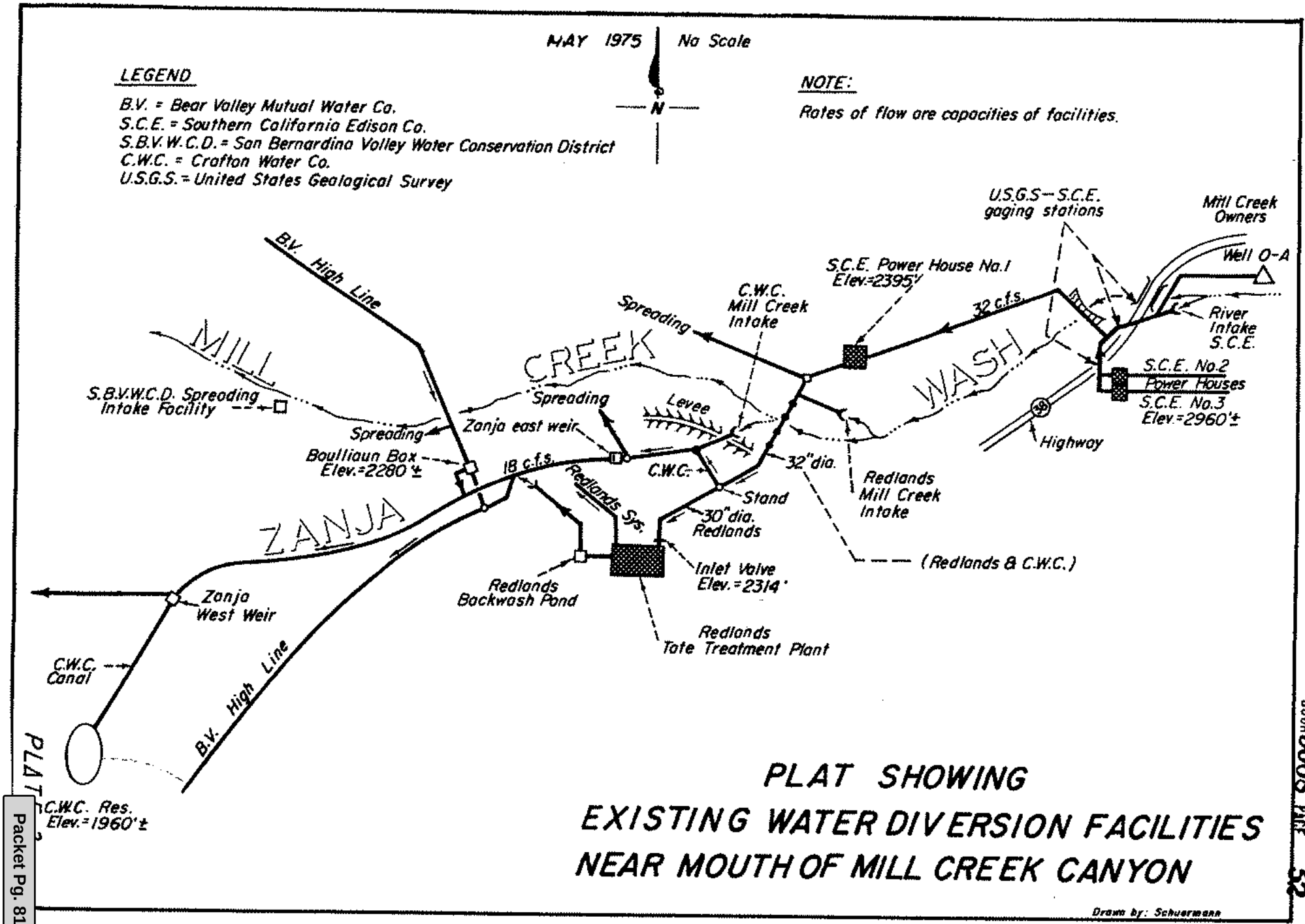

LEGEND:
O.C. = East Highland Co. (East Highland Orange Co.)
S.B.V.W.C.D. = San Bernardino Valley Water Conservation District
B.V. = Bear Valley Mutual Water Co.
N.F. = North Fork Water Co.
C.H. = Crafton Heights Pipeline Co.
S.C.E. = Southern California Edison Co.
Note: Rates of flow are Capacities and may not be additive.
* Note: Lip of weir is 1.14' below O.C. weir.
B.V. No. 2 Well
S.C.E. Power House No.2 Afterbay Elev. 2341±
88 c/s
U.S.G.S. Gage
S.C.E.
U.S.G.S. Gage
S.B.V.W.C.D. Intake Headgate
U.S.G.S. Supplemental Gage
Diversion
Forebay Elev. 2311±
S.C.E. 88 c/s
Large Gate operated to regulate flow over flash boards at afterbay to Redlands Aqueduct
S.B.V.W.C.D. Tunnel
54"
34"
S.C.E. 53 c/s
S.C.E. Power House No.3
O.C. Box ℄ 40" Weir
30" B.V. & N.F.
S.C.E. Power House No.3 Afterbay Elev. 1950±
Highline C.H.
3 c/s to O.C. Canal
30 c/s to N.F. North Fork Canal
S.B.V.W.C.D. Normally closed
30" O.V. & N.F.
Waste Gate
North Fork Box Elev. 1935± 100" Weir*
GREENSPOT ROAD
S.B.V.W.C.D. Sand Box
3- Way Box
9 c/s
To Greenspot
To Boulliaun Box Elev. 2280±
City of Redlands Tate Treatment Plant Elev. 2331
Not to Scale
Spreading
Redlands Tunnel
SANTA ANA RIVER
Redlands Aqueduct B.V.
Headgate Box Elev. 1860±
60 c/s
To Mentone Res. Elev. 1720±
PLAT SHOWING
EXISTING WATER DIVERSION FACILITIES
NEAR MOUTH OF SANTA ANA CANYON
MAY 1975
R.L.B.

PLATE 2



BOOK 9008 PAGE 52

SAN BERNARDINO BASIN GROUNDWATER COUNCIL FRAMEWORK AGREEMENT

This SAN BERNARDINO BASIN **GROUNDWATER COUNCIL FRAMEWORK AGREEMENT** ("**Agreement**") is entered into and effective this ___ day of _____, 2018 by and among the City of Colton ("**Colton**"), the City of Redlands ("**Redlands**"), the City of Rialto ("**Rialto**"), the City of San Bernardino Municipal Water Department ("**SBMWD**"), City of Loma Linda ("**Loma Linda**"), East Valley Water District ("**East Valley**"), San Bernardino Valley Municipal Water District ("**Valley District**"), San Bernardino Valley Water Conservation District ("**Conservation District**"), Fontana Water Company ("**FWC**"), West Valley Water District ("**WVWD**"), Yucaipa Valley Water District ("**Yucaipa**"), Bear Valley Mutual Water Company **("BVMWC"),** and Loma Linda University **("LLU")** each of which is referred to as a "**Party**," for the purpose of coordinating the development and implementation of groundwater management activities that individually or cumulatively address groundwater management in the Bunker Hill Sub-basin of the Upper Santa Ana Valley Basin ("**Basin**"), and achieving groundwater sustainability throughout the Basin.

RECITALS

WHEREAS, the Parties to this Agreement all overlie, produce water from, or are otherwise interested in the management and long-term sustainability of the groundwater basin identified as the San Bernardino Basin Area; and

WHEREAS, California Department of Water Resources' ("**DWR**") Bulletin 118 defines the Upper Santa Ana Valley Bunker Hill Sub-basin (No. 8-002.06), the boundaries of which, as defined therein and as may be amended in the future, constitute the limits of the Basin covered hereunder. A map depicting that Basin is attached hereto as Exhibit A. DWR Bulletin 118 presently classifies the Bunker Hill Basin as high priority.

WHEREAS, surface water and groundwater supplies in large portions of the Basin are governed by a number of judicial decrees and contracts, including but not limited to the *Orange County Water District v. City of Chino et al.* (Orange County Superior Court, Case No. 117628, April 17, 1969) *Western Municipal Water District of Riverside County v. East San Bernardino County Water District et al.* (Riverside County Superior Court Case No. 78426, April 17, 1969); *Big Bear Municipal Water District v. North Fork Water Company,* San Bernardino Superior Court Case No. SCV 165493, and *City of San Bernardino v. Fontana Water Company*, San Bernardino Superior Court Case No.17030 (January 28, 1924).

WHEREAS, Water Code § 10720.8(a) identifies the San Bernardino Basin Area as an adjudicated area. As such, this area is exempt from the Sustainable Groundwater Management Act (SGMA) passed by the California Legislature in September 2014, other than providing certain kinds of data to DWR per Water Code § 10720.8(f).

WHEREAS, notwithstanding that the Basin is not required to comply with SGMA, the Parties to this Agreement wish to collaborate their efforts to identify their respective access to and application of imported water supplies, and to harmonize use of such supplies with available groundwater in the Basin. The goal is to ensure that the water imported into the Basin, and the

facilities used to apply both imported and native water supplies to productive beneficial use, will all be maintained and managed in a manner that will be sustainable over the long-term. The Parties recognize that the key to success in this effort will be coordination of amounts and areas of recharge in different parts of the Basin, by acting in conjunction with other groundwater management entities active in portions of the Basin.

WHEREAS, the purpose of ensuring water supply reliability and long-term effectiveness and viability of recharge facilities has become even more important as a result of recently experienced low groundwater storage levels and the reduction of imported water supplies, due to environmental and other restrictions. One purpose of this Agreement is to facilitate the cooperation of the Parties to ensure a reliable and conjunctively utilized water supply of replenishment water that can prevent overdraft or other negative impacts from occurring during an extended drought, and for the foreseeable future.

WHEREAS, the Parties, individually and collectively, have the goal of cost effective cooperative groundwater management that considers the interests and concerns of all of the communities and parties that rely upon the Basin for their water supply.

WHEREAS, the Parties hereby enter into this Agreement to establish the San Bernardino Basin Groundwater Council ("**GC**") to undertake the preliminary steps necessary to prepare for and coordinate the management of groundwater supply resources throughout the Basin, and to coordinate maintenance of conveyance and recharge facilities to expedite such management. The GC will coordinate with existing groundwater management agencies in the Basin as well as the individual Ex Oficio participants, as defined below, and will be responsible for ensuring overall coordination and sustainable management of the Basin.

WHEREAS, the Parties have agreed that the preliminary steps of GC formation will include preparation of formation documents and procedures, the possible hiring of needed experts, and the development of a budget for this GC as memorialized in this Agreement.

AGREEMENT

NOW THEREFORE, in consideration of the matters recited and the mutual promises, covenants, and conditions set forth in this Agreement, the Parties hereby agree as follows:

1. DEFINITIONS

1.1 Definitions. In addition to the terms that may be defined elsewhere in this Agreement, the following terms when used in this Agreement shall be defined as follows:

1.1.1 "***Agreement***" means this Groundwater Council Agreement.

1.1.2 "***Plaintiff***" means any of the following entities: City of Riverside, Riverside Highlands Water Company, Meeks and Daley Water Company, Regents of University of California, or Western Municipal Water District as named in the 1969 Judgment in Case Number 78426, *Western Municipal Water District of Riverside County et al. vs. East San Bernardino County Water District et al.*"

1.1.3 ***"Annual Basin Groundwater Report"*** shall mean the annual report prepared by the Groundwater Council, to cover topics including but not limited to the following: annual production, recharge, environmental issues, exchanges, and all other actions and topics material to groundwater conditions in the Basin. In preparing such report, the Groundwater Council may consult with, and draw from, data and information provided by the Watermaster and Conservation District and other reliable sources regarding annual groundwater conditions. The Annual Basin Groundwater Report is not intended to supplement or supplant the annual reports of the various Watermasters operating within the Basin that are filed with the Superior Court or any Watermasters' required reporting under the Sustainable Groundwater Management Act (SGMA).

1.1.4 "***Basin***" shall mean the Upper Santa Ana Valley Bunker Hill Groundwater Basin, Sub-basin 8-002.06, as designated in DWR's Bulletin No. 118, and as its boundaries may be modified from time to time through the procedures described in California Water Code § 10722.2.

1.1.5 "***Groundwater Council***" or "***GC***" or shall mean the Upper Santa Ana Valley Bunker Hill Basin Groundwater Council, the oversight body coordinating the management, replenishment, and preservation of groundwater supply and quality of the Basin. The GC shall be composed of representatives of each Party and should they decide to participate, a representative of any other groundwater management authority over any portion of the Basin, as further provided herein. The GC's duties shall include the integration and coordination of the use of imported water supplies for replenishment of the Basin, facilitation of implementation of GC policies and initiatives through the legal authorities of its members, management of budgeting and funding for the maintenance, development, and management of regional groundwater infrastructure, and dispute resolution that may occur within or between the Parties or Ex Oficio members of the GC.

1.1.6 "***BTAC***" shall mean the Basin Technical Advisory Committee, as originally created under the auspices of the Upper Santa Ana River Watershed Integrated Regional Water Management Plan, as such Committee may be modified from time to allow for the additional participation of one or more Parties to this Agreement. The BTAC may be tasked to undertake specified actions in support of the GC.

1.1.7 "***Effective Date***" shall mean the date that a majority of the Parties approve of and enter into the Agreement.

1.1.8 "***Equitable Allocation***" shall mean the manner of determining the facilities' operations and maintenance ("O&M") costs, and supplemental water cost, for each Party based on the annual approved budget. This allocation will be performed pursuant to the formulas and procedures described in Exhibit B of this Agreement. The allocation shall determine the portion of equitable O&M cost, and the portion of equitable water cost, to be apportioned to each Party or other participant for the applicable GC budget year. These allocations shall also be used to determine the voting weight afforded to each voting member of the GC, under this Agreement and further procedural processes as may be developed by the GC.

1.1.9 "**Ex Oficio participant**" shall mean those entities that participate in the GC by virtue of their status as plaintiffs or successors in interest to plaintiffs in *Western Municipal Water District of Riverside County v. East San Bernardino County Water District et al.* (Riverside County Superior Court Case No. 78426, April 17, 1969), but which shall not be a considered Parties to this Agreement.

1.1.10 ***"Cost Share"*** shall mean that portion of the overall annual operating costs of the GC, assigned to a Party pursuant to the Equitable Allocation, as determined in the annual budget of the GC.

2. TERM

2.1 This Agreement shall become operative on the Effective Date. If an eligible Party has not executed this Agreement by june 30, 2018, such party may join this GC Agreement only as an additional member of the GC, pursuant to Section 3.5, below.

2.2 This Agreement shall remain in effect for a period of five (5) years following the Effective Date, unless earlier terminated by the unanimous written consent of all then-active Parties, provided, however, that this Agreement shall remain in effect during the term of any contractual obligation or indebtedness of the GC that was previously approved by the GC.

2.3 Any Party shall have the ability to withdraw from this Agreement upon serving written notice of its intention to withdraw on all other Parties at least twelve (12) months before that Party's withdrawal becomes effective. Such notice shall be served on the GC at a regularly scheduled meeting and on each of the Parties to this Agreement separately. The withdrawing Party may withdraw upon eighty percent (80%) approval of the voting members of the GC.

2.4 Any Ex Oficio participant in the GC shall have the ability to withdraw from participation in the GC upon thirty (30) days written notice to the Parties.

3. COUNCIL CREATION AND PURPOSE

3.1 Creation of the GC. There is hereby created the Upper Santa Ana Valley Bunker Hill Basin Groundwater Council. The GC shall be, to the extent permitted by law, the forum within which the Parties shall coordinate the access to and utilization of imported water supplies for application to the recharge and replenishment of the Basin, and for the maintenance, and repair of recharge and conveyance facilities for both native and imported supplies to replenish the Basin, consistent with applicable law and judicial decrees.

3.2 Purpose of the Agreement. The purpose of this Agreement, and the creation of the GC, is to provide for the funding, integration, and coordination of the management of imported water and associated groundwater replenishment facilities of the Basin. The purpose is also the facilitation of implementation of policies and initiatives through the legal authorities of one or more Parties, for the purpose of cooperatively managing certain aspects of the Basin, including but not limited to accessing and applying imported water supplies to augment and complement native water supplies, toward the goal of maintaining the long-term yield of the Basin and ensuring that overdraft or other negative impacts are prevented in the

future and eliminated over time; and undertaking imported water replenishment activities that are approved by the GC and included in the annual approved budget.

3.3 Membership of the GC. The GC shall consist of a representative from each Party. One party may serve in multiple representative roles, and this will be accounted for in the Equitable Allocation. GC Members shall be appointed in the manner set forth in Section 3.4 of this Agreement.

3.4 Appointment of Members to the GC. Each Party or other entity entitled to membership on the GC shall appoint one representative member of the GC, who shall be the senior executive management level employee of the Party, or a senior executive management-level employee of other recognized groundwater management entity. Each eligible member may determine its own process for appointing its representative member. Members of the GC shall serve throughout the term of this agreement, provided that such members may be subject to removal and replacement by the appointing Party in the event the representative is no longer in the employ of the appointing Party.

3.5 Additional Members. The GC may permit admission of additional members upon an eighty percent (80%)vote of the Equitable Allocation weighted votes among all then-existing Parties, upon such terms and conditions as the GC in its discretion may impose. Such conditions may include requiring contributions to any GC initiatives for securing imported water supplies, or maintenance and operations expenses of groundwater replenishment facilities, to assure equitable distribution of the costs of such initiatives or facilities to those benefitting from them.

3.6 Ex Oficio Participants. The GC shall include the plaintiff parties or the successors in interest to the plaintiff parties in *Western Municipal Water District of Riverside County v. East San Bernardino County Water District et al.* (Riverside County Superior Court Case No. 78426, April 17, 1969) as "Ex Oficio" participants, unless any Ex-Oficio participant withdraws from the GC pursuant to Section 2.4, above. Such Ex-Oficio participants shall not have the ability to vote on any matters before the GC, but shall be permitted to provide input and other support for GC efforts. Notwithstanding any other provision of this Agreement, and except as otherwise provided in other agreements, judgments or settlements, Ex Oficio participants shall not be liable for any costs or fees associated with the GC or its activities related to importing groundwater into the Basin and shall not be considered "members" of the GC as that term is used in this Agreement. Ex Oficio participants may jointly execute a separate agreement with the Conservation District that will provide for the annual payment of no more than 27.95% of costs associated with the recharge of native waters.

4. COUNCIL MEETINGS AND ACTIONS

4.1 Initial Meeting. The initial meeting of the GC shall be held at a location overlying the Basin within forty-five days (45) days of the Effective Date of this Agreement. At the initial meeting the GC shall select a President to chair its meetings, a Vice President to serve if the President is unavailable, a Secretary to record GC proceedings and actions, and any other officers it deems appropriate to the successful and efficient conduct of its business.

4.2 Regular Meeting Schedule and Rules of Proceeding. The GC shall establish a regular meeting time and place at its initial meeting. The GC may vote to change the regular meeting time and place, provided that the new location remains at a place overlying the Basin. The GC may adopt, promulgate, repeal, or revise further rules of debate, presentation of motions, voting and proxies, process, or proceedings, as it may deem appropriate.

4.3 Quorum. A quorum of the GC shall consist of majority of the total Equitable Allocation weighted votes among all voting members. In the absence of a quorum, no business may be transacted beyond the adjournment of a meeting by the remaining members. For efficiency, business may be discussed and action recommended for the consent calendar ratification at the next regular meeting. A member shall be deemed present for the determination of a quorum if the member is present at the meeting in person, or if they participate in the meeting telephonically upon such rules and procedures as the GC may promulgate.

4.4 GC Voting Rights. Each voting member of the GC shall have its Equitable Allocation weighted vote, as such may be revised from time to time either (a) pursuant to pre-negotiated mechanisms for the adjustment of the Equitable Allocation, due to fluctuations in the groundwater production or other criteria on which the initial Equitable Allocation is based, or (b) by an eighty percent (80%) vote of the total Equitable Allocation voting weight held by all voting members. Exhibit B indicates the voting rights of each party, and shall be modified periodically as specified in the procedures included in Exhibit B.

4.4.1 Fiscal items, including but not limited to, approval of the annual budget of the GC and any expenditures, shall require an affirmative vote by a supermajority constituting eighty percent (80%) of all Equitable Allocation voting weight. To the extent the GC may form groups which contain less than all members for projects where not all members are participants, such committees will have an additional committee agreement identifying the requirements of committee members, and voting requirements attending fiscal obligations of such committees.

4.4.2 Any change in annual contributions necessary to support the work of the GC shall require an affirmative vote by a supermajority constituting eighty percent (80%) of all of all Equitable Allocation voting weight.

4.5 Minutes. The GC shall cause minutes to be kept of all meetings of the GC and any appointed Standing Committees. The GC shall further cause a copy of draft minutes to be forwarded to each member of the GC and to each Party and Ex Oficio member, which may be done electronically, or by way of posting to a commonly available website or digital portal.

4.6 Annual Budgeting and Expenditure Approval.

4.6.1 The fiscal year of the GC shall be July 1 through June 30. The GC shall develop, circulate, and approve an annual budget for the funding of bringing imported water supply to the Basin, and for the maintenance and repair of groundwater recharge or water conveyance facilities serving replenishment of the Basin. The Budget shall be prepared by a Budget Committee, which shall consist of three (3) member Parties of the GC appointed by a qualifying vote of at least 80% of the weighted Equitable Allocation, no later than January 31 of the fiscal year prior to the one for which the budget is to operate. The Budget Committee shall coordinate with BTAC and Valley District as the State Water Project Contractor, to determine the likely allocation of available State Water Project imported water supplies, and other available non-native sources of imported water, the likely unit cost of such imported water, and the recharge needs of the Basin, in terms of quantities of water, locations where Basin conditions would most benefit from imported recharge, condition and availability of facilities to accomplish such recharge, and cost. From these sources, the Budget Committee shall prepare a budget that recommends all of the following:

(a) the amount of imported water supplies proposed to be bought or otherwise acquired by GC members in the coming year;

(b) the recommended application or distribution of such imported water supplies to various parts of the Basin;

(c) the estimated cost of all ongoing maintenance, repair, and operation costs for then-existing groundwater recharge and conveyance facilities serving to replenish the Basin;

(d) any administrative costs of the GC; and

(e) proposed allocation of all expenditures in the Budget among GC members as their portion of the Cost Share based upon the Equitable Allocation Model.

4.6.2 No later than March 1 prior to the beginning of the year for which the budget is to operate, the Budget Committee shall present and circulate to all GC members the proposed Budget, for review and analysis. The circulated budget shall include the underlying presumptions and worksheets upon which it is based. The Budget Committee, or its designee, shall make itself reasonably available to respond promptly to any inquiries or information requests regarding the proposed budget.

4.6.3 No later than sixty (60) days after presentation of the budget by the Budget Committee, the GC shall meet to deliberate and pass upon the budget. The GC may accept, reject, or modify in any way the budget as proposed by the Budget Committee. Adoption of the budget shall require an eighty percent (80%) vote of the weighted Equitable Allocation, provided, however, that if a segregable portion or portions of the budget can be identified which prevent the overall budget from obtaining an eighty percent (80%) approval vote, the GC shall pass those portions of the budget upon which an eighty percent (80%) majority can be achieved, and shall refer those portions upon which approval cannot be obtained back to the Budget Committee for further recommendation on how such portions might be eliminated, reduced in

scope or cost, or otherwise modified, and represented to the GC for eighty percent (80%) approval. No portion of the GC budget imposing any expenditures on any Party shall be approved or adopted on less than an eighty percent (80%) vote of the Equitable Allocation weighted voting, but the inability to secure an eighty percent (80%) vote on segregable portions of the budget shall not prevent the GC from implementing, and proceeding with, those portions of the budget which secured the required eighty percent (80%) approval.

4.7 The Valley District shall perform the accounting and revenue collection functions of the GC in tracking and securing the funding from the GC members pursuant to the approved annual budget, and consistent with the approved cost allocations among the GC members therein, for all imported water supplies. The Conservation District shall perform the accounting and revenue collection functions of the GC in tracking and securing the funding from the GC members pursuant to the approved annual budget, and consistent with the approved cost allocations among the GC members therein, for all facilities costs. The Conservation District shall credit each Party or Ex Oficio participant otherwise subject to the Conservation District's groundwater charge, in the amounts such Party contributes to the GC budget for facilities costs that would be encompassed in that groundwater charge, in order to prevent double collection of such costs with the Conservation District's groundwater charges. Groundwater charges payable by the Ex Oficio Participants may be suspended as part of the separate funding agreement outlined in Section 4.8. In the event of any delinquency, either Valley District or the Conservation District may request the GC to appoint it, or any other GC member or group of members, to represent the GC in securing collection of unpaid and owing amounts from any delinquent member or members. The reasonably incurred costs of such collection efforts may be reimbursed to the agent the GC authorizes to go forward with them, and may be added as an administrative cost to other members, or as a credit against future amounts owing to the GC from such authorized agent.

4.8 Ex Oficio participants will not be subject to the Conservation District's groundwater charges as long as a separate funding agreement as outlined in this Section 4.8 is in effect. Ex Oficio participants may jointly negotiate and execute a separate agreement with the Conservation District and/or Valley District that will provide for the annual payment of up to 27.95% of costs associated with the recharge of native waters. As of the Effective Date of this Agreement, Ex Oficio participants understood the estimated annual costs associated with water recharge, both native and imported, to be $800,000 for Conservation District activities and $200,000 for activities that may occur in recharge basins outside of the Conservation District's control. Ex Oficio participants, via the separate funding agreement, may agree to collectively pay no more than 27.95% of the cost for recharge of native waters. In any such agreement, in the event that imported water is recharged and the costs for such activity are comingled with the cost for recharge of native water, the Conservation District and/or Valley District will pro-rate the costs associated with recharge to separate the costs for native and imported water recharge. Ex Oficio participants are not intended to be charged for the costs of recharge of imported water or associated capital, the operations and maintenance for imported supplies, or any other costs not expressly agreed to in the separate funding agreement.

4.9 No later than six (6) months into the budget year for which any budget is adopted by the GC, the Budget Committee shall prepare a year-in-process budget review, to assess the validity and accuracy of the presumptions upon which the budget was based, identify

any budget savings or additional expenditures, assess any additional opportunities for groundwater replenishment that may have come available since the passing of the budget, and otherwise assess and recommend to the GC any potential amendment to the existing year budget, or suggestions for the following year's budget, as changing conditions may warrant. *(This section may not be needed based upon finalization of the Equitable Allocation formula.)*

5. COUNCIL POWERS AND DUTIES

5.1 The GC shall exercise the following powers:

5.1.1 To adopt rules, regulations, policies, bylaws and procedures governing the operation of the GC.

5.1.2 To produce an Annual Basin Groundwater Report, using as may be appropriate data regarding groundwater conditions available from the Watermaster, the Conservation District, or other sources.

5.1.3 To monitor groundwater production and extractions in coordination with BTAC and pertinent local groundwater management agencies.

5.1.4 To make, after consultation with BTAC, annual recommendations for the amount of additional artificial recharge for the Basin from imported sources as a complement to native sources, and to plan for the development and application of such additional sources of recharge.

5.1.5 To establish as-needed Ad Hoc and Standing advisory committees for the purpose of making recommendations to the GC. Committees shall exist for the term specified in the action creating the committee, and the GC may dissolve a committee at any time through an eighty percent (80%) majority vote of Equitable Allocation voting weight.

5.1.6 To contract for the services of engineers, attorneys, planners, financial consultants, and separate and apart therefrom, to appoint agents and representatives to employ such other staff persons as necessary. The BTAC will provide technical support for the GC, upon such terms as the GC and BTAC shall agree in writing. Ex Oficio members shall not be responsible for BTAC costs.

5.2 In addition to the above-referenced powers, the GC may, by an eighty percent (80%) vote of the Equitable Allocation, decide to activate and exercise any or all of the following additional powers:

5.2.1 To collect and monitor all data related and beneficial to the development, adoption and implementation of appropriate groundwater level management for the Basin.

5.2.2 To collect charges from GC members as authorized in the approved budget.

5.2.3 To cooperate, act in conjunction, and contract with the United States, the State of California, or any agency thereof, counties, municipalities, public and private corporations of any kind (including without limitation, investor-owned utilities), and individuals, or any of them, for any and all purposes necessary or convenient for the purposes of this Agreement.

5.2.4 To accumulate operating and reserve funds and invest the same as allowed by law for the purposes of the GC.

5.2.5 As may be permitted by law, to apply for and accept grants, contributions, donations and loans, including under any federal, state or local programs for assistance in developing or implementing any of its projects or programs in connection with any project untaken in the GC's name.

5.2.6 To acquire lease, purchase, construct, hold, manage, maintain, operate and dispose of any buildings, property, water rights, works or improvements within and without the respective boundaries of the Parties necessary to accomplish the purposes described herein, or to assist any Party in doing so.

5.2.7 To implement the Cost Share in a manner that qualifies as a pass through charge under the Constitutional requirements of Proposition 218 and similar revenue-raising requirements.

5.2.8 To exercise any power necessary or incidental to the foregoing powers in the manner and according to the procedures provided for under the law applicable to the Parties to this Agreement.

5.2.9 In addition to the above, and to the extent not directly represented on the GC, the GC shall coordinate its efforts with the agencies that are charged with implementing all applicable judicial decrees governing the Basin.

6. FUNDING GC ACTIVITIES

Funding for GC activities shall be provided pursuant to an expense sharing mechanism described in more detail in Exhibit B hereto. This mechanism is based in part on a regional sharing of Operation and Maintenance costs for San Bernardino Basin Area recharge activities, as those Operation and Maintenance costs shall be determined by the GC in its annual budgeting, in conjunction with BTAC. All Parties shall share in the Operation and Maintenance cost components. Ex Oficio participants shall not share in any costs which are attributable to bringing imported water to the Basin nor its recharge, but all other Parties shall participate in such costs, pursuant to the Equitable Allocation attached as Exhibit B hereto. Ex Officio participants intend to, through separate agreement(s) with the Conservation District and/or Valley District, cooperate in the payment of up to a maximum of 27.95% of costs associated with the recharge of water that results from natural precipitation and run-off in the basin (native water). Each Party shall be contractually responsible hereunder for the annual payment of fees for their assigned portion of the budgeted expenses of the GC, based on that Party's allocation, as determined by the aforementioned allocation formula and the approved GC budget.

7. DISPUTE RESOLUTION

The Parties recognize that there may be disputes regarding the obligations of the Parties or the interpretation of this Agreement. The Parties agree that they may attempt to resolve disputes as follows:

7.1 Statement Describing Alleged Violation of Agreement. A Party or Parties alleging a violation of this Agreement (the "**Initiating Party(ies)**") shall provide a written statement describing all facts that it believes constitute a violation of this Agreement to the Party(ies) alleged to have violated the terms of this Agreement (the "**Responding Party(ies)**").

7.2 Response to Statement of Alleged Violation. The Responding Party(ies) shall have sixty (60) days from the date of the written statement to prepare a written response to the allegation of a violation of this Agreement and serve that response on the Initiating Party(ies) or to cure the alleged violation to the reasonable satisfaction of the Initiating Party(ies). The Initiating Party(ies) and the Responding Party(ies) shall then meet within thirty (30) days of the date of the response to attempt to resolve the dispute amicably.

7.3 Mediation of Dispute. If the Initiating Party(ies) and the Responding Party(ies) cannot resolve the dispute within ninety (90) days of the date of the written response, they shall engage a mediator, experienced in water-related disputes, to attempt to resolve the dispute. Each Party shall ensure that it is represented at the mediation by a Director or Trustee or other representative with authority to settle. These representatives of the Initiating Party(ies) and the Responding Party(ies) may consult with staff and/or technical consultants during the mediation and such staff and/or technical consultants may be present during the mediation. The costs of the mediator shall be divided evenly between the Initiating Party(ies) and the Responding Party(ies). The decision of the mediator shall be non-binding.

7.4 Reservation of Rights. Subject to the above requirements, in the event that mediation fails, each Party retains and may exercise all legal and equitable rights and remedies it may have to enforce the terms of this Agreement; provided, that prior to commencing litigation, a Party shall provide at least five (5) calendar days' written notice of its intent to sue to all Parties.

8. RELATIONSHIP TO WATER RIGHTS AND PRIOR AGREEMENTS

8.1 Water Rights and Existing Agreements. Nothing in this Agreement is intended to modify the water rights of the Parties or the Ex Oficio participants, whether existing under a judgment, proceedings of the State Water Resources Control Board, or the common law. Nothing in this Agreement is intended to modify any existing agreements between and among the Parties, unless expressly stated herein.

8.2 Agreements Among Water Users. Nothing in this Agreement is intended to modify the rights of the signatories of this Agreement among themselves.

8.3 Judgments. Nothing in this Agreement is intended to modify the rights of the Parties under the terms of the judgments in *Orange County Water District v. City of Chino et al.* (Orange County Superior Court, Case No. 117628, April 17, 1969) and *Western Municipal*

Water District of Riverside County v. East San Bernardino County Water District et al. (Riverside County Superior Court Case No. 78426, April 17, 1969); *Chino Basin Water District v. City of Chino,* San Bernardino Superior Court Case No. 164327; *Big Bear Municipal Water District v. North Fork Water Company,* San Bernardino Superior Court Case No. SCV 165493; or *City of San Bernardino v. Fontana Water Company*, San Bernardino Superior Court Case No.17030 (January 28, 1924). It is the intention of the Parties in forming the GC to apply, administer, and conform to the requirements and provisions of each of these judgments. In the event of any conflict between the actions of the GC, and the requirements and provisions of such judgments, the latter shall control.

8.4 No Admissions. Nothing in this Agreement shall be construed as an admission by any Party regarding any subject matter of this Agreement, including but not limited to the water rights or priorities of same of the Parties.

8.5 Preservation of Rights. The Parties agree that this Agreement, to the extent allowed by law, preserves all rights of the Parties as they may exist as of the Effective Date of this Agreement. Nothing in this Agreement is to be construed as altering the priorities or entitlements of water right holders among themselves to water from the Santa Ana River or the Basin.

9. MISCELLANEOUS

9.1 Authority. Each signatory of this Agreement represents that s/he is authorized to execute this Agreement on behalf of the Party for which s/he signs. Each Party represents that it has legal authority to enter into this Agreement and to perform all obligations under this Agreement, and that by doing so, such Party is not in breach or violation of any other agreement or contract.

9.2 Amendment. Except as to fluctuations in the Equitable Allocation as otherwise provided for herein, this Agreement may be amended or modified only by a written instrument approved by an eighty (80)%) vote of the Equitable Allocation

9.3 Jurisdiction and Venue. This Agreement shall be governed by and construed in accordance with the laws of the State of California, except for its conflicts of law rules. Any suit, action, or proceeding brought under the scope of this Agreement shall be brought and maintained to the extent allowed by law in the County of San Bernardino, California.

9.4 Headings. The paragraph headings used in this Agreement are intended for convenience only and shall not be used in interpreting this Agreement or in determining any of the rights or obligations of the Parties to this Agreement.

9.5 Construction and Interpretation. This Agreement has been arrived at through negotiations, and each Party has had a full and fair opportunity to revise the terms of this Agreement. As a result, the normal rule of construction that any ambiguities are to be resolved against the drafting Party shall not apply in the construction or interpretation of this Agreement.

9.6 Entire Agreement. This Agreement constitutes the entire agreement of the Parties with respect to its subject matter, and supersedes any prior oral or written agreement, understanding, or representation relating to the subject matter of this Agreement.

9.7 Partial Invalidity. If, after the date of execution of this Agreement, any provision of this Agreement is held to be illegal, invalid, or unenforceable under present or future laws or adjudicatory decisions effective during the term of this Agreement, such provision shall be fully severable. However, in lieu thereof; there shall be added a provision as similar in terms to such illegal, invalid or unenforceable provision as may be possible and be legal, valid and enforceable.

9.8 Successors and Assigns. To the extent authorized by law, this Agreement shall be binding on and inure to the benefit of the successors and assigns of the respective Parties to this Agreement. No Party may assign its interests in or obligations under this Agreement without the written consent of the other Parties, which consent shall not be unreasonably withheld or delayed.

9.9 Waivers. Waiver of any breach or default hereunder shall not constitute a continuing waiver or a waiver of any subsequent breach either of the same or of another provision of this Agreement, and forbearance to enforce one or more of the remedies provided in this Agreement shall not be deemed to be a waiver of that remedy.

9.10 Attorneys' Fees and Costs. The prevailing Party in any litigation or other action to enforce or interpret this Agreement shall be entitled to reasonable attorneys' fees, expert witnesses' fees, costs of suit, and other and necessary disbursements, in addition to any other relief deemed appropriate by a court of competent jurisdiction.

9.11 Necessary Actions. Each Party agrees to execute and deliver additional documents and instruments and to take any additional actions as may be reasonably required to carry out the purposes of this Agreement.

9.12 Compliance with Law. In performing their respective obligations under this Agreement, the Parties shall comply with and conform to all applicable laws, rules, regulations and ordinances.

9.13 Third Party Beneficiaries. This Agreement shall not create any right or interest in any non-Party or in any member of the public as a third party beneficiary.

9.14 Notices. All notices, requests, demands or other communications required or permitted under this Agreement shall be in writing unless provided otherwise in this Agreement and shall be deemed to have been duly given and received on: (i) the date of service if served personally or served by facsimile transmission on the Party by delivery to the person(s) at the address(es) designated below, which designation may be changed from time to time by a Party in writing; (ii) on the first day after mailing, if mailed by Federal Express, U.S. Express Mail, or other similar overnight courier service, postage prepaid, and addressed as provided below, or (iii) on the third day after mailing if mailed to the Party to whom notice is to be given by first class mail, registered or certified, postage prepaid, addressed as follows:

To CITY OF COLTON:	CITY OF COLTON Attn: David Kolk, Utilities Director 650 N. La Cadena Drive Colton, CA 92324
To CITY OF REDLANDS:	CITY OF REDLANDS Attn: Paul Toor, Public Works Director 35 Cajon Street Redlands, CA 92373
To CITY OF RIALTO:	CITY OF RIALTO Attn: Thomas J. Crowley, Utilities Manager 150 S. Palm Avenue Rialto, CA 92376
To CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT:	CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT Attn: Miguel Guerrero, Director, Water Utility 397 Chandler Place San Bernardino, CA 92408
To CITY OF LOMA LINDA:	CITY OF LOMA LINDA Attn: Bill Walker, Director of Utilities 25541 Barton Road Loma Linda, CA 92354
To EAST VALLEY WATER DISTRICT:	EAST VALLEY WATER DISTRICT Attn: John J. Mura, General Manager 3111 Greenspot Road Highland, CA 92346
To SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT:	SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT Attn: Doug Headrick, General Manager 380 E. Vanderbilt Way San Bernardino, CA 92408
To SAN BERNARDINO VALLEY WATER CONSERVATION DISTRICT:	SAN BERNARDINO VALLEY WATER CONSERVATION DISTRICT Attn: Daniel Cozad, General Manager 1630 West Redlands Blvd., Suite A Redlands, California 92373
To FONTANA WATER COMPANY:	FONTANA WATER COMPANY Attn: Chris Fealy, Water Resources Manager Post Office Box 309 Fontana, CA 92335

To WEST VALLEY WATER DISTRICT:	WEST VALLEY WATER DISTRICT Attn: Greg Gage, Assistant General Manager 855 W Baseline Road Rialto, CA 92376
To YUCAIPA VALLEY WATER DISTRICT:	YUCAIPA VALLEY WATER DISTRICT Attn: Joe Zoba, General Manager 12770 2nd Street Yucaipa, CA 92399
To BEAR VALLEY MUTUAL WATER COMPANY:	BEAR VALLEY MUTUAL WATER COMPANY Attn: Bob Martin 101 E. Olive Avenue Redlands, CA 92373
To LOMA LINDA UNIVERSITY:	LOMA LINDA UNIVERSITY Central Utilities Plant Attn: Bill Walker, Director of Utilities 11100 Anderson Street Loma Linda, CA 92350

9.15 Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed to be an original, but all of which together shall constitute but one and the same instrument.

CITY OF COLTON,
a California general law city and municipal corporation

DATED: _____, 2018

By: _____
William R. Smith, City Manager

[Signatures continued on next page]

Dated: 2/21/2016

Agency East Valley Water District

Name: John Mura

Title: General Manager/CEO

YUCAIPA VALLEY WATER DISTRICT

DATED: February 6, 2018

By: _____
Joseph Zoba, General Manager

[Signatures continued on next page]

CITY OF LOMA LINDA
a California charter city and
municipal corporation

ATED: 2/14, 2018

By: _____
T. Jarb Thaipejr, City Manager

[Signatures continued on next page]

BEAR VALLEY MUTUAL WATER COMPANY, a California mutual water company

By: David Knight
David Knight, Board President

DATED: February 20, 2018

[Signatures continued on next page]

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

DATED: February 20, 2018

By: Douglas A. Headrick
Douglas Headrick, General Manager

[Signatures continued on next page]

CITY OF SAN BERNARDINO
MUNICIPAL WATER DEPARTMENT

DATED: 2-27, 2018

By: _____
President, Water Board

Attest: _____

[Signatures continued on next page]

APPROVED AS TO FORM:

Daniel B. Cooper
General Counsel

Dated: 1.27.16

SAN BERNARDINO VALLEY WATER CONSERVATION DISTRICT
1630 W. Redlands Blvd, Suite A
Redlands, CA 92373

Richard Corneille
President, Board of Directors

Attest:
Secretary of the Board

CITY OF RIALTO
a California general law city and municipal corporation

DATED: 2/28, 2018

By: _____
Robb Steel, Interim City Administrator and Development Services Director

[Signatures continued on next page]

LOMA LINDA UNIVERSITY

By: _____
Richard H. Hart, MD, DrPH,
President

[End of Signatures Pages]

CITY OF REDLANDS,
a California general law city and
municipal corporation

DATED: _____, 2020

By:_____
Charles M. Duggan Jr. , City Manager

[Signatures continued on next page]

WEST VALLEY WATER DISTRICT

DATED: _____, 2020

By:_____
Clarence Mansell Jr.
General Manager

[Signatures continued on next page]

EXHIBIT A

Map of Upper Santa Ana Bunker Hill Basin

(Taken from DWR Bulleting No. 118)

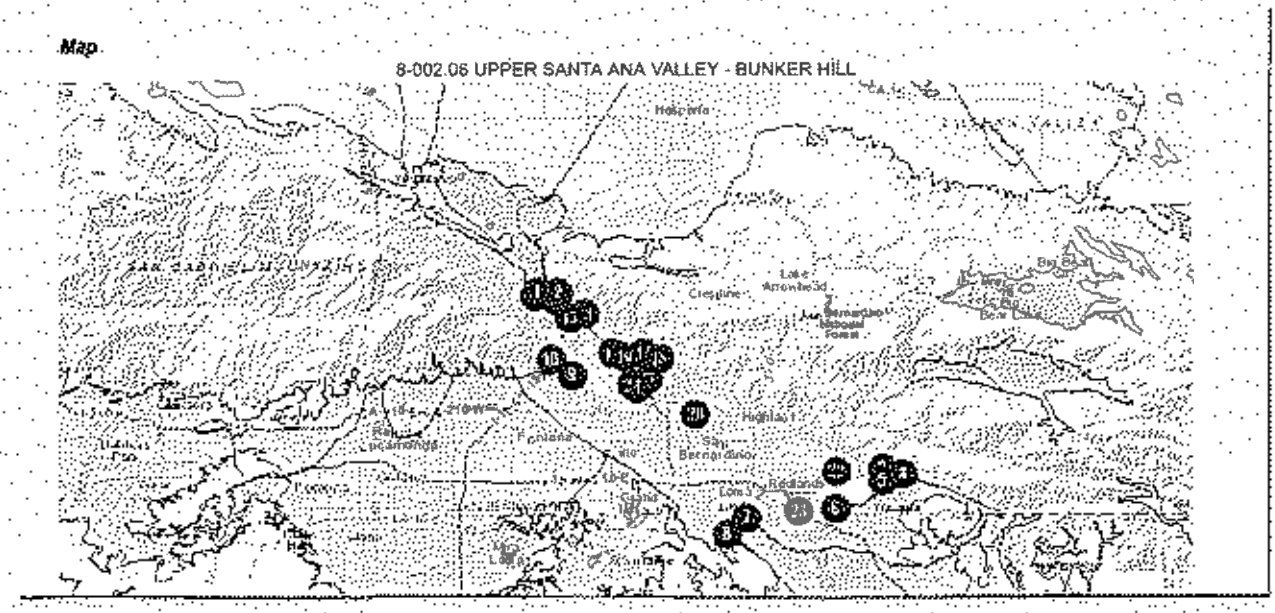


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Exhibit A

2017 SAMPLE Calculation

(recalculation occurs annually)

Agency	Total Costs (2017)	Voting Weight
Bear Valley Mutual Water Company	$ 120	0.003%
City of Colton	$ 114,889	3.1%
City of Loma Linda	$ 254,297	6.8%
City of Redlands	$ 675,115	21.2%
City of Rialto	$ 322,534	8.7%
City of San Bernardino	$ 1,413,384	37.8%
East Valley Water District	$ 442,602	14.1%
Fontana Union Water Company	NA	NA
Loma Linda University	$ 31,157	0.8%
Mountain View Power Co.	$ 84,747	NA
Muscoy Mutual Water Company No. 1	$ 44,106	NA
San Bernardino County - Facility Management	$ 17,976	NA
San Bernardino Valley M.W.D.	$ 1,987	NA
Terrace Water Company	$ 15,082	NA
West Valley Water District	$ 262,360	7.0%
Yucaipa Valley Water District	$ 14,603	0.4%
Other San Bernardino Extractions	$ 222,549	NA
San Bernardino Entities Total:	**$ 3,917,509**	**100%**
Western Entities Total:	**$ 279,500**	**0%**
Total:	**$ 4,197,009**	**100%**

Exhibit B

EQUITABLE ALLOCATION METHOD

The Parties to this agreement have agreed to equitably share costs and establish the voting weight for each Party using the following method, which shall be performed annually after the annual submittal of the Western-San Bernardino Watermaster Report to the Court. The details for this method are included in a Microsoft Excel Spreadsheet titled *BTAC Equitable Allocation Method SBBA 1.18.18.xlsx*, as amended by the GC from time to time, which is incorporated here by reference. Copies of that file have been made available to all parties.

I. Calculation of the Equitable Operations and Maintenance (O&M) Cost.

The equitable distribution of the O&M Costs amongst the Parties shall be calculated from the approved budget, as follows:

$$Equitable\ O\&M\ Cost_{\ Plaintiffs} = 0.2795 \times O\&M\ Costs$$

$$Equitable\ O\&M\ Cost_{\ Non\ Plaintiffs} = Proportion\ of\ Total\ Pumping \times 0.7205 \times O\&M\ Costs$$

where,

O&M Costs = annual budgeted or actual costs to operate and maintain the facilities needed to recharge supplemental water into the SBBA that have been reviewed and approved by the Council

$$\text{Proportion of Total Pumping (\%)} = \frac{\text{Party's total SBBA pumping}}{\text{Non-Plaintiff Total SBBA Pumping}}$$

where,

Party's total SBBA pumping (acre-feet) = the Party's total amount pumped from the SBBA for the previous complete calendar year, as published by the Western-San Bernardino Watermaster, and adjusted for any water pumped by one Party and received by another Party, to coordinate with non-parties still paying the groundwater charge, Parties may be requested to report production to the SBVWCD, as needed.

Non-Plaintiff Total SBBA Pumping (acre-feet) = total Non-Plaintiff pumping of the parties for the previous complete calendar year, as recorded by the Western-San Bernardino Watermaster.

II. Calculation of the Equitable Water Cost.

The equitable distribution of the water cost for sustainability will only be paid by the Non-Plaintiff parties and shall be calculated, as follows:

$$Equitable\ Water\ Cost = Party\ Gap + Sustainability$$

where,

$$\underline{\text{Party Gap (\$)}} = \frac{\left(Gap_{1959-63} + Gap_{Last\ 5\ Years}\right)}{2} * SWP\ Cost$$

where,

$\frac{\left(Gap_{1959-63} + Gap_{Last\ 5\ Years}\right)}{2} < 0$, else Party Gap ($) = $0

Gap $_{1959-63}$ (acre-feet) = $GWSY_{1959-63}$ + $SW_{1959-63}$ - Demand $_{Previous\ Year}$

Gap $_{Last\ 5\ Years}$ (acre-feet) = $GWSY_{Last\ 5\ Years}$ + $SW_{Last\ 5\ Years}$ - Demand $_{Previous\ Year}$ + Net New Recycled $_{Previous\ Year}$

where,

$GWSY_{1959-63}$ = local groundwater supplies available to a Party as a portion of their base period safe yield.

The **base period safe yield** for the SBBA has been proportioned amongst the Parties as described below:

where,

$GWSY_{1959-63}$ = Safe $Yield_{1959-63}$ – $SW_{1959-63}$

$SW_{1959-63}$ = average surface water usage by a party from 1953-1963

Demand $_{Previous\ Year}$ = total water demand calculated for the Party for the previous year using published data, as approved by the Council.

$GWSY_{Last\ 5\ Years}$ = local groundwater supplies available to a Party as a portion of their current Safe Yield.

The **safe yield of the last 5 years** for the SBBA will be proportioned amongst the Parties as described below.

where,

$GWSY_{Last\ 5\ Years}$ = Safe $Yield_{Last\ 5\ Years}$ – $SW_{Last\ 5\ Years}$

$SW_{Last\ 5\ Years}$ = average surface water usage by a party within the last 5 years.

Net New Recycled $_{Previous\ Year}$ = The amount of recycled water from the previous year minus Recycled $_{1959-63}$

where,

$Recycled_{1959-63}$ is the amount of recycled water used in the base period

Sustainability ($) = Water Use x (Total Equitable Water Cost – Total Gap ($))

where,

$$\text{Water Use (\%)} = \frac{\text{Party Water Use (acre-feet)}}{\text{Total Water Use (acre-feet)}}$$

where,

Party Water Use (acre-feet) = the Party's total average water use over the past, complete, 5 year period (surface water, groundwater, recycled water, imported water, etc.)

Total Water Use (acre-feet) = Summation of each individual Party Water Use

Total Equitable Water Cost = Sustainable Amount x SWP Cost

where,

Sustainable Amount (acre-feet) = The amount of SWP water, in acre-feet, needed to achieve long-term sustainability which shall be obtained from the latest edition of the San Bernardino Valley Regional Urban Water Management Plan, Average Scenario for the latest planning year plus the published reliability factor, currently 10%

SWP cost ($/acre-foot) = The cost for recharged SWP water as published in the San Bernardino Valley Municipal Water District Resolution 888, as amended

Total Gap ($) = Summation of each individual Party Gap ($) for all Parties

Proportioning Safe Yield.

The Western-San Bernardino Judgment does not apportion the safe yield by water agency. The Parties agree that, for purposes of this agreement, the Safe Yield will be apportioned, as follows:

Safe Yield$_{1959\text{-}63}$: The safe yield during the Base Period was proportioned as follows:

Agency	Safe Yield$_{1959\text{-}63}$
Bear Valley Mutual Water Company	12,996
City of Colton	3,150
City of Loma Linda	1,855
City of Redlands	26,598
City of Rialto	1,890
City of San Bernardino	19,425
East Valley Water District	13,599
Fontana Union Water Company	14,221
Loma Linda University	1,016
Mountain View Power Co.	1,040
Muscoy Mutual Water Company No. 1	1,767
San Bernardino County - Facility Management	1,532
San Bernardino Valley M.W.D.	-
Terrace Water Company	984
West Valley Water District	11,752
Yucaipa Valley Water District	-

Other Non-Plaintiff Extractions	55,412
Non-Plaintiff Total:	**167,238**

Safe Yield$_{\text{Last 5 years}}$: The safe yield for the previous 5, complete, calendar years shall be proportioned based upon the total water use for each Party, as follows:

Safe Yield$_{\text{Last 5 Years}}$ = Water Use X Safe Yield$_{\text{Non Plaintiffs}}$

Where,

Water Use is a percentage (%) and is defined above

Safe Yield$_{\text{Non Plaintiffs}}$ = defined by the Western-San Bernardino Watermaster from time to time, currently 172,745 acre-feet

Credit for Water. A party can provide a new regional supply for basin benefit and receive monetary credit towards their Equitable water cost.

Credit for Water ($) = water provided for basin benefit x SWP Cost

where,

Water provided for basin benefit = local surface water available to an agency that is controlled by that agency and intentionally delivered for groundwater recharge into the SBBA or new recycled water an agency is using to offset potable water use or is recharging into the SBBA above the amount of recycled water that agency was utilizing during the base period

SWP Cost = defined above

III. Formula for Voting Weight. The voting weight for each Party will be calculated, as follows:

$$\textit{Voting Weight} = \frac{\textit{Total Party Cost}}{\textit{Total Costs}}$$

Where,

Total Party Cost = Equitable O&M Cost $_{\text{Non Plaintiffs}}$ + Equitable Water Cost

Total Costs = 0.7205 x O&M Costs + Total Sustainable Water Cost

The total sum of all of the individual Voting Weight values shall be equal to 1.0.

THE INFORMATION IN THIS BOX IS NOT A PART OF THE CONTRACT AND IS FOR COUNTY USE ONLY

Contract Number 21-140

SAP Number

San Bernardino County Flood Control District

Department Contract Representative	Michael Fam, P.E.
Telephone Number	(909) 387-8120
Contractor	San Bernardino Valley Water Conservation District
Contractor Representative	Melody McDonald
Telephone Number	(909) 793-2503
Contract Term	
Original Contract Amount	
Amendment Amount	
Total Contract Amount	
Cost Center	

Briefly describe the general nature of the contract:

Planning Memorandum of Understanding with the San Bernardino Valley Water Conservation District for Stormwater Recharge at Flood Control Facilities.

FOR COUNTY USE ONLY

Approved as to Legal Form
► See attached
Sophie A. Akins, Deputy County Counsel
Date

Reviewed for Contract Compliance
► Andy Silao
Andy Silao, P.E.
Date 1/27/2021

Reviewed/Approved by District
►
Brendon Biggs, Chief Flood Control Engineer
Date 1-27-21

Non-Standard Contract Coversheet

Revised 3/14/19

THE INFORMATION IN THIS BOX IS NOT A PART OF THE CONTRACT AND IS FOR COUNTY USE ONLY

Contract Number

SAP Number

San Bernardino County
Flood Control District

Department Contract Representative	Michael Fam, P.E.
Telephone Number	(909) 387-8120
Contractor	San Bernardino Valley Water Conservation District
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Contract Term	
Original Contract Amount	
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Total Contract Amount	
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Planning Memorandum of Understanding with the San Bernardino Valley Water Conservation District for Stormwater Recharge at Flood Control Facilities.

FOR COUNTY USE ONLY

Approved as to Legal Form	Reviewed for Contract Compliance	Reviewed/Approved by District
► Sophie Akins	►	►
Sophie A. Akins, Deputy County Counsel	Andy Silao, P.E.	Brendon Biggs, Chief Flood Control Engineer
Date January 6, 2021	Date	Date

Planning Memorandum of Understanding
by and between the San Bernardino County Flood Control District and
San Bernardino Valley Water Conservation District

RECITALS

WHEREAS, the San Bernardino County Flood Control District (FCD) was created by the San Bernardino County Flood Control Act of 1939, California Water Code Appendix section 43-1 *et seq.* (Flood Control Act). The Flood Control Act specifies that the FCD's primary purpose is to provide for the control of flood and storm waters and, secondarily, to conserve such flood and storm waters, and other waters, for beneficial uses in FCD's district area by spreading, storing, retaining, and through percolation.

WHEREAS, in 1910, the Water Conservation Association (WCA) was organized to conserve the water of the Santa Ana River by storing it in the groundwater basin for future use. In 1931, local citizens voted to create the **San Bernardino Valley Water Conservation District** (SBVWCD) as a public agency to protect against the excessive export of the local surface water by downstream agencies. WCA was dissolved in the early 1940s, and all land and water property were transferred to SBVWCD.

WHEREAS, SBVWCD is now constituted as a water conservation district, duly formed and existing under the authority of California Water Code sections 74000 et. seq. SBVWCD has as its primary purpose the capture, spread, and recharge of water, both native and imported, over groundwater recharge facilities it owns, operates, and leases, and the stewardship of lands for compatible water supply and quality, mineral production, and the preservation of sensitive habitats.

WHEREAS, FCD owns and operates a number of flood control facilities within SBVWCD's boundaries.

WHEREAS, SBVWCD has identified FCD's facilities into which storm water flows may be diverted for water recharge purposes, provided such use will not impair the primary purpose and function of FCD facilities, which is and is to remain to maintain adequate flood protection for the safety and protection of the public.

WHEREAS, the potential for such recharge use is at this time conceptual, and requires additional study, including the identification of eligible facilities, the amount and quality of storm water flows potentially available for recharge, the location and capacity of facilities to accommodate such flows, the secondary impacts such recharge might have on groundwater levels, migration of contaminant plumes, sand and gravel extraction or other land uses in the vicinity, subsidence protection, endangered and sensitive species habitat preservation, and related concerns.

WHEREAS, SBVWCD has preliminarily identified FCD facilities for future study of potential recharge, which facilities are more specifically depicted in Exhibit 1 hereto ("Initial Facilities").

WHEREAS, FCD and SBVWCD wish to enter into this Planning Memorandum of Understanding (MOU) to describe, in general terms, their interests in coordinating their efforts to plan and evaluate the practical, environmental, and financial feasibility of such combined use of FCD's facilities.

WHEREAS, as provided herein, this MOU is for undertaking investigations and feasibility studies in contemplation of possible future use of FCD facilities, and at this juncture does not commit either party to any project or future agreement. Any specific agreed-upon use of FCD facilities for recharge will be set forth in a separate water spreading agreement between the parties, for which the requisite California Environmental Quality Act (CEQA) analysis shall be conducted prior to entering into future agreements to approve or implement any specific project.

NOW, THEREFORE, it is mutually agreed as follows:

1. **Recitals**.

The recitals set forth above are true and correct and incorporated herein.

2. **Term.**

This MOU shall have a term of 10 years from the date on which the last party executes this MOU unless earlier terminated as set forth herein. This MOU may be extended by the parties for up to two (2) subsequent 10-year periods, pursuant to written amendment signed by both parties. Either party may terminate this MOU by providing the other party with ninety (90) written notice, provided, however, that termination of this MOU shall not terminate any water spreading agreements the Parties may have entered into as of the date this MOU itself is terminated, and any such water spreading agreements shall be governed by their own termination provisions, if any.

3. **General Planning Efforts.**

3.1 Preliminary Report. In order to evaluate the Initial Facilities (see Exhibit 1) for the use of storm water recharge, SBVWCD shall prepare and submit to FCD a preliminary report, in a form to mutually agreed upon by the parties, identifying the particular FCD facility, the anticipated amount of storm water to be captured and diverted to that facility, and any SBVWCD improvements anticipated to be required for use of the FCD facility for storm water diversion, storage, or recharge. Parties agree to hold one or more scoping meetings where FCD will provide information relating to its operational, engineering, and environmental constraints and SBVWCD will provide concepts to address those constraints while meeting the need and purposes each of the projects. FCD will provide access to the Initial Facilities to SBVWCD, without charge, to conduct field investigations and surveys necessary to finalize the concept designs. Such investigations and field studies by SBVWCD may include, but are not limited to, surveys, soil borings or tests, geologic sampling, plant or animal habitat counts or surveys, or water quality, quantity, or flow measurements or sampling, so long as such

investigations and field studies do not materially impact FCD's maintenance of use of the Initial Facilities. SBVWCD will prepare and submit the Preliminary Report for sites individually or as groups to address such constraints, impacts of the project(s) as an initial step in the permitting process.

3.2 Assessment of Preliminary Report and Planning. Once the preliminary report is submitted by SBVWCD for the specific use of a particular FCD facility, the parties shall allocate sufficient staff time and resources to evaluate the joint use/operation of that existing FCD facility for continued effective use for adequate flood control purposes, in conjunction with proposed storm water recharge. During this evaluation process, SBVWCD shall provide to FCD all of the details associated with the proposed use for each FCD facility including, but not limited to, concept-level construction plans and specifications for any proposed improvements or modifications to the FCD facility (including a statement as to which entity will own the improvements after a project specific agreement terminates), a permit plan identifying any permits or clearances required from any agency or regulatory authority other than FCD or SBVWCD, and a proposed operational plan for each FCD facility. To the extent access rights are indicated as necessary or appropriate for storm water recharge in a FCD facility, the parties shall meet and confer to delineate the scope and extent of such access rights. This information will also include the amount of estimated storm water recharge for each facility, and expected quality of such water.

3.3 Assessment of Secondary Effects of Recharge. SBVWCD's Preliminary Report shall also consider the potential secondary effects of storm water recharge to the environment, including, but not limited to, an evaluation of whether such activities will introduce water quality pollutants or mobilize existing groundwater contamination, or will cause land subsidence, liquefaction, or seepage to low lying lands in any basin to be impacted by the replenishment activities of SBVWCD. The parties acknowledge that SBVWCD will be the agency leading this evaluation as it has the appropriate expertise concerning storm water recharge and the water quality. FCD will independently review SBVWCD's evaluation.

3.4 Considering the statutory purposes of the FCD and the goals of SBVWCD, both parties agree that they will determine, on a case by case basis, which agency will be in charge of seeking permits for projects and which agency will be the "Lead Agency" for purposes of complying with CEQA. The responsibility for CEQA compliance and permits shall be specified in a water spreading agreement.

3.5 SBVWCD will work cooperatively with FCD towards SBVWCD's goal of maximizing the quantity of storm water recharge from the existing FCD's facilities, while maintaining or improving the protection of the public from the dangers of flooding.

4. **Primacy of FCD Use.**

4.1 The parties obligations set forth hereunder shall be subject to the primary purpose of FCD and FCD facilities pursuant to the Flood Control Act to protect property and the public from flood waters. The use of FCD facilities for flood control purposes shall be paramount.

4.2 In determining whether to enter into a water spreading agreement, for joint use of an FCD facility for water recharge, FCD shall have the sole discretionary authority to determine what constitutes "adequate flood protection" for the operation of its facilities and to determine whether a proposed recharge activity is consistent with and compatible with its uses of a facility.

4.3 FCD shall have the sole discretionary authority to determine which of its facilities are available for use in re-charge activities proposed by the SBVWCD. Any prospective use of any FCD facility shall be subject to the parties' approval of a water spreading agreement.

5. No Implied Covenants.

Based on the FCD priorities set forth in the Flood Control Act and FCD's discretion provided in this MOU, as well as the general planning nature of this MOU, FCD and SBVWCD acknowledge and agree that no implied covenants attach to this MOU, including, but not limited to, the implied covenant of good faith and fair dealing. Nothing set forth herein shall be deemed to bind FCD's Board of Supervisors to approve a water spreading agreement. Notwithstanding anything to the contrary herein, FCD and its Board of Supervisors retain the sole discretion to authorize the use of FCD facilities for storm water recharge.

6. Assignment.

This MOU may not be assigned by either party without the written consent of the other party.

7. Indemnification and Insurance.

7.1 FCD agrees to indemnify, defend (with counsel approved by SBVWCD) and hold harmless SBVWCD, its employees, officers, agents, and volunteers from any and all claims, actions, losses, damages, and/or liability resulting from FCD's negligent acts or omissions which arise from FCD's performance of its obligations under this MOU.

7.2 SBVWCD agrees to indemnify, defend (with counsel approved by FCD) and hold harmless the FCD, its employees, officers, agents, and volunteers from any and all claims, actions, losses, damages, and/or liability resulting from the SBVWCD's

negligent acts or omissions which arise from the SBVWCD's performance of its obligations under this MOU.

7.3 In the event FCD and/or SBVWCD is found to be comparatively at fault for any claim, action, loss or damage which results from their respective obligations under this MOU, FCD and/or SBVWCD shall indemnify the other to the extent of its comparative fault.

7.4 FCD and SBVWCD shall maintain throughout the term of this MOU such policies of insurance or legally sufficient self-insurance for Automobile Liability, Comprehensive General Liability, and Workers' Compensation that are adequate to protect against all liabilities and indemnification responsibilities arising out of the performance of the terms, conditions or obligations of this MOU.

8. **Jurisdiction**. This MOU shall be governed by the laws of the State of California. If a court of competent jurisdiction declares any portion of this MOU invalid, illegal, or otherwise unenforceable, the remaining provisions shall continue in full force and effect, unless the purposes of this MOU are frustrated. Any dispute or action to enforce any obligation under this MOU shall be filed and resolved in a Superior Court in San Bernardino County, California. In the event of litigation arising from this MOU, each party to the MOU shall bear its own costs, including attorneys' fees.

9. **Signatures.** This MOU may be signed in counterparts, each of which shall constitute an original, and such counterparts shall together constitute one and the same agreement. The parties shall be entitled to sign and transmit an electronic signature of this MOU (whether by facsimile, PDF or other email transmission), which signature shall be binding on the party whose name is contained therein. Each party providing an electronic signature agrees to promptly execute and deliver to the other party an original signed MOU upon request.

10. **Flood Control District Clause.**
All of the FCD's revenues as defined below, have been pledged to secure the payment of the principal and interest on certain bonds and refunding bonds ("Bonds") issued by the FCD in May 2007. The pledge constitutes a first lien on the revenues for the payment of the Bonds. Any payments under this MOU are subject to the prior pledge of revenues described above. FCD payments pursuant to this MOU will be made to the extent there are sufficient funds available after payment of the Bonds. For purposes of this paragraph, "revenues" shall mean all income and revenue received by the FCD from the operation or ownership of the flood and storm water control and conservation facilities ("Flood Control System") of the FCD (including but not limited to, all real and personal property, or any interest therein, and all additions, improvements, betterments and extensions thereto), determined in accordance with Generally Accepted Accounting Principles, including all ad valorem property taxes received by the FCD pursuant to Article XIIIA of the Constitution of the State of California and Section 95 et seq. of the California Revenue and Taxation Code, all rents, royalties and license and permit fees and charges received by the FCD, investment income and all other money howsoever derived by the FCD from the operation or

ownership of the Flood Control System or arising from the Flood Control System, but excluding (a) ad valorem property taxes levied to pay any voter approved general obligation indebtedness of the FCD, (b) assessments levied pursuant to Section 43-7 or Section 43-26.9 of the San Bernardino County Flood Control Act (Cal. Water Code App. Sect. 43-1 et seq.), and (c) grants, advances or contributions in aid of construction, except to the extent such grants are unrestricted and available for any expenditure of the FCD.

11. **Amendments; Entire Agreement**. Any amendments to this MOU, including but not limited to, the addition of FCD facilities, shall be set forth in a writing signed by both parties. This MOU contains the entire agreement of the parties with respect to the subject matter hereof, and supersedes all other prior negotiations, understandings or contracts.

IN WITNESS WHEREOF, the parties have caused this MOU to be executed by their duly authorized officers or representatives as of the last day and year appearing below.

SAN BERNARDINO VALLEY WATER CONSERVATION DISTRICT

By: _____

President, Board of Directors

SAN BERNARDINO COUNTY
FLOOD CONTROL DISTRICT

►

Curt Hagman, Board Chairman

Dated: FEB 09 2021

SIGNED AND CERTIFIED THAT A COPY OF THIS DOCUMENT HAS BEEN DELIVERED TO THE CHAIRMAN OF THE BOARD
Lynna Monell, Clerk of the Board

By: _____
Deputy

APPROVED AS TO LEGAL FORM:

Michelle D. Blakemore, County Counsel

By: Sophie Akins
Sophie A. Akins
Deputy County Counsel

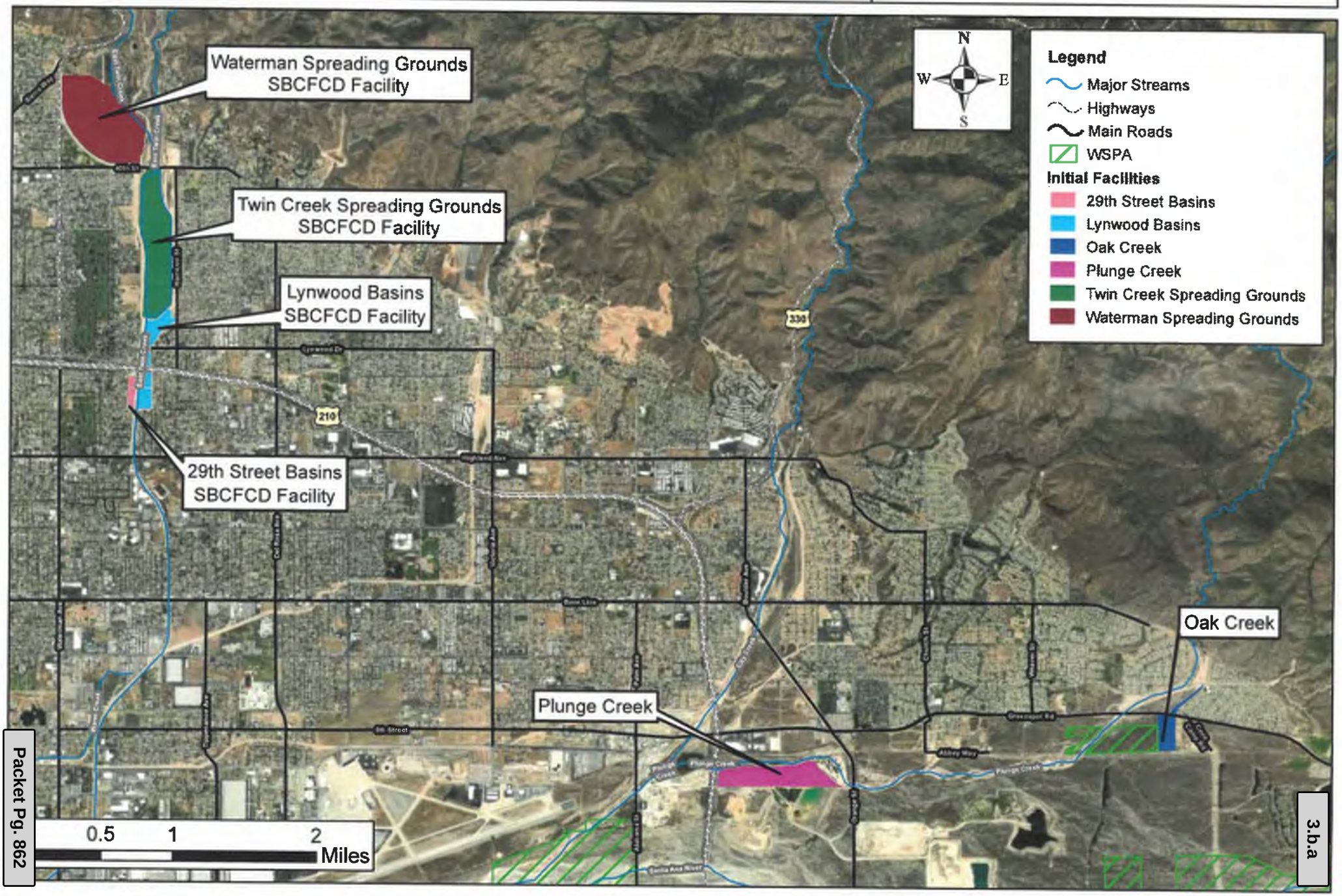
159:015042-0001

15125770.3 a01 05 21

Exhibit 1: Initial Facility Study Area
Planning MOU SBCFCD and SBVWCD

Coordinate System:
NAD 1983 StatePlane California V FIPS 0405 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
Source: SBVWCD, CASIL, SBVMWD
GIS Contact: Katelyn Scholte
M:\Active Recharge\SBCFCD MOU Maps
November 4, 2020

San Bernardino Valley Water Conservation District
Helping Nature Store Our Water



Quick Guide to Fontana Settlement Agreement Amendments

This document summarizes the changes made to the Settlement Agreement dated September 12, 2018 between Plaintiffs and Cross-Defendants San Bernardino Valley Municipal Water District ("Valley District"), Defendants and Cross-Complainants Fontana Union Water Company, San Gabriel Valley Water Company, and Fontana Water Company (collectively, "Fontana"), and Intervenor-Defendant Cucamonga Valley Water District, as amended by subsequent settlement agreements with Plaintiffs and Cross-Defendants West Valley Water District ("West Valley"), the City of Colton ("Colton"), and the City of Rialto ("Rialto").

Recitals

CHANGE	EXPLANATION
Terminology ¶ C	West Valley, Colton, and Rialto are no longer "Non-Settling Plaintiffs," but simply "Parties."
Operative Complaint ¶ D	As for West Valley, Colton, and Rialto, the current operative complaint is the Third Amended Complaint (Nov. 2, 2018). As for Valley District, the current operative complaint is still the Second Amended Complaint (Nov. 24, 2014).
Operative Cross-Complaint ¶ J	As to West Valley, Colton, and Rialto, the current operative cross-complaint is the Second Amended Verified Cross-Complaint (Nov. 14, 2018), which added the 11th cause of action: Breach of Contract – Violation of 1961 Rialto Decree by Colton, Rialto, and West Valley Water District. As for Valley District though, the current operative cross-complaint is still the First Amended Verified Cross-Complaint (Mar. 27, 2015).

Dismissal

CHANGE	EXPLANATION
Payments	In full settlement of all of West Valley's, Colton's, and Rialto's claims in the Litigation, Fontana will cause their insurer Arch Insurance Co. to pay $3M to each party, within 30 days after full execution of the Amendments, and will provide a federal W-2 tax form to each party. But in the event that Arch and Fontana Parties reach an agreement with Rialto, before trial, for more than $3M, then Arch shall pay to each West Valley and Colton the difference.
Releases ¶ 5	The releases include all claims contained in Plaintiff's Third Amended Complaint and Fontana Parties' Second Amended Verified Cross-Complaint. The releases on behalf of West Valley, Colton, and Rialto are unconditional, severable from the other provisions of the Settlement Agreement, and shall remain enforceable even if other provisions of the Settlement Agreement are deemed unenforceable or invalid, so long as West Valley, Colton, and Rialto each receive their $3M.
Stipulation for Dismissal ¶ 10	The Fontana's counsel will prepare and send to Valley District, West Valley, Colton, and Rialto's counsel a stipulation for dismissal, with prejudice, of the claims and cross-claims asserted by the parties. All parties shall promptly execute and Fontana shall promptly file the stipulation with a request for the court to retain jurisdiction.
Retention of Jurisdiction ¶ 10	The stipulation for dismissal will request that the Court retain jurisdiction over the Parties to enforce the settlement agreement, as amended, pursuant to CCP § 664.6. All Parties shall promptly execute and Fontana shall promptly file the request.

Quick Guide to Fontana Settlement Agreement Amendments

Other Agreements

CHANGE	EXPLANATION
Preliminary Injunction former ¶ 3(f), now ¶ 3.1	All extractions by the Fontana Parties within the boundaries of the 1961 Decree area shall be subject to the terms of the preliminary injunction issued by San Bernardino County Superior Court on March 20, 2015, and any subsequent court orders (as in the original Settlement Agreement), until the parties agree otherwise.
Groundwater Council	Within one year of the execution of the Amendment, all parties to the Settlement Agreement will jointly establish a Groundwater Council for the Rialto-Colton Basin. Within 5 years, the Council will conduct studies, modeling runs, and other analyses necessary to develop a plan for sustainable management. It will have the authority to require the parties (except for Valley District) to contribute their fair share towards development of the plan and beneficial projects.
Groundwater Management Plan ¶ 3 (l)	The parties will develop, adopt and implement a Rialto-Colton Basin sustainable groundwater management plan including – if the Parties and other public water suppliers extracting water from the Basin agree – an operating safe yield, a new index well regime, and/or other management tools (e.g. ability to overproduce in any year, subject to replenishment), which may be included in an amended Decree.
Replenishment Accounts ¶ 2(h)-(j)	Valley District will set up and maintain five separate accounts, one each for: (1) Defendants, (2) West Valley, (3) Colton, (4) Rialto, and (5) a general replenishment account. Valley District will disburse limited amounts of money to fund projects that benefit groundwater management in the Rialto Basin. If any party settles with Fontana, they have the option of a replenishment credit account funded either at $6M for Rialto, $4M for Colton, or $3M for West Valley or Defendants OR funded at 37.5% of that amount to be paid within 90 days of the execution of the amendment (provided they request it within 60 days).
Penalties for Overpumping	If a party exceeds its pumping allocation for the water year, it shall pay Valley District to acquire replacement water according to section 3(j) of the settlement agreement. If a party exceeds its pumping allocation by 10% and fails to abide by 3(j), then the party must pay $10,000 per acre-foot for water over the 110% of the allocation to the general replenishment account.

Notice

¶ 11(q)

In addition to the contacts listed in the Settlement Agreement, the following parties shall receive all notices, requests, demands or other communications required or permitted under the Settlement Agreement:

Clarence Mansell
General Manager
West Valley Water District
855 W. Base Line Road
Rialto, CA 92376

David X. Kolk, Ph.D.
Utilities and Public Works Director
650 N. La Cadena Ave
Colton, CA 92324

City Administrator
City of Rialto
150 So. Palm Ave.
Rialto, CA 92376

Robert Tafoya, Esq.
Tafoya & Garcia
316 West 2nd Street, suite 1000
Los Angeles, CA 90012

Geralyn Skapik, Esq.
5861 Pine Ave., suite A-1
Chino Hills, CA 91709

1556927.1

SETTLEMENT AGREEMENT

This Settlement Agreement ("**Agreement**") is entered into and effective this 12th day of September, 2018 by and among Plaintiffs and Cross-Defendants San Bernardino Valley Municipal Water District ("**Valley District**") and Defendants and Cross-Complainants Fontana Union Water Company ("**Fontana Union**"), San Gabriel Valley Water Company, a California Corporation ("**San Gabriel**"), and Fontana Water Company, a division of San Gabriel (collectively, "**Fontana Parties**"), and Intervenor-Defendant Cucamonga Valley Water District ("**Cucamonga**"). Each of the Parties to this Agreement is sometimes referred to as a "**Party**" and are collectively sometimes referred to as the "**Parties.**"

Recitals

A. The Parties are all committed to sustainable groundwater management principles. In furtherance of those important principles, the Parties will implement the specific sustainable groundwater practices and principles expressly set forth in this Agreement. In addition, the Parties are committed to cooperating and collaborating with other water producers, including but not limited to the Non-Settling Plaintiffs as defined below, on additional groundwater sustainability measures, including replenishing the Lytle Creek, Rialto-Colton, and Rialto Basins, as well as the San Bernardino Basin Area, and establishing one or more groundwater sustainability councils to promote reliable water supplies for the beneficial use of the customers they serve.

B. The Parties have been engaged in litigation involving groundwater rights, groundwater management, and related matters entitled *San Bernardino Valley Municipal Water District et al., v. San Gabriel Valley Water Company et al.*, Case No. CIVDS 1311085, San Bernardino Superior Court (the "**Litigation**" as used in this Agreement includes all claims that were or could have been alleged therein.).

C. Valley District together with Plaintiffs West Valley Water District ("West Valley"), City of Colton ("**Colton**") and City of Rialto ("**Rialto**") (West Valley, Colton and Rialto are collectively the "**Non-Settling Plaintiffs**") filed a complaint in the Superior Court of California for the County of San Bernardino on September 12, 2013 against the Fontana Parties.

D. The currently operative complaint is the Second Amended Complaint filed on November 24, 2014. In the Second Amended Complaint, Valley District asserts six constitutional, equitable and statutory claims concerning the Fontana Parties' groundwater rights and extractions from the Rialto-Colton Basin, including claims arising out of the court decree dated December 22, 1961 (the "**1961 Decree**") in the case *The Lytle Creek Water and Improvement Company v. Fontana Ranchos Water Company*, et al., San Bernardino County Superior Court, Case No. 81264. The 1961 Decree governs groundwater pumping from a portion of the Rialto-Colton Basin, which is defined therein as the "**Rialto Basin.**" The claims also concern the Fontana Parties' pumping from a portion of the Rialto-Colton Basin that is outside the Rialto Basin as defined by the 1961 Decree, referred to as the "**Paper Gap**" in the Second Amended Complaint, and referred to herein as "**No Man's Land.**"

E. Valley District also asserts claims concerning the Fontana Parties' pumping from the Lytle Creek region of the San Bernardino Basin Area.

F. The Non-Settling Plaintiffs separately asserted six claims alleging breach of contract and other claims arising from the 1961 Decree.

G. The San Bernardino Basin Area and most but not all of the Rialto-Colton Basin are located within the service area of Valley District. A map of the groundwater basins at issue in the Litigation is attached to the Agreement as Exhibit A.

H. On December 30, 2014, Cucamonga served a Complaint in Intervention as a Defendant-Intervenor in the action.

I. On December 8, 2014, the Fontana Parties filed a Verified Cross-Complaint against Valley District and the other Plaintiffs.

J. The currently operative cross-complaint is the First Amended Verified Cross-Complaint filed on March 27, 2015. The Fontana Parties assert the First, Third, Fourth, Fifth and Sixth Causes of Action against Valley District and the other Plaintiffs for legal, declaratory, and equitable relief concerning their water rights and pumping from the Rialto-Colton Basin, from "No Man's Land," and from the San Bernardino Basin Area. The Fontana Parties also assert claims directly against only Rialto and Valley District for breach of contract and other legal, equitable, and statutory grounds, alleging wrongful activities related to Cross-Defendants' groundwater pumping and sales.

K. The Parties hereto deny and dispute each and all of the claims and cross-claims against them.

L. The Parties now wish to settle and resolve all claims arising out of the Litigation and to promote sustainable management of groundwater in the Rialto and Rialto-Colton Basins and in the San Bernardino Basin Area, including the Lytle Creek Basin, by means of this Agreement, as follows:

Agreements

In consideration of the promises, agreements and releases contained herein and for good and valuable consideration, the Parties agree as follows:

1. *Incorporation of Recitals*

The foregoing Recitals are incorporated herein by reference as though fully set forth.

2. *Replenishment and Sustainability Assessment*

a. Upon execution of this Agreement, the Fontana Parties may apply to become members of the Groundwater Council for the San Bernardino Basin Area. If the Fontana Parties choose to seek to join the Groundwater Council, Valley District will promptly support that request in writing. The Parties also agree that, if there

are other management groups where the Fontana Parties have not been included due, in part, to the Litigation, they may apply to join those groups and Valley District will support their participation in those groups.

b. No later than each February 1, the Fontana Parties will pay Valley District an annual Replenishment and Sustainability Assessment on water that the Fontana Parties produced in the prior calendar year from the Lytle Creek region of the San Bernardino Basin Area commencing upon the effective date of this Agreement. The Replenishment and Sustainability Assessment will start at $127.90 per acre-foot and will be indexed to percentage increases in Metropolitan Water District of Southern California's Tier I Untreated Water rate, or the equivalent.

c. Valley District shall use the proceeds of the Replenishment and Sustainability Assessment, save for an amount needed to satisfy the Fontana Parties' pro rata share of the groundwater sustainability charge for the San Bernardino Basin Area pursuant to the San Bernardino Basin Groundwater Council Framework Agreement, dated February 23, 2018 or any successor agreement, to obtain replenishment water for delivery to the Rialto Basin in an amount of 61,000 acre-feet, which fulfills all of the Parties' requirements for the replenishment of the Rialto Basin as determined by Valley District. Valley District shall apply these funds to cover all of its direct costs incurred in obtaining and delivering such replenishment water, including, without limitation, acquisition and transportation costs, facility costs (capital and operation/maintenance), and any similar direct costs incurred as part of the actions (but not including staff time, overhead or salaries/benefits) needed to accomplish the replenishment. Valley District may accomplish the replenishment by means of exchanges, in-lieu recharge of the Rialto Basin, direct recharge of that Basin, direct deliveries to the Fontana Parties, or other means reasonably acceptable to the Parties. By agreeing to the Replenishment and Sustainability Assessments in this Agreement, the Fontana Parties do not admit that they are legally obligated to replenish the Rialto Basin.

d. Valley District agrees that it will use its best efforts to obtain such replenishment water in a timely basis at the lowest cost, recognizing that the timing of the purchase of water will be at the reasonable discretion of Valley District. At no time shall Valley District purchase water at a rate greater than the then-current Metropolitan Water District of Southern California's Tier II Untreated Water rate or equivalent. Within 30 days after each such purchase of replenishment water, Valley District will account to the Fontana Parties in a statement specifying the seller, the amount of water purchased, the price and other anticipated direct costs of purchase and replenishment. The Parties will cooperate, together with the Non-Settling Plaintiffs, regarding such purchases and regarding the timing, location, and manner in which the purchased water will be replenished to the Basin.

e. Valley District shall provide notice to the other Parties during the calendar year in which Valley District anticipates that it will complete the replenishment as provided in this Agreement of 61,000 acre-feet into the Rialto Basin and shall convene a meeting to determine whether or not to modify the Replenishment and

Sustainability Assessment rate for water extracted by the Fontana Parties from the Lytle Creek region of the San Bernardino Basin Area.

f. Upon achieving the replenishment described in subparagraph [c] above, Valley District agrees to dedicate the proceeds of the Replenishment and Sustainability Assessment on a regional basis to fund water supply projects that benefit the Rialto Basin and/or the Lytle Creek region of the San Bernardino Basin Area. Such regional projects may include, but are not limited to, the importation of water, the development of spreading basins and other facilities to capture local stormwater runoff, and other projects that Valley District, acting in cooperation and in conjunction with other agencies, may deem appropriate to enhance water supply reliability for all public water suppliers in the Rialto Basin and/or the Lytle Creek region of the San Bernardino Basin Area.

g. The Parties shall rely on the following principles in determining whether or not, and if so, how to modify the rate charged for water extracted by the Fontana Parties from the Lytle Creek region of the San Bernardino Basin Area, provided that the rate shall not exceed the then-current indexed rate identified in paragraph 2(b) above:

i. Valley District, acting in cooperation and in conjunction with other agencies that extract water from the Rialto Basin, will seek to purchase water at the lowest possible cost for recharge in the Lytle Creek region of the San Bernardino Basin Area and the Rialto Basin and to support the long-term sustainability, reliability, and reasonable and beneficial use of groundwater extractions from the Lytle Creek region of the San Bernardino Basin Area and the Rialto Basin.

ii. Valley District, acting in cooperation with other agencies that extract water from the Rialto Basin and the Lytle Creek region of the San Bernardino Basin Area, will develop, permit, fund and construct such facilities (or improvements to existing facilities) that may be necessary or useful to ensure that the Parties and other agencies that extract water from the Lytle Creek region of the San Bernardino Basin Area and the Rialto Basin have a reliable and sustainable water supply for their respective customers.

iii. The Parties agree that the long-term sustainable management of the San Bernardino Basin Area (including but not limited to the Lytle Creek Basin) and the Rialto Basin shall not cause stranded assets and shall attempt to maximize the water supplies available to all parties extracting water from those Basins.

3. *Cooperative and Sustainable Groundwater Management of the Rialto-Colton Basin*

The Parties agree to the following principles for enhanced and sustainable groundwater management of the Rialto-Colton Basin, consistent with the constitutional requirement to put all water to reasonable and beneficial use. The Parties will undertake to work

cooperatively with, and will encourage, other public water suppliers in that Basin to adopt these principles as the basis for a long-term cooperative, enhanced, and sustainable groundwater management agreement to be included in an amended 1961 Decree that will promote and assure sustainable groundwater supplies.

a. Sustainable groundwater management of the Rialto-Colton Basin shall not cause stranded assets and shall attempt to maximize the water supplies available to all public water suppliers extracting water from the Basin.

b. The Parties agree that they will respect the boundary between Valley District and the Metropolitan Water District of Southern California and will work cooperatively together to ensure that all water for which there is a legal obligation to pay when it moves across that boundary is charged at the rate applicable to such water.

c. The Parties agree to develop accounting principles to ensure that all Parties' use and movement of water fully complies with the terms of this Agreement.

d. For all of the Parties' pumping pursuant to the 1961 Decree and from No Man's Land, any pumping curtailment for a given year will take effect in the month following the notice of the measurement of the spring high index well levels and remain in effect until modified by the notice of the measurement of the following year's spring high index well levels.

e. The Fontana Parties may, without objection from Valley District, extract 5,014 acre-feet/year from wells located in No Man's Land (as shown on the map attached hereto as Exhibit A). Such extraction allocation may be combined with and also may be utilized together with the Fontana Parties' pumping allocation from wells within the Rialto Basin that was established pursuant to the 1961 Decree. The Parties agree to work with the Non-Settling Parties to develop a management plan that would evaluate and address the extractions from wells outside the Rialto Basin by Non-Settling Parties that may significantly affect the Rialto Basin. All wells and extractions discussed in this subsection shall be subject to and governed by the provisions of the 1961 Decree, including without limitation by paragraph 7 of the 1961 Decree.

f. All extractions by the Fontana Parties within the boundaries of the 1961 Decree area shall be subject to the terms of the Preliminary Injunction issued by the San Bernardino County Superior Court on March 20, 2015, and any subsequent court orders.

g. Valley District, using funds from the Fontana Parties and other public water suppliers from the Rialto Basin, shall seek to purchase water for importation into the Rialto Basin that will enable all public water suppliers using the Rialto Basin to extract the water needed by their customers in their respective service areas each year on a sustainable basis, *provided that* Valley District shall select projects or replenishment locations to reflect the Parties' respective payments towards such replenishment.

h. To facilitate such long-term sustainable and reliable use of the Rialto Basin, the Parties intend to create a water market so that any public water supplier that does not need to use its entire allocation from the Rialto Basin in a given year may lease the unused allocation to another public water supplier, under terms and conditions established by those parties, *provided that* all such arrangements must be consistent with this Agreement and all water provided directly or indirectly by Valley District that is delivered outside of Valley District's service area shall be replaced at the appropriate full-cost rate of either the Metropolitan Water District of Southern California or Valley District, which cost shall be solely borne by the party receiving the water.

i. The Parties support and encourage the importation of water to serve multiple purposes, specifically:

   i. Replenishing the Rialto Basin in an amount of 61,000 acre-feet for the reasons and in the manner described in paragraph [2] above.

   ii. To allow all parties that extract water from the Rialto Basin to meet the reasonable and beneficial demands of their respective customers.

   iii. Providing replenishment of the Rialto Basin to ensure the sustainability of water extractions from the Rialto Basin, which includes the importation of water to moderate the hydrologic cycle on both an intra-annual and a long-term basis.

j. Any party to the 1961 Decree may lease or purchase unused water rights from any other party to the 1961 Decree on terms mutually acceptable to those parties, *provided that* any such lease or purchase shall be consistent with the terms of this Settlement Agreement. If any party to the 1961 Decree extracts in the future more water than it is entitled to extract (such entitlement shall include any future water rights acquired by lease or purchase) in any given year, then that party shall pay Valley District within 12 months thereafter to acquire replacement water. Valley District will acquire such replacement water in a manner and at a time that minimizes its cost; provided, however, that the quantity of such additional extractions and replacement water by all parties to the 1961 Decree in any given year shall not be greater than ten percent (10%) of Valley District's annual Rialto Basin recharge capacity for that year unless a greater amount is authorized by or under the authority of Valley District's General Manager.

k. The Parties will jointly seek concurrence from the parties to the 1961 Decree to modify that Decree to utilize a calendar year rather than an October 1 through September 30 water year.

l. The Parties are willing to develop, adopt and implement a Rialto-Colton Basin sustainable groundwater management plan including, if the Parties and other public water suppliers extracting water from the Rialto-Colton Basin agree, an operating safe yield, a new index well regime, and/or other groundwater

management tools (including the ability to overproduce in any year subject to replenishment), which may be included in an amended Decree.

4. *Valley District Sales of Water to San Gabriel*

a. Upon placement of an order per Resolution 888, Valley District will deliver State Water Project water which San Gabriel prepaid and pre-purchased from Valley District from January 2003 through June 2006.

b. Upon placement of an order per Resolution 888, Valley District will fulfill its duties pursuant to the Mutual Assistance Letter agreement dated August 4, 2008 between Valley District, Metropolitan Water District of Southern California, and Inland Empire Utilities Agency (**IEUA**) for delivery of State Water Project water to San Gabriel through IEUA's CB19 connection.

c. Upon placement of an order per Resolution 888, Valley District and San Gabriel will promptly activate their existing physical connection to enable San Gabriel to take delivery of State Water Project water for delivery through San Gabriel's system to its customers (1) in Valley District's territory at Valley District's in-district rate, and (2) in IEUA's territory with IEUA's and Metropolitan Water District of Southern California's concurrence and at IEUA's Tier 1 water rate.

5. *Release*

The Parties, and each of them, on behalf of themselves, and each of their respective past and present subsidiaries, parents, successors and predecessors, affiliates, related entities and divisions, partners, members, principals, associates, directors, managing or other agents, management personnel, officers, directors, shareholders, administrators, servants, employees, staff, attorneys, consultants, advisors, accountants, insurers, representatives, heirs and assigns and on behalf of any person or entity who may claim by or through them (all collectively, "**Associated Parties**"), hereby release, discharge, and agree not to sue each other and each other's Associated Parties, from any and all liabilities, claims, causes of action, obligations, demands, losses, damages, costs or expenses of any kind or nature whatsoever, past or present, ascertained or unascertained, known or unknown, suspected or unsuspected, claimed or unclaimed, which they have, or have ever had, by virtue of any act, omission, reason, cause or thing arising from or related to the Litigation, i.e., the claims contained in the Plaintiffs' Second Amended Complaint and the Fontana Parties' First Amended Cross-Complaint.

In addition, Valley District hereby releases the Fontana Parties from all future claims that Valley District may make: (1) based on any provision of either the Orange County Judgment or the Western Judgment that imposes limits or restrictions on the Fontana Parties' Lytle Creek water rights, and (2) for alleged damages caused by the Fontana Parties' export of Lytle Creek water from the SBBA. These releases of future claims are expressly conditioned on the Fontana Parties' diversions, extractions, and deliveries pursuant to such water rights being consistent with the terms of this Agreement, including but not limited to the Replenishment and Sustainability Assessment provisions of Section 2 of this Agreement.

None of the foregoing releases shall be construed to release a Party's future claim that another party has violated the terms of this Agreement or to preclude any party's future enforcement of the terms of this Agreement.

6. *Use of the Term Assessment*

The Parties' use herein of the term "assessment" to describe payments made under this Agreement is not intended by the Parties to bring such payments within the scope of Article XIII C of the California Constitution, the Municipal Water District Law (California Water Code sections 71000 *et seq.*) nor any other legal requirement associated with "assessments."

7. *Agreement re Use of Recalibrated Model*

The Parties agree to limit use of the 2018 Recalibrated Rialto-Colton Basin Groundwater Model, which was developed by Geoscience and other parties and consultants (the "Model"), as follows:

a. The Model may not be used in any litigation or administrative proceedings in a manner adverse to any Party hereto. The Parties hereto reserve and do not waive any of their claims of privilege or other objections to the use of the Model in the Litigation by any Non-Settling Plaintiffs. Notwithstanding the April 6, 2016 Agreement to Protect Confidentiality of Communications in Settlement Negotiations, the Parties hereto may use any version of the Model in litigation or administrative proceedings against other parties, or for other purposes, so long as it is not used against any of the Parties hereto.

b. Specifically, the Parties agree not to object to use of the Model as follows: (a) in connection with efforts by the United States Environmental Protection Agency and other parties to remediate groundwater contamination in any groundwater basin, (b) in support of Valley District's development of the Santa Ana River Watershed Integrated Model, and (c) in connection with any Party's groundwater recharge and other groundwater management plans and projects. Nothing herein is intended to preclude any use of the Santa Ana River Watershed Integrated Model.

8. No Admissions

The Parties agree that California Evidence Code sections 1152 and 1154, and Federal Rule of Evidence 408, render this Agreement inadmissible as evidence against any of the Parties in any adjudicative or quasi-adjudicative proceeding, except that either Party may offer this Agreement as evidence in an action that seeks to compel the other Party to perform its obligations under this Agreement. This Agreement may also be admitted to prove that the Fontana Parties have agreed to adequate replenishment of the Rialto Basin. Nothing in this Settlement Agreement admits or shall be construed as admitting any wrongdoing by any Party. In particular, and without limiting the generality of the preceding sentence, the Fontana Parties do not admit that they violated the 1961 Decree.

9. *Costs and Fees*

Each Party shall bear its own fees and costs, including attorneys' and experts' fees, associated with the Litigation and this Agreement, including any dispute or other proceeding regarding this Agreement that may arise in the future.

10. *Dismissal of the Action*

Within five (5) business days of execution by all Parties, Valley District's counsel shall prepare and send to the Fontana Parties' counsel a Stipulation for Dismissal, with prejudice, of the claims and cross-claims asserted by Valley District and the Fontana Parties against each other. Within five (5) business days of receiving Fontana Parties' counsel's signature (or permission to use an e-signature), Valley District's counsel shall file the Stipulation for Dismissal with the Court. The Parties agree to seek judicial approval of this Agreement.

11. *General Provisions*

a. *Authority*. Each signatory of this Agreement represents that s/he is authorized to execute this Agreement on behalf of the Party for which s/he signs. Each Party represents that it has legal authority to enter into this Agreement and to perform all obligations under this Agreement.

b. *Amendment*. This Agreement may be amended or modified only by a written instrument executed by each of the Parties to this Agreement.

c. *Civil Code Section 1542 Waiver*. The Parties expressly waive the rights provided under California Civil Code Section 1542, which states that:

A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE CREDITOR DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE, WHICH IF KNOWN BY HIM OR HER MUST HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH DEBTOR.

The Parties understand the significance and consequences of this California Civil Code Section 1542 waiver, they assume the risk of any unknown facts and claims released by this Agreement, and they hereby assume full responsibility for any damages or losses covered by this waiver.

Initials: MWB _____ _____ _____ _____

d. *Jurisdiction and Venue*. This Agreement shall be governed by and construed in accordance with the laws of the State of California. Any suit, action, or proceeding brought under the scope of this Agreement shall be brought and maintained to the extent allowed by law in the County of San Bernardino, California.

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Within five (5) business days of execution by all Parties, Valley District's counsel shall prepare and send to the Fontana Parties' counsel a Stipulation for Dismissal, with prejudice, of the claims and cross-claims asserted by Valley District and the Fontana Parties against each other. Within five (5) business days of receiving Fontana Parties' counsel's signature (or permission to use an e-signature), Valley District's counsel shall file the Stipulation for Dismissal with the Court. The Parties agree to seek judicial approval of this Agreement.

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The Parties understand the significance and consequences of this California Civil Code Section 1542 waiver, they assume the risk of any unknown facts and claims released by this Agreement, and they hereby assume full responsibility for any damages or losses covered by this waiver.

Initials: _____ _____ _____ _____

d. *Jurisdiction and Venue*. This Agreement shall be governed by and construed in accordance with the laws of the State of California. Any suit, action, or proceeding brought under the scope of this Agreement shall be brought and maintained to the extent allowed by law in the County of San Bernardino, California.

e. *Headings*. The paragraph headings used in this Agreement are intended for convenience only and shall not be used in interpreting this Agreement or in determining any of the rights or obligations of the Parties to this Agreement.

f. *Construction and Interpretation*. This Agreement has been arrived at through negotiations and each Party has had a full and fair opportunity to revise the terms of this Agreement. As a result, the normal rule of construction that any ambiguities are to be resolved against the drafting Party shall not apply in the construction or interpretation of this Agreement.

g. *Entire Agreement*. This Agreement constitutes the entire and final agreement of the Parties with respect to the subject matter of this Agreement and supersedes any prior oral or written agreement, understanding, or representation relating to the subject matter of this Agreement.

h. *Successors and Assigns*. This Agreement shall be binding on and inure to the benefit of the successors and assigns of the respective Parties to this Agreement. No Party may assign its interests in or obligations under this Agreement without the written consent of the other Parties, which consent shall not be unreasonably withheld or delayed.

i. *Waivers*. Waiver of any breach or default hereunder shall not constitute a continuing waiver or a waiver of any subsequent breach either of the same or of another provision of this Agreement. Oral waivers shall not be permitted or valid.

j. *Warranty*. Each Party hereto warrants and represents that it has the power and authority to settle and release claims as set forth herein, and that its signatory is duly authorized and empowered to sign this Agreement on its behalf. Each party further warrants that it has been represented by legal counsel in the negotiation and drafting of this Agreement. This Agreement is the result of a negotiated compromise and was jointly drafted by the Parties.

k. *Necessary Actions*. Each Party agrees to execute and deliver additional documents and instruments and to take any additional actions as may be reasonably required to carry out the purposes of this Agreement. The Parties further agree to take no action that would frustrate the purposes of this Agreement.

l. *Compliance with Law*. In performing their respective obligations under this Agreement, the Parties shall comply with and conform to all applicable laws, rules, regulations and ordinances.

m. *Third Party Beneficiaries*. This Agreement shall not create any right or interest in any non-Party or in any member of the public as a third party beneficiary.

n. *Counterparts*. This Agreement may be executed in one or more counterparts, each of which shall be deemed to be an original, but all of which together shall constitute but one and the same instrument.

o. *Non-Reliance.* The Parties represent, warrant, agree, and shall be forever estopped to deny each of the following:

i. That no adverse party or attorney has made, nor have the Parties relied upon, any promise, representation or warranty whatsoever, express or implied, which is not contained herein, to induce them to execute this Agreement;

ii. That they have read and understand this Agreement;

iii. That the Parties are the sole owners of all claims and causes of action that they have asserted in this lawsuit, and that they have never assigned or transferred any of said claims or causes of action to any other party;

iv. That the Parties and their attorneys have made such investigation as they deem necessary of the facts and law pertaining to this Agreement and the value of the consideration and the claims being released hereby; and

v. That if they subsequently discover that any fact relied upon by them in entering into this Agreement was untrue, that any facts were concealed from them, or that their understanding of the facts or law or the terms of this Agreement was in any way incorrect, they shall still not be entitled to set aside this Agreement and the above releases.

p. *Cooperation.* The Parties will cooperate and coordinate all public announcements relating to this Agreement.

q. *Notices*. All notices, requests, demands or other communications required or permitted under this Agreement shall be in writing unless provided otherwise in this Agreement and shall be deemed to have been duly given and received on: (i) the date of service if served personally or served by electronic mail or facsimile transmission on the Party to whom notice is to be given at the address(es) provided below, (ii) on the first day after mailing, if mailed by Federal Express, U.S. Express Mail, or other similar overnight courier service, postage prepaid, and addressed as provided below, or (iii) on the third day after mailing if mailed to the Party to whom notice is to be given by first class mail, registered or certified, postage prepaid, addressed as follows:

General Manager
San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
San Bernardino, CA 92408

With a copy to:
David Aladjem
Downey Brand LLP
621 Capitol Mall, 18th Floor
Sacramento, CA 95814

President
San Gabriel Valley Water Company
11142 Garvey Avenue
El Monte, CA 91733

With a copy to:
T. J. Ryan
Vice President and General Counsel
San Gabriel Valley Water Company
11142 Garvey Avenue
El Monte, CA 91733

General Manager
Fontana Water Company
15966 Arrow Route
Fontana, CA 92335

With a copy to:
T. J. Ryan
Vice President and General Counsel
San Gabriel Valley Water Company
11142 Garvey Avenue
El Monte, CA 91733

President
Fontana Union Water Company
15966 Arrow Route
Fontana, CA 92335

With a copy to:
Thomas H. McPeters, Esq.
700 E. Redlands Boulevard, Suite U-297
Redlands, CA 92373-6109

General Manager
Cucamonga Valley Water District
10440 Ashford St.
Rancho Cucamonga, CA 91730-2799

With a copy to:
Thomas S. Bunn III
Lagerlof, Senecal, Gosney & Kruse
301 N Lake Av Ste 1000
Pasadena, CA 91101-5123

Dated: September 12, 2018

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: _____
Mark Bulot
Board President

Dated: September 12, 2018

Approved As To Form:

By: _____
David R.E. Aladjem
Special Counsel

Dated: September ___, 2018

SAN GABRIEL VALLEY WATER COMPANY

By: _____
Michael L. Whitehead
Chief Executive Officer

Dated: September ___, 2018

Approved As To Form:

By: _____
Frederic A. Fudacz
Nossaman LLP

Dated: September ___, 2018

FONTANA WATER COMPANY

By: _____
Robert W. Nicholson
President

Dated: September ___, 2018

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: _____
Mark Bulot
Board President

Dated: September ___, 2018

Approved As To Form:

By: _____
David R.E. Aladjem
Special Counsel

Dated: September 12, 2018

SAN GABRIEL VALLEY WATER COMPANY

By: _____
Michael L. Whitehead
Chief Executive Officer

Dated: September ___, 2018

Approved As To Form:

By: _____
Frederic A. Fudacz
Nossaman LLP

Dated: September 12, 2018

FONTANA WATER COMPANY

By: _____
Robert W. Nicholson
President

Dated: September 13, 2018

Approved As To Form:

By: _____
Frederic A. Fudacz
Nossaman LLP

Dated: September ___, 2018

FONTANA UNION WATER COMPANY

By: _____
Martin E. Zvirbulis
President

Dated: September 13, 2018

Approved As To Form:

By: _____
Frederic A. Fudacz
Nossaman LLP

Dated: September ___, 2018

CUCAMONGA VALLEY WATER DISTRICT

By: _____
James V. Curatalo, Jr.
President

Dated: September ___, 2018

Approved As To Form:

By: _____
Thomas S. Bunn III
Special Counsel

Dated: September ___, 2018

Approved As To Form:

By: _____
Frederic A. Fudacz
Nossaman LLP

Dated: September ___, 2018

FONTANA UNION WATER COMPANY

By: _____
Martin E. Zvirbulis
President

Dated: September ___, 2018

Approved As To Form:

By: _____
Frederic A. Fudacz
Nossaman LLP

Dated: September ___, 2018

CUCAMONGA VALLEY WATER DISTRICT

By: _____
James V. Curatalo, Jr.
President

Dated: September 12, 2018

Approved As To Form:

By: Thomas S. Bunn III
Thomas S. Bunn III
Special Counsel

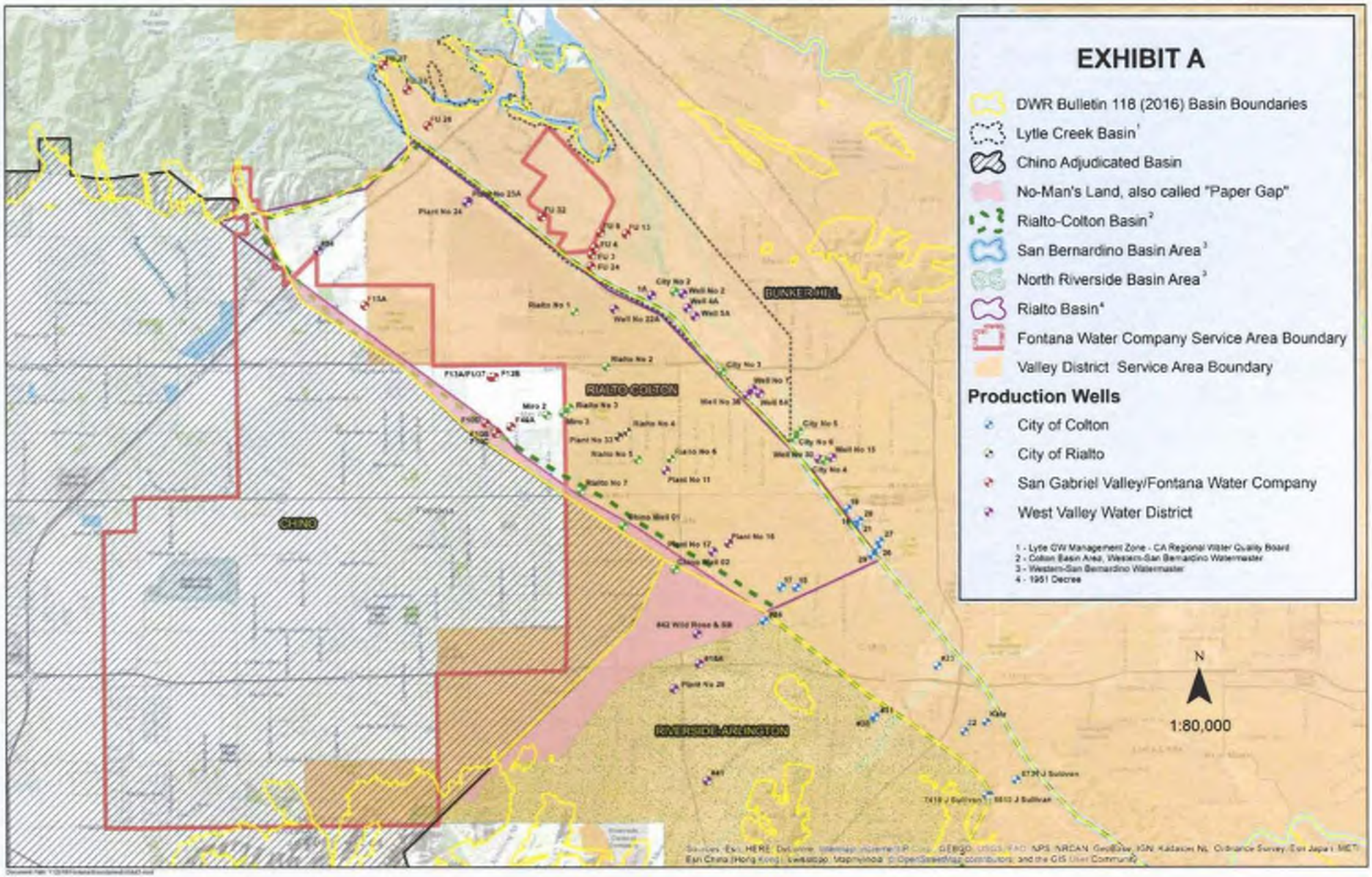
EXHIBIT A
DWR Bulletin 118 (2016) Basin Boundaries
Lytle Creek Basin[1]
Chino Adjudicated Basin
No-Man's Land, also called "Paper Gap"
Rialto-Colton Basin[2]
San Bernardino Basin Area[3]
North Riverside Basin Area[3]
Rialto Basin[4]
Fontana Water Company Service Area Boundary
Valley District Service Area Boundary
Production Wells
City of Colton
City of Rialto
San Gabriel Valley/Fontana Water Company
West Valley Water District
1 - Lytle GW Management Zone - CA Regional Water Quality Board
2 - Colton Basin Area, Western-San Bernardino Watermaster
3 - Western-San Bernardino Watermaster
4 - 1961 Decree
BUNKER HILL
RIALTO COLTON
CHINO
RIVERSIDE-ARLINGTON
N
1:80,000

COLTON AMENDMENT TO SETTLEMENT AGREEMENT

This First Amendment to the Settlement Agreement dated September 12, 2018 ("**Settlement Agreement**") is entered into and effective this ___ day of February, 2019 by and among Plaintiffs and Cross-Defendants San Bernardino Valley Municipal Water District ("**Valley District**") and City of Colton ("**Colton**") and Defendants and Cross-Complainants Fontana Union Water Company ("**Fontana Union**"), San Gabriel Valley Water Company, a California Corporation ("**San Gabriel**"), and Fontana Water Company, a division of San Gabriel (collectively, "**Fontana Parties**"), and Intervenor-Defendant Cucamonga Valley Water District ("**Cucamonga**"). Each of the Parties to this Agreement is sometimes referred to as a "**Party**" and are collectively sometimes referred to as the "**Parties.**"

Recitals

A. On September 12, 2018, Valley District, the Fontana Parties, and Cucamonga entered into a Settlement Agreement.

B. Colton now wishes to join that Settlement Agreement as a Party, to settle and resolve all of its claims and cross-claims in the Litigation, and to promote the sustainable groundwater management principles set forth therein.

Agreements

In consideration of the promises, agreements and releases contained herein and for good and valuable consideration, the Parties agree as follows:

1. *Acceptance and Incorporation of Settlement Agreement*

   Colton accepts and agrees to the Recitals, definitions, principles, and Agreements set forth in the Settlement Agreement, which are incorporated herein by reference, except for those delineations and amendments set forth in this Amendment.

2. *Amended Definitions and Recitals.*

   Recital C of the Settlement Agreement is hereby amended to include Colton among the "Parties" and exclude it from the "Non-Settling Plaintiffs."

   Recital D of the Settlement Agreement is hereby amended to add at the end: "As for Colton, the current operative complaint is the Third Amended Complaint filed on or about November 2, 2018.

   Recital F is hereby amended to state: "Colton and the Non-Settling Plaintiffs separately asserted six claims alleging breach of contract and other claims arising from the 1961 Decree."

   Recital J is hereby amended to add at the end: "As for Colton, the current operative cross-complaint is the Second Amended Verified Cross-Complaint which was filed on or about November 14, 2018, which added the 11th Cause of Action, entitled Breach of Contract – Violation of 1961 Rialto Decree by Colton, Rialto and West Valley Water District."

3. *Payment to Colton.*

a. In full settlement of all of Colton's claims in the Litigation, the Fontana Parties' will cause their insurer Arch Insurance Company to pay Colton the total sum of $3 million within 30 days after full execution of this Amendment and Colton providing a federal W-9 tax form for its designated payee.

b. In the event that Arch and the Fontana Parties reach an agreement with Rialto, before trial, that results in a payment by Arch to Rialto that exceeds $3 million, then Arch shall pay Colton the difference between the amount paid to Rialto and the $3 million.

4. *Preliminary Injunction*

Section 3(f) of the Settlement Agreement shall be deleted and replaced with a new Section 3.1 stating:
"All extractions by the Fontana Parties within the boundaries of the 1961 Decree area shall be subject to the terms of the Preliminary Injunction issued by the San Bernardino County Superior Court on March 20, 2015, and any subsequent court orders, until the Parties agree otherwise."

5. *Release*

Section 5 of the Settlement Agreement is amended by adding the following sentence to the end of its first paragraph:
"This release on behalf of Colton is unconditional and severable from the other provisions of the Settlement Agreement as amended herein, and this release shall remain enforceable even if other provisions of the Settlement Agreement are deemed unenforceable or invalid, so long as Colton receives the $3 million settlement payment required above."

6. *Request for Dismissal of the Action.*

Section 10 of the Settlement Agreement is replaced with the following:
"Within five (5) business days of full execution of this Amendment, the Fontana Parties' counsel shall prepare and send to counsel for Colton and Valley District a stipulation for dismissal with prejudice of the claims and cross-claims asserted by Colton and the Fontana Parties against each other. Pursuant to CCP §664.6, the stipulation for dismissal shall also request that the Court retain jurisdiction over the Parties to enforce the Settlement Agreement, as amended, until performance in full of its terms, notwithstanding the above dismissals. All Parties shall promptly execute and the Fontana Parties shall promptly file with the Court the stipulation for dismissal and retention of jurisdiction."

7. *Notices.*

Section 11(q) of the Settlement Agreement is amended to add the following notice recipients for Colton:

David X. Kolk, Ph.D.
Utilities and Public Works Director
650 N. La Cadena Ave

Colton, CA 92324
and
Utilities Director
650 N. La Cadena Ave
Colton, CA 92324

With a copy to:
Geralyn Skapik, Esq.
5861 Pine Ave., suite A-1
Chino Hills, CA 91709

8. *Groundwater Management Plan.*

Section 3(l) of the Settlement Agreement is replaced with the following: "The Parties will develop, adopt and implement a Rialto-Colton Basin sustainable groundwater management plan including, if the Parties and other public water suppliers extracting water from the Rialto-Colton Basin agree, an operating safe yield, a new index well regime, and/or other groundwater management tools (including the ability to overproduce in any year subject to replenishment), which may be included in an amended Decree."

9. *Penalties for Overpumping.*

a. In the event that any party exceeds its pumping allocation for the water year, that party shall abide by the provisions of section 3(j) of the Settlement Agreement by paying Valley District to acquire replacement water.

b. If the amount pumped in excess is greater than 10% of the party's allocation (including any future water rights acquired by lease or purchase) and the party fails to abide by the provisions of section 3(j) of the Settlement Agreement, then the party shall pay a penalty of $10,000/acre-foot for the amount over 110% of the allocation. Such penalties shall be paid into the general replenishment account managed by the Groundwater Council that is described below ("Groundwater Council").

10. *Replenishment Credit Accounts.*

Section 2 of the Settlement Agreement is modified by adding the following provisions:

h. Valley District shall establish and administer the following segregated accounts: one for the Defendants, one for the City of Colton, one each for West Valley and Rialto if either party settles with the Fontana Parties, and one general replenishment account.

i. Each beneficiary of these segregated accounts for the Defendants, Colton, West Valley, and Rialto who settles with the Fontana Parties shall have the option of a replenishment credit account that will be funded either: (i) in the following amounts to be paid upon the completion of the 61,000 acre-feet of replenishment per §2(c) of the Settlement Agreement: Rialto $6 million, Colton $4 million, West Valley $3 million, Defendants $3 million; or (ii) in the amount of 37.5% of the above amounts to be paid within 90 days of the execution of this

Amendment, if requested by the beneficiary within 60 days of the execution of this Amendment.

j. All of these accounts shall be administered by Valley District and shall be limited in their disbursements to projects that benefit groundwater management in the Rialto Basin, as determined by the Groundwater Council.

11. *Groundwater Council.*

Within one year of the execution of this Amendment, all parties to the Settlement Agreement will jointly establish a Groundwater Council for the Rialto-Colton Basin modeled on the Groundwater Council that has been established for the San Bernardino Basin Area and whose voting members shall be the four parties to the 1961 Decree. The Groundwater Council shall:

a. Within five years of its establishment, conduct the studies, modeling runs and other analyses that may be necessary to develop a plan for the sustainable management of the Rialto-Colton Basin; provided that such plan is not inconsistent with Valley District's obligations under the Orange County Judgment (*Orange County Water District v. City of Chino et al.*, Superior Court of Orange County, Case No. 117628) and the Western Judgment (*Western Municipal Water District of Riverside County v. East San Bernardino County Water District*, Superior Court of Riverside County, Case No. 78426); and

b. Have the authority to require the parties (excluding Valley District) to contribute their fair share (including by applying amounts deposited in replenishment accounts described above) towards development of the plan and any projects benefiting the Rialto-Colton Basin.

12. *General Provisions.*

a. By signing this Amendment, Colton will become a party to the Settlement Agreement. Except as modified herein, all provisions of the Settlement Agreement are hereby accepted and incorporated into this Amendment.

b. Each Plaintiff may settle separately with the Fontana Parties and Cucamonga.

Dated: February___, 2019

City of Colton

By: _____
William Smith
City Manager

Dated: February___, 2019

Approved As To Form:

By: _____
Geralyn Skapik

Special Counsel

Dated: February___, 2019

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: _____
T. Milford Harrison
Board President

Dated: February___, 2019

Approved As To Form:

By: _____
David R.E. Aladjem
Special Counsel

Dated: February___, 2019

SAN GABRIEL VALLEY WATER COMPANY

By: _____
Michael L. Whitehead
Chief Executive Officer

Dated: February___, 2019

FONTANA WATER COMPANY

By: _____
Robert W. Nicholson
President

Dated: February___, 2019

FONTANA UNION WATER COMPANY

By: John Bosler
John Bosler
President

Dated: February 19, 2019

Approved As To Form:

By: _____
Frederic A. Fudacz
Nossaman LLP

Dated: February ___, 2019

CUCAMONGA VALLEY WATER DISTRICT

By: _____
James V. Curatalo, Jr.
President

Dated: February 14, 2019

Approved As To Form:

By: _____
Thomas S. Bunn III
Special Counsel

Special Counsel

Dated: February 21, 2019

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: Paul R Kielhold
Paul R. Kielhold
Board Vice-President

Dated: February 15, 2019

Approved As To Form:

By: _____
David R.E. Aladjem
Special Counsel

Dated: February 7, 2019

SAN GABRIEL VALLEY WATER COMPANY

By: _____
Michael L. Whitehead
Chief Executive Officer

Dated: February 7, 2019

FONTANA WATER COMPANY

By: _____
Robert W. Nicholson
President

Dated: February___, 2019

FONTANA UNION WATER COMPANY

By: _____
John Bosler
President

RIALTO AMENDMENT TO SETTLEMENT AGREEMENT

This Amendment to the Settlement Agreement dated September 12, 2018 ("**Amendment**") is entered into and effective this 12th day of February, 2019 by and among Plaintiffs and Cross-Defendants San Bernardino Valley Municipal Water District ("**Valley District**") and City of Rialto ("**Rialto**") and Defendants and Cross-Complainants Fontana Union Water Company ("**Fontana Union**"), San Gabriel Valley Water Company, a California Corporation ("**San Gabriel**"), and Fontana Water Company, a division of San Gabriel (collectively, "**Fontana Parties**" or "**Defendants**"), and Intervenor-Defendant Cucamonga Valley Water District ("**Cucamonga**"). Each of the Parties to this Agreement is sometimes referred to as a "**Party**" and are collectively sometimes referred to as the "**Parties.**"

Recitals

A. On September 12, 2018, Valley District, the Fontana Parties, and Cucamonga entered into a Settlement Agreement in the litigation styled *San Bernardino Valley Municipal Water District et al v. San Gabriel Water Company et al.*, Case No. CIVDS 1311085, San Bernardino County Superior Court ("Litigation") ("Settlement Agreement"). A copy of that Settlement Agreement is attached hereto as Exhibit A and incorporated herein by reference as is set forth in full.

B. Rialto now wishes to join that Settlement Agreement as a Party, to settle and resolve all of its claims and cross-claims in the Litigation, and to promote the sustainable groundwater management principles set forth therein. As such, the Parties have negotiated modifications to the Settlement Agreement as set forth below.

Agreements

In consideration of the promises, agreements and releases contained herein and for good and valuable consideration, the Parties agree as follows:

1. *Acceptance and Incorporation of Settlement Agreement*

   The Parties accept and agree to the Recitals, Definitions, principles, and Agreements set forth in the Settlement Agreement, which are incorporated herein by reference, except for those delineations and amendments set forth in this Amendment.

2. *Amended Definitions and Recitals*.

   Recital C of the Settlement Agreement is hereby amended to include Rialto among the "Parties" and exclude it from the "Non-Settling Plaintiffs."

   Recital D of the Settlement Agreement is hereby amended to add at the end: "As for Rialto, the current operative complaint is the Third Amended Complaint filed on or about November 2, 2018.

   Recital F is hereby amended to state: "Rialto and the Non-Settling Plaintiffs separately asserted six claims alleging breach of contract and other claims arising from the 1961 Decree."

Recital J is hereby amended to add at the end: "As for Rialto, the current operative cross-complaint is the Second Amended Verified Cross-Complaint which was filed on or about November 14, 2018, which added the 11th Cause of Action, entitled Breach of Contract – Violation of 1961 Rialto Decree by Colton, Rialto and West Valley Water District."

3. *Payment to Rialto.*

In full settlement of all of Rialto's claims in the Litigation, the Fontana Parties' will cause their insurer Arch Insurance Company to pay Rialto the total sum of $3 million within 30 days after full execution of this Amendment and Rialto providing a federal W-9 tax form for its designated payee.

4. *Preliminary Injunction*

Section 3(f) of the Settlement Agreement shall be deleted and replaced with a new Section 3.1 stating:
"All extractions by the Fontana Parties within the boundaries of the 1961 Decree area shall be subject to the terms of the Preliminary Injunction issued by the San Bernardino County Superior Court on March 20, 2015, and any subsequent court orders, unless and until the Parties agree otherwise."

5. *Release*

Section 5 of the Settlement Agreement is amended by adding the following sentence to the end of its first paragraph:
"Such releases also include all claims contained in Plaintiffs' Third Amended Complaint and Fontana Parties' Second Amended Verified Cross-Complaint. This release on behalf of Rialto is unconditional and severable from the other provisions of the Settlement Agreement as amended herein, and this release shall remain enforceable even if other provisions of the Settlement Agreement are deemed unenforceable or invalid, so long as Rialto receives the $3 million settlement payment required above."

6. *Request for Dismissal of the Action.*

Section 10 of the Settlement Agreement is replaced with the following:
"Within five (5) business days of full execution of this Amendment, the Fontana Parties' counsel shall prepare and send to counsel for Rialto and Valley District a stipulation for dismissal with prejudice of the claims and cross-claims asserted by Rialto and the Fontana Parties against each other. Pursuant to CCP §664.6, the stipulation for dismissal shall also request that the Court retain jurisdiction over the Parties to enforce the Settlement Agreement, as amended, until performance in full of its terms, notwithstanding the above dismissals. All Parties shall promptly execute and the Fontana Parties shall promptly file with the Court the stipulation for dismissal and retention of jurisdiction."

7. *Notices.*

Section 11(q) of the Settlement Agreement is amended to add the following notice recipient for Rialto:

City Administrator
City of Rialto
150 So. Palm Ave.
Rialto, CA 92376

8. *Groundwater Management Plan.*

Section 3(l) of the Settlement Agreement is replaced with the following: "The Parties will develop, adopt and implement a Rialto-Colton Basin sustainable groundwater management plan including, if the Parties and other public water suppliers extracting water from the Rialto-Colton Basin agree, an operating safe yield, a new index well regime, and/or other groundwater management tools (including the ability to overproduce in any year subject to replenishment), which may be included in an amended Decree."

9. *Penalties for Overpumping.*

a. In the event that any party exceeds its pumping allocation for the water year, that party shall abide by the provisions of section 3(j) of the Settlement Agreement by paying Valley District to acquire replacement water.

b. If the amount pumped in excess is greater than 10% of the party's allocation (including any future water rights acquired by lease or purchase) and the party fails to abide by the provisions of section 3(j) of the Settlement Agreement, then the party shall pay a penalty of $10,000/acre-foot for the amount over 110% of the allocation. Such penalties shall be paid into the general replenishment account managed by the Groundwater Council that is described below ("Groundwater Council").

10. *Replenishment Credit Accounts.*

Section 2 of the Settlement Agreement is modified by adding the following provisions:

h. Valley District shall establish and administer the following segregated accounts: one for the Defendants, one for Rialto, and one each for Colton and West Valley if either party settles with the Fontana Parties, and one general replenishment account.

i. Each beneficiary of these segregated accounts for the Defendants and for Colton, West Valley, and Rialto, if either party settles with the Fontana Parties, shall have the option of a replenishment credit account that will be funded either: (i) in the following amounts to be paid upon the completion of the 61,000 acre-feet of replenishment per §2(c) of the Settlement Agreement: Rialto $6 million, Colton $4 million, West Valley $3 million, Defendants $3 million; or (ii) in the amount of 37.5% of the above amounts to be paid within 90 days of the execution of this Amendment, if requested by the beneficiary within 60 days of the execution of this Amendment.

j. All of the accounts described in paragraphs h and i shall be administered by Valley District and shall be limited in their disbursements to projects that benefit

groundwater management in the Rialto Basin, as determined by the Groundwater Council.

11. *Groundwater Council.*

Within one year of the execution of this Amendment, all parties to the Settlement Agreement will jointly establish a Groundwater Council for the Rialto-Colton Basin modeled on the Groundwater Council that has been established for the San Bernardino Basin Area and whose voting members shall be the four parties to the 1961 Decree, with each member having one vote. The Groundwater Council shall:

a. Within five years of its establishment, conduct the studies, modeling runs and other analyses that may be necessary to develop a plan for the sustainable management of the Rialto-Colton Basin; provided that such plan is not inconsistent with Valley District's obligations under the Orange County Judgment (*Orange County Water District v. City of Chino et al.*, Superior Court of Orange County, Case No. 117628) and the Western Judgment (*Western Municipal Water District of Riverside County v. East San Bernardino County Water District*, Superior Court of Riverside County, Case No. 78426); and

b. Have the authority to require the parties (excluding Valley District) to contribute their fair share (including by applying amounts deposited in replenishment accounts described above) towards development of the plan and any projects benefiting the Rialto-Colton Basin, as defined in the basin map attached to the Settlement Agreement as Attachment A.

12. *General Provisions.*

a. By signing this Amendment, Rialto will become a party to the Settlement Agreement. Except as modified herein, all provisions of the Settlement Agreement are hereby accepted and incorporated into this Amendment including, but not limited to the Civil Code section 1542 Waiver, which states:

> A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE CREDITOR OR RELEASING PARTY DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE AND THAT, IF KNOWN BY HIM OR HER, WOULD HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR OR RELEASED PARTY.

b. Each Plaintiff may settle separately with the Fontana Parties and Cucamonga.

c. This Amendment may be signed in counterparts.

Dated: February 21, 2019

CITY OF RIALTO

By: _____

Deborah Robertson
Mayor

Dated: February 19, 2019

Approved As To Form:

By: _____
Fred Galante
City Attorney

Dated: February___, 2019

ATTEST:

_____
Barbara A. McGee
City Clerk

Dated: February___, 2019

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: _____
T. Milford Harrison
Board President

Dated: February___, 2019

Approved As To Form:

By: _____
David R.E. Aladjem
Special Counsel

Dated: February___, 2019

SAN GABRIEL VALLEY WATER COMPANY

By: _____
Michael L. Whitehead
Chief Executive Officer

Dated: February___, 2019

FONTANA WATER COMPANY

By: _____
Robert W. Nicholson
President

Dated: February___, 2019

Approved As To Form:

By: _____
Fred Galante
City Attorney

Dated: February___, 2019

ATTEST:

_____
Barbara A. McGee
City Clerk

Dated: February___, 2019

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: _____
T. Milford Harrison
Board President

Dated: February___, 2019

Approved As To Form:

By: _____
David R.E. Aladjem
Special Counsel

Dated: February 20, 2019

SAN GABRIEL VALLEY WATER COMPANY

By: M.L. Whitehead
Michael L. Whitehead
Chief Executive Officer

Dated: February 15, 2019

FONTANA WATER COMPANY

By: Robert W. Nicholson
Robert W. Nicholson
President

Dated: February___, 2019

Approved As To Form:

By: _____
Fred Galante
City Attorney

Dated: February___, 2019

ATTEST:

_____
Barbara A. McGee
City Clerk

Dated: February 21, 2019

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: Paul R Kielhold
Paul R. Kielhold
Board Vice-President

Dated: February 15, 2019

Approved As To Form:

By: _____
David R.E. Aladjem
Special Counsel

Dated: February___, 2019

SAN GABRIEL VALLEY WATER COMPANY

By: _____
Michael L. Whitehead
Chief Executive Officer

Dated: February___, 2019

FONTANA WATER COMPANY

By: _____
Robert W. Nicholson
President

Dated: February___, 2019

FONTANA UNION WATER COMPANY

By: _____
John Bosler
President

Dated: February 19, 2019

Approved As To Form:

By: _____
Frederic A. Fudacz
Nossaman LLP

Dated: February___, 2019

CUCAMONGA VALLEY WATER DISTRICT

By: _____
James V. Curatalo, Jr.
President

Dated: February 14, 2019

Approved As To Form:

By: _____
Thomas S. Bunn III
Special Counsel

WEST VALLEY AMENDMENT TO SETTLEMENT AGREEMENT

This Amendment to the Settlement Agreement dated September 12, 2018 ("**Settlement Agreement**") is entered into and effective this 7th day of February, 2019 by and among Plaintiffs and Cross-Defendants San Bernardino Valley Municipal Water District ("**Valley District**") and West Valley Water District ("**West Valley**") and Defendants and Cross-Complainants Fontana Union Water Company ("**Fontana Union**"), San Gabriel Valley Water Company, a California Corporation ("**San Gabriel**"), and Fontana Water Company, a division of San Gabriel (collectively, "**Fontana Parties**" or "**Defendants**"), and Intervenor-Defendant Cucamonga Valley Water District ("**Cucamonga**"). Each of the Parties to this Agreement is sometimes referred to as a "**Party**" and are collectively sometimes referred to as the "**Parties**."

Recitals

A. On September 12, 2018, Valley District, the Fontana Parties, and Cucamonga entered into a Settlement Agreement.

B. West Valley now wishes to join that Settlement Agreement as a Party, to settle and resolve all of its claims and cross-claims in the Litigation, and to promote the sustainable groundwater management principles set forth therein.

Agreements

In consideration of the promises, agreements and releases contained herein and for good and valuable consideration, the Parties agree as follows:

1. *Acceptance and Incorporation of Settlement Agreement*

   West Valley accepts and agrees to the Recitals, definitions, principles, and Agreements set forth in the Settlement Agreement, which are incorporated herein by reference, except for those delineations and amendments set forth in this Amendment.

2. *Amended Definitions and Recitals.*

   Recital C of the Settlement Agreement is hereby amended to include West Valley among the "Parties" and exclude it from the "Non-Settling Plaintiffs."

   Recital D of the Settlement Agreement is hereby amended to add at the end: "As for West Valley, the current operative complaint is the Third Amended Complaint filed on or about November 2, 2018.

   Recital F is hereby amended to state: "West Valley and the Non-Settling Plaintiffs separately asserted six claims alleging breach of contract and other claims arising from the 1961 Decree."

   Recital J is hereby amended to add at the end: "As for West Valley, the current operative cross-complaint is the Second Amended Verified Cross-Complaint which was filed on or about November 14, 2018, which added the 11th Cause of Action, entitled Breach of Contract – Violation of 1961 Rialto Decree by Colton, Rialto and West Valley Water District."

3. *Payment to West Valley.*

a. In full settlement of all of West Valley's claims in the Litigation, the Fontana Parties' will cause their insurer Arch Insurance Company to pay West Valley the total sum of $3 million within 30 days after full execution of this Amendment and West Valley providing a federal W-9 tax form for its designated payee.

b. In the event that Arch and the Fontana Parties reach an agreement with Rialto, before trial, that results in a payment by Arch to Rialto that exceeds $3 million, then Arch shall pay West Valley the difference between the amount paid to Rialto and the $3 million.

4. *Preliminary Injunction*

Section 3(f) of the Settlement Agreement shall be deleted and replaced with a new Section 3.1 stating:
"All extractions by the Fontana Parties within the boundaries of the 1961 Decree area shall be subject to the terms of the Preliminary Injunction issued by the San Bernardino County Superior Court on March 20, 2015, and any subsequent court orders, until the Parties agree otherwise."

5. *Release*

Section 5 of the Settlement Agreement is amended by adding the following sentence to the end of its first paragraph:
"This release on behalf of West Valley is unconditional and severable from the other provisions of the Settlement Agreement as amended herein, and this release shall remain enforceable even if other provisions of the Settlement Agreement are deemed unenforceable or invalid, so long as West Valley receives the $3 million settlement payment required above."

6. *Request for Dismissal of the Action.*

Section 10 of the Settlement Agreement is replaced with the following:
"Within five (5) business days of full execution of this Amendment, the Fontana Parties' counsel shall prepare and send to counsel for West Valley and Valley District a stipulation for dismissal with prejudice of the claims and cross-claims asserted by West Valley and the Fontana Parties against each other. Pursuant to CCP §664.6, the stipulation for dismissal shall also request that the Court retain jurisdiction over the Parties to enforce the Settlement Agreement, as amended, until performance in full of its terms, notwithstanding the above dismissals. All Parties shall promptly execute and the Fontana Parties shall promptly file with the Court the stipulation for dismissal and retention of jurisdiction."

7. *Notices.*

Section 11(q) of the Settlement Agreement is amended to add the following notice recipients for West Valley:

Clarence Mansell
General Manager
West Valley Water District
855 W. Base Line Road
Rialto, CA 92376

With a copy to:
Robert Tafoya, Esq.
Tafoya & Garcia
316 West 2d Street, Suite 1000
Los Angeles, CA 90012

8. *Groundwater Management Plan.*

Section 3(l) of the Settlement Agreement is replaced with the following: "The Parties will develop, adopt and implement a Rialto-Colton Basin sustainable groundwater management plan including, if the Parties and other public water suppliers extracting water from the Rialto-Colton Basin agree, an operating safe yield, a new index well regime, and/or other groundwater management tools (including the ability to overproduce in any year subject to replenishment), which may be included in an amended Decree."

9. *Penalties for Overpumping.*

a. In the event that any party exceeds its pumping allocation for the water year, that party shall abide by the provisions of section 3(j) of the Settlement Agreement by paying Valley District to acquire replacement water.

b. If the amount pumped in excess is greater than 10% of the party's allocation (including any future water rights acquired by lease or purchase) and the party fails to abide by the provisions of section 3(j) of the Settlement Agreement, then the party shall pay a penalty of $10,000/acre-foot for the amount over 110% of the allocation. Such penalties shall be paid into the general replenishment account managed by the Groundwater Council that is described below ("Groundwater Council").

10. *Replenishment Credit Accounts.*

Section 2 of the Settlement Agreement is modified by adding the following provisions:

h. Valley District shall establish and administer the following segregated accounts: one for the Defendants, one for West Valley, and one each for Colton and Rialto if either party settles with the Fontana Parties, and one general replenishment account.

i. Each beneficiary of these segregated accounts for the Defendants and for Colton, West Valley, and Rialto, if each settles with the Fontana Parties, shall have the option of a replenishment credit account that will be funded either:
(i) in the following amounts to be paid upon the completion of the 61,000 acre-feet of replenishment per §2(c) of the Settlement Agreement: Rialto $6 million, Colton $4 million, West Valley $3 million, Defendants $3 million; or
(ii) in the amount of 37.5% of the above amounts to be paid within 90 days of the

execution of this Amendment, if requested by the beneficiary within 60 days of the execution of this Amendment.

j. All of these accounts shall be administered by Valley District and shall be limited in their disbursements to projects that benefit groundwater management in the Rialto Basin, as determined by the Groundwater Council.

11. *Groundwater Council.*

Within one year of the execution of this Amendment, all parties to the Settlement Agreement will jointly establish a Groundwater Council for the Rialto-Colton Basin modeled on the Groundwater Council that has been established for the San Bernardino Basin Area and whose voting members shall be the four parties to the 1961 Decree. The Groundwater Council shall:

a. Within five years of its establishment, conduct the studies, modeling runs and other analyses that may be necessary to develop a plan for the sustainable management of the Rialto-Colton Basin; provided that such plan is not inconsistent with Valley District's obligations under the Orange County Judgment (*Orange County Water District v. City of Chino et al.*, Superior Court of Orange County, Case No. 117628) and the Western Judgment (*Western Municipal Water District of Riverside County v. East San Bernardino County Water District*, Superior Court of Riverside County, Case No. 78426); and

b. Have the authority to require the parties (excluding Valley District) to contribute their fair share (including by applying amounts deposited in replenishment accounts described above) towards development of the plan and any projects benefiting the Rialto-Colton Basin.

12. *General Provisions.*

a. By signing this Amendment, West Valley will become a party to the Settlement Agreement. Except as modified herein, all provisions of the Settlement Agreement are hereby accepted and incorporated into this Amendment.

b. Each Plaintiff may settle separately with the Fontana Parties and Cucamonga.

Dated: February 27, 2019

West Valley Water District

By: _____
Dr. Michael Taylor
President

Approved As To Form:

Dated: February___, 2019

By: _____
Robert Tafoya
General Counsel

Dated: February___, 2019

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: _____
T. Milford Harrison
Board President

Dated: February___, 2019

Approved As To Form:

By: _____
David R.E. Aladjem
Special Counsel

Dated: February 20, 2019

SAN GABRIEL VALLEY WATER COMPANY

By: M.Z. Whitehead
Michael L. Whitehead
Chief Executive Officer

Dated: February 15, 2019

FONTANA WATER COMPANY

By: Robert W. Nicholson
Robert W. Nicholson
President

Dated: February___, 2019

FONTANA UNION WATER COMPANY

By: _____
John Bosler
President

Dated: February___, 2019

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: _____
T. Milford Harrison
Board President

Dated: February___, 2019

Approved As To Form:

By: _____
David R.E. Aladjem
Special Counsel

Dated: February___, 2019

SAN GABRIEL VALLEY WATER COMPANY

By: _____
Michael L. Whitehead
Chief Executive Officer

Dated: February___, 2019

FONTANA WATER COMPANY

By: _____
Robert W. Nicholson
President

Dated: February___, 2019

FONTANA UNION WATER COMPANY

By: _____
John Bosler
President

Dated: February 21, 2019

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: Paul R Kielhold
Paul R. Kielhold
Board Vice-President

Dated: February 15, 2019

Approved As To Form:

By: _____
David R.E. Aladjem
Special Counsel

Dated: February___, 2019

SAN GABRIEL VALLEY WATER COMPANY

By: _____
Michael L. Whitehead
Chief Executive Officer

Dated: February___, 2019

FONTANA WATER COMPANY

By: _____
Robert W. Nicholson
President

Dated: February___, 2019

FONTANA UNION WATER COMPANY

By: _____
John Bosler
President

Dated: February 19, 2019

Approved As To Form:

By: _____

Frederic A. Fudacz
Nossaman LLP

Dated: February ___, 2019

CUCAMONGA VALLEY WATER DISTRICT

By: _____

James V. Curatalo, Jr.
President

Dated: February 14, 2019

Approved As To Form:

By: _____

Thomas S. Bunn III
Special Counsel

Execution Copy

AGREEMENT
RELATING TO THE DIVERSION OF WATER FROM THE SANTA ANA RIVER SYSTEM AMONG WESTERN MUNICIPAL WATER DISTRICT OF RIVERSIDE COUNTY, SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT AND CITY OF RIVERSIDE

(March 20, 2007)

SBVMWD LEGAL
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AGREEMENT
RELATING TO THE DIVERSION OF WATER
FROM THE SANTA ANA RIVER SYSTEM
AMONG
WESTERN MUNICIPAL WATER DISTRICT OF RIVERSIDE COUNTY,
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
AND
CITY OF RIVERSIDE

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AGREEMENT
RELATING TO THE DIVERSION OF WATER
FROM THE SANTA ANA RIVER SYSTEM
AMONG
WESTERN MUNICIPAL WATER DISTRICT OF RIVERSIDE COUNTY,
SAN BERNARDINO VALLEY MUNICPAL WATER DISTRICT
AND
CITY OF RIVERSIDE

1. **PARTIES:** This Agreement relating to the diversion of water from the Santa Ana River System ("Agreement") is entered into and effective this 20th day of March, 2007 by and among the City of Riverside ("Riverside"), San Bernardino Valley Municipal Water District ("Muni") and Western Municipal Water District of Riverside County ("Western"). Muni and Western are collectively referred to as "Muni/Western." Each party to this Agreement is referred to as a "Party" and the parties collectively are referred to as the "Parties."

2. **RECITALS:**

2.1 The Parties are interested in the efficient management of the water resources, both local and imported, available to them and desire to work cooperatively to ensure that the demands, both current and future, of all users within the Parties' respective service areas are satisfied by maximizing the yield of the local water supplies and utilizing the available imported water supplies as necessary.

2.2 The Parties were all parties to the litigation that resulted in the judgment in *Orange County Water District v. City of Chino et al.* (Orange County Superior Court No. 117628, April 17, 1969) (the "*Orange County* Judgment"). Under the terms of that judgment, each of the Parties has "full freedom to engage in any activity for water conservation or storage of storm flows above Prado Reservoir" as long as Western and the Inland Empire Utilities Agency deliver certain quantities of base flow to Orange County Water District.

2.3 The Parties are all parties to the judgment in *Western Municipal Water District et al. v. East San Bernardino County Water District et al.* (Riverside County Superior Court No. 78426, April 17, 1969) (the "*Western* Judgment"). Under the terms of that judgment,

Riverside is entitled to extract a total of 49,542 afy from the San Bernardino Basin Area ("SBBA") for export outside San Bernardino County. The *Western* Judgment also addresses Riverside's extractions in the Colton, Riverside North and Riverside South groundwater basins. Collectively, the SBBA, Colton, Riverside North and Riverside South groundwater basins are referred to as the "Groundwater Basins."

2.4 Riverside has developed groundwater resources from the Groundwater Basins and has invested significant resources to produce, treat, transport, and deliver such water. The *Western* Judgment also provides certain safeguards to ensure that all groundwater producers may, in fact, exercise the rights referenced in the immediately preceding Section, most notably a requirement that Muni and Western each replenish certain groundwater basins under certain conditions in order to maintain the safe yield of the Groundwater Basins.

2.5 The construction of the Seven Oaks Dam ("SOD") by the US Army Corps of Engineers provides the opportunity to increase the yield of the Groundwater Basins through the development of additional Santa Ana River ("SAR") water that was historically not utilized by the Parties. The *Western* Judgment defines "New Conservation" as "any increase in replenishment from natural precipitation which results from operation of works and facilities not now in existence" and contemplates that the Parties will develop additional water supplies from the implementation of water conservation efforts under the terms of the *Orange County* Judgment ("New Conservation"). The *Western* Judgment further contemplates that Western, Riverside and other so-called Plaintiff Parties under the *Western* Judgment shall have their adjusted extraction rights increased to include a proportionate share of any New Conservation, provided that each Plaintiff Party pays its proportionate share of the costs of such New Conservation.

2.6 Muni/Western have filed two water right applications with the State Water Resources Control Board that, when approved, are intended to allow the development of New Conservation from the diversion of the waters of the Santa Ana River that would

otherwise flow out of the area without being put to beneficial use. If granted in their entirety, these applications would permit the conservation of up to 200,000 afy of native (local) water from the Santa Ana River. Muni/Western have prepared an Environmental Impact Report (the "Muni/Western EIR") that analyzes the potential effects on the environment of the water rights applications and the facilities needed to place water diverted from the Santa Ana River to reasonable and beneficial use (the "Project"). Riverside provided comments to the draft version of the Muni/Western EIR.

2.7 The Parties agree that the Project, as identified in the EIR, has the potential to: a) increase water supply reliability by reducing dependence on imported water; b) develop and deliver a new, local, high quality, long-term water supply that is needed to meet a portion of the anticipated future demands in their service areas; c) expand operational flexibility by adding infrastructure and varying sources of water, thereby providing the Parties greater capability to meet future water demands; and d) reduce the threat of liquefaction induced damages caused by a combination of high groundwater and earthquake activity.

2.8 Further, the Parties recognize that Muni/Western's proposed diversion of water to satisfy the Project's objectives listed above may have adverse effects on Riverside's water resources in the Groundwater Basins.

2.9 Muni/Western desire to mitigate impacts that may be caused by the Project to Riverside's water resources while also allowing for the maximum diversion of water by Muni/Western from the SAR and avoiding conditions of high groundwater that create a risk of liquefaction in the Pressure Zone of the SBBA groundwater basin and other groundwater basins. This will be accomplished through the development and implementation of a cooperative program as a part of the Integrated Regional Groundwater Management Plan for the Upper Santa Ana River Watershed, which plan is currently being renamed to reference water management generally and will hereinafter be referred to as the Integrated Regional Water Management Plan for the Upper Santa Ana River Watershed ("IRWMP").

2.10 Riverside has submitted an application and a petition to the State Water Resources Control Board to change the point of discharge, place of use, and purpose of use for its treated wastewater effluent from the SAR. Riverside has prepared a Program EIR (PEIR) for a Recycled Water Program.

2.11 The Parties wish to memorialize their understandings by means of this Agreement.

3. **AGREEMENT:** The Parties agree as follows:

3.1 State Water Resources Control Board ("SWRCB") Process.

3.1.1 Riverside will support Muni/Western's applications before the SWRCB, the California Department of Fish and Game ("DFG"), the U.S. Fish and Wildlife Service ("USFWS"), the U.S. Army Corps of Engineers, the Santa Ana Regional Water Quality Control Board, the "Local Sponsors" (San Bernardino County Flood Control District, Riverside County Flood Control and Water Conservation District and Orange County Flood Control District), and the U.S. Forest Service ("USFS").

3.1.2 Muni/Western will support Riverside's application and petition before the SWRCB, DFG, USFWS, USFS and the Santa Ana Regional Water Quality Control Board.

3.1.3 Each Party shall cooperate with the other Parties to the extent consistent with its own interests in connection with securing the water rights sought by the other Parties through the SAR water right hearing(s). Except as agreed in writing by the Authorized Representatives, or as provided by any existing cost sharing arrangements between the Parties, each Party shall bear its own costs related to such cooperation.

3.2 California Environmental Quality Act (CEQA) Process.

3.2.1 Muni/Western will not challenge Riverside's PEIR for its recycled water project.

3.2.2 Riverside will not challenge the Muni/Western EIR for diversions from the Santa Ana River.

3.3 Seven Oaks Dam Water Diversions Engineering and Operations Committee. The Parties hereby establish the Seven Oaks Dam Water Diversions Engineering and Operations Committee ("EOC"), which committee shall initially be comprised of the Authorized Representatives and shall be responsible for implementing this Agreement and shall operate on a consensus basis in all matters. The EOC shall develop and implement procedures intended to (i) maintain groundwater levels at the wells specified in Exhibit A at relatively constant levels, in spite of fluctuations due to hydrologic variation, (ii) minimize such fluctuations (reduce the highs and lows in groundwater levels), (iii) provide replacement water to Riverside when water diversions from the SAR by Muni/Western reduce, or are deemed under this agreement to reduce, recharge into the SBBA and Riverside North Basin, as provided pursuant to Sections 3.8.4 and 3.9, and (iv) develop recommendations to the *Western* Judgment Watermaster regarding the classification of the diverted SAR water as either New Conservation or existing safe yield of the SBBA.

3.4 EOC Procedures. The Authorized Representatives shall meet no later than six (6) months subsequent to approval of Muni/Western SAR water right applications by SWRCB to develop the initial EOC procedures in accordance with the provisions of this Agreement. The Authorized Representatives shall initiate a review of the procedures referred to in Section 3.3 of this Agreement no later than October 1 of each year during the term of this Agreement and, as may be necessary, shall revise such procedures by the following January 31. The EOC may hold such additional meetings during each water year (October 1 to September 30) as may be necessary to update the procedures to reflect changing conditions.

3.5 Real-Time Implementation of Agreement Objectives. The EOC shall meet on a regular basis, as needed, to effectively operate, on a real-time basis, a program to achieve the objectives of Section 3.3.

3.6 Accumulated Basin Replenishment Credits. Unless otherwise agreed by the Authorized Representatives, Muni/Western shall not use basin replenishment credits

accumulated under the *Western* Judgment to meet its recharge obligations under this Agreement.

3.7 Remedies. In the event that the Parties disagree regarding the implementation of Sections 3.3 through 3.9 of this Agreement, the decision shall be made by a registered professional engineer acceptable to all Parties using, to the extent practicable, the procedures set forth in Section 10 below, provided that the fact of such disagreement shall not limit Muni/Western's ability to divert water from the SAR or to implement the terms of any arrangement for the banking or exchange of SAR water, nor limit any Parties' ability to concurrently use the dispute resolution process of Section 10 for such disagreement.

3.8 Thresholds of Groundwater Levels of Significance and Mitigation Measures for SBBA. The following thresholds of groundwater levels of significance and mitigation measures in the SBBA shall be monitored and maintained as provided by EOC procedures:

3.8.1 *Outside the Pressure Zone* – A reduction in groundwater levels outside the Pressure Zone is significant if the analysis in the Muni/Western EIR, using the integrated surface water and groundwater model developed by Muni/Western (the USGS/Geoscience/Secor model of the Bunker Hill Groundwater Basin) and annual field verifications, predicts that the Project would reduce static groundwater levels at one or more index wells listed in Exhibit A, on average, by more than 10.0 feet during a repetition of the 39-year base hydrology (1962-2000), as compared to static water levels in the absence of the Project. "Annual field verifications" shall mean a comparison of actual groundwater levels to computer model generated predictions. To avoid a significant effect on the groundwater levels at one or more index wells located outside the pressure zone, Muni/Western shall commence spreading water from its SAR water made available pursuant to a SWRCB permit or license or from the Reserve Account defined in Section 3.8.4 within one (1) calendar year and shall spread either such SAR water or Reserve Account water sufficient to maintain static groundwater levels at the affected index wells to

reduce this project impact to less-than-significant level by no later than the end of the following calendar year, unless otherwise agreed to by the Authorized Representatives.

3.8.2 *Within the Pressure Zone* – If the average of the 12-month rolling averages of the static groundwater level measurements for the USGS/MUNI Backyard Wells D4, D5, and D6 (SWNs 1S/4W-22D4,5,6 USGS Station Numbers 340439117173904,5,6) is 50 feet below ground surface (bgs) or greater, then Muni/Western shall spread water from its SAR water made available under a SWRCB permit or license or from the Reserve Account defined in Section 3.8.4, until such averages are less than 50 feet bgs. When required, Muni/Western shall commence spreading its SAR water made available under a SWRCB permit or license or from Reserve Account water within one (1) calendar year and shall complete such spreading no later than the end of the following calendar year, unless otherwise agreed to by the Authorized Representatives.

3.8.3 *Index Well Change* - It is the understanding of the Parties that the wells used to determine whether Muni/Western shall spread water may be changed by written agreement of the Authorized Representatives. It is further understood by the Parties that the IRWMP process may conclude that it would be beneficial for Muni/Western to spread, or not spread, water based on other factors in addition to the water levels in Index Wells identified in this Agreement and that the Authorized Representatives shall take such conclusions into consideration when determining if a well change is appropriate.

3.8.4 *Reserve Account* – The Reserve Account identified in Sections 3.8.1 and 3.8.2 shall be established as 38% of the total volume of water diverted by Muni/Western from the SAR pursuant to a SWRCB permit or license. Such SAR water diverted by Muni/Western and recharged in the SBBA, either directly or through an exchange, shall be subtracted from the Reserve Account balance. SAR water directly delivered may be similarly credited, if such credit is deemed appropriate by the EOC. Any credits established through the recharge of more than 38% of the water diverted by Muni/Western shall expire

from the Reserve Account after five years if not used. This method of calculating the Reserve Account water, 38% of total volume diverted by Muni/Western, will remain in effect for 12 months after the first diversion of SAR water is made by Muni/Western, unless the Parties mutually agree to an extension. During this time, the EOC defined in Section 3.3 will evaluate the available hydrology and recharge data for the SAR and SBBA to determine if a modification to the 38% recharge factor is appropriate.

3.8.5 *Water Quality* - The Muni/Western water diversions and recharge activities in the Groundwater Basins shall be consistent with the basin water quality objectives as adopted by the Santa Ana Regional Water Quality Control Board outlined in the most recent version of the Water Quality Control Plan, or any cooperative agreement among the Santa Ana Regional Water Quality Control Board and agencies recharging water in the Santa Ana River Watershed.

3.9 Potential Reduced Recharge and Mitigation Measures for Riverside North Basin. The Parties agree that, under certain circumstances, water diversions from the SAR could cause reduced recharge from surface water or groundwater, or both, into the Riverside North Basin.

3.9.1 *Replacement Water Volume Calculation* - To alleviate this impact, Muni/Western agree to provide replacement water to Riverside, in the Riverside North Basin using daily flow data from the USGS E Street Gage 11059300 and by visual inspection at the following bridges over the Santa Ana River: E Street Bridge and Mt. Vernon Bridge.

3.9.1.1 The daily amount of reduced recharge shall be calculated using the following table:

Is there visible flow in the SAR at E Street Bridge (using the USGS Gage > 0)?	**Is there "Bank to Bank" Flow in the SAR at Mt. Vernon Bridge?**	**Muni/Western Diversion Amount, cfs**	**Reduced Recharge Amount, cfs**
No	No	Less than 37 cfs	None

No	No	Greater than 37 cfs	6% of Muni/Western diversion less 37 cfs
Yes	No	Greater than zero	6% of total Muni/Western diversion
Yes	Yes	Greater than zero	None

3.9.1.2 The Muni/Western replacement obligation (total amount of reduced recharge) shall be equal to the summation of all of the daily calculations of reduced recharge for the diversion season.

3.9.1.3 A new calculation method for the Muni/Western recharge obligation in the Riverside North Basin may be developed and used in the future by agreement of the Authorized Representatives.

3.9.1.4 The Muni/Western replacement obligation shall be recorded in a "Riverside North Basin Recharge Account." Said account shall be administered by the Authorized Representatives in accord with the terms of this Agreement.

3.9.1.5 The Authorized Representatives may reduce the Muni/Western replacement obligation based on high groundwater or other special conditions within the Riverside North Basin.

3.9.1.6 The calculation of reduced recharge to the Riverside North Basin shall be made by Muni/Western at the end of the "diversion season", (September 30th) of each year.

3.9.2 *Replacement Water Delivery Timeline* - The Muni/Western replacement obligation shall be delivered within five years of the Muni/Western diversions which incurred the obligation. However, Muni/Western will use reasonable efforts to satisfy the Muni/Western replacement obligation within one (1) year of incurring the obligation.

3.9.3 *Recharge Locations* - Muni/Western will determine the most cost effective means of meeting their replacement obligation under this Agreement and will consult with groundwater producers in the Riverside North Basin and look for opportunities

to cooperate with others to develop multiple-use recharge facilities. Any Muni/Western recharge obligation under this Agreement is anticipated to be satisfied using one or both of the alternatives in Section 3.9.3.1 and 3.9.3.2. However, the choice of such alternative is contingent upon the parties complying with all environmental laws arising out of or in connection with such recharge. The term "environmental laws" shall include, without limitation, the California Environmental Quality Act and all other applicable state and federal environmental laws. The parties also acknowledge that other alternatives may be identified and considered, and that by entering into the Agreement no selection has been made of any alternative:

3.9.3.1 In-stream recharge in the SAR bed between Riverside's Meeks #1 Well and Flume #6 Well at no cost to Riverside.

3.9.3.2 Off-stream recharge in available properties on either side of the SAR in between Riverside's Meeks #1 Well and Flume #6 Well. The Parties may jointly pursue the development of the diversion and recharge facilities on an agreed upon cost allocation based on benefits from the project. Unless otherwise agreed by the Parties, Riverside's portion of the funding will include any land they own which is used for the project. Riverside shall retain ownership of the land and be given ownership of any project improvements on the land. Riverside will also operate and maintain the project. Any storm water captured by any joint project shall be credited toward the Muni/Western recharge obligation under the Riverside North Basin Recharge Account. Riverside has no obligation, but will make reasonable efforts, to develop and/or fund such recharge facilities. Muni/Western agree to fully cooperate with any application to or before the SWRCB made by Riverside, Muni and/or Western for diversion of water to such recharge facilities.

3.9.4 *In Lieu Delivery* - If Muni/Western cannot deliver the total volume of replacement water required per Section 3.9.1 due to water supply shortages or other circumstances, Muni/Western shall satisfy and discharge that obligation by means of the

direct delivery of a quantity of water to Riverside equal to and in lieu of recharging additional water in the Riverside North Basin. Said in lieu delivery shall not exceed 71.51% of the Muni/Western replacement obligation for any given year and shall be delivered by one, or more, of the following options. Such option shall be exercised at the sole discretion of Riverside. Muni/Western shall make such in lieu deliveries to Riverside in a manner that is acceptable to all Parties, which may include the following:

3.9.4.1 A recommendation by Muni/Western to the *Western* Watermaster that Riverside be allowed to increase its extractions from the Bunker Hill Basin to an amount greater than Riverside's export rights under the *Western* Judgment for the subsequent water year, provided that such additional extractions do not create an additional replenishment obligation, as defined in the *Western* Judgment, on the part of Muni. This option shall only satisfy and discharge Muni/Western's replacement water obligation if the *Western* Watermaster and, if appropriate, the Superior Court of Riverside County, determine that such additional extractions are permitted under the terms of the *Western* Judgment.

3.9.4.2 The delivery of treated, potable water to Riverside at the Metropolitan Water District's ("MWD") Henry J. Mills Water Treatment Plant with Riverside paying Muni/Western an amount equal to the sum of: (i) the MWD Treated Water Surcharge, as set forth in MWD's then-current rate schedules, and (ii) Riverside's avoided pumping costs. The avoided pumping costs will be equal to Riverside's average cost to produce water from the Riverside North Basin wells identified on Exhibit B for the previous twenty-four (24) month period.

3.9.4.3 The delivery of water by Muni/Western to the Rice-Thorne pipeline from the Baseline Feeder South Pipeline at no cost to Riverside.

3.9.4.4 The remaining 28.49 % must be recharged in Riverside North Basin by Muni/Western as soon as practicable.

3.9.4.5 If Muni/Western delivers in lieu water to Riverside as provided for in this Section 3.9.4 during a given year, Riverside's maximum entitlement to pump from the Riverside North Basin during such year shall be reduced by an amount equal to the amount actually pumped in excess of Riverside's Bunker Hill Basin export rights under the *Western* Judgment or otherwise delivered to Riverside.

3.10 *CEQA Compliance.* The Parties agree that they intend to implement the provisions of Sections 3.3 to 3.10 of this Agreement through either: (i) the use of existing water rights and water extraction, conveyance, storage and distribution facilities, within the existing physical, legal and institutional limits pertaining to such rights and facilities; or (ii) the use of the water rights and physical facilities that comprise the Project, which are described in the Muni/Western EIR, within the limits identified in the Muni/Western EIR. If the Parties determine that additional water rights, institutional arrangements, banking or exchange agreements, or physical facilities are necessary to implement this Agreement, the Parties will undertake such subsequent environmental review and analysis as may be required for such discretionary actions by the terms of CEQA.

4. **BANKING AND EXCHANGES:**

4.1 The Parties understand and acknowledge that they intend to bank and/or exchange substantial quantities of SAR water for water imported from the State Water Project, or other sources of imported or native water. Such banking and/or exchanges shall be conducted pursuant to a comprehensive program for water banking and/or exchanges in the San Bernardino Valley and elsewhere in Southern California that includes, but is not limited to:

4.1.1 The groundwater spreading plan described in the July 21, 2004 Settlement Agreement Relating to the Diversion of Water from the Santa Ana River System ("Seven Oaks Accord");

4.1.2 The Projects described in the Muni/Western EIR; and

4.1.3 Any exchange or banking of water that may occur pursuant to the Coordinated Operating Agreement Between The Metropolitan Water District of Southern California and San Bernardino Valley Municipal Water District, dated July 10, 2000, as amended, as attached hereto as Exhibit C (the "Coordinated Operating Agreement") and incorporated herein by this reference, including but not limited to projects undertaken pursuant to the agreement referred to as "Attachment 6" in the Coordinated Operating Agreement, incorporated herein by this reference.

4.2 Riverside agrees that it will not oppose any such banking or exchange project(s); provided, that (i) such project is implemented in a manner not inconsistent with the terms of this Agreement; (ii) such project shall not result in an unmitigated adverse impact on Riverside's sources of groundwater supply in the Groundwater Basins or Riverside's costs related to the extraction of such groundwater; and (iii) in the implementation of the Coordinated Operating Agreement, Muni shall not deliver Riverside's portion of any New Conservation, as such term is defined in the *Western* Judgment, to Western without the prior written consent of Riverside's Authorized Representative. Riverside agrees that any water delivered to Riverside, directly or in lieu, by means of such banking or exchanges projects shall be used in accordance with the SWRCB water rights permit or license obtained by Muni/Western.

5. **RIVERSIDE'S RECYCLED MUNICIPAL WASTEWATER:** Nothing in this Agreement shall be construed to regulate Riverside's use of its recycled municipal wastewater.

6. ***WESTERN* JUDGMENT PRODUCTION LIMITS:** Nothing in this Agreement should be construed to increase or diminish the groundwater production limits contained in the *Western* Judgment.

7. **WATERMASTER ACCOUNTING:** The Parties agree to use their best efforts to implement an accounting methodology under the *Western* Judgment, including any

amendments thereto, that will allow the Plaintiffs therein to utilize their full entitlement in the SBBA. Specifically, to the extent that the extractions by any Plaintiff to the *Western* Judgment are less than the limits set forth therein, such Plaintiff party shall be allowed to use such unused extractions as a credit in following years, meaning that any extractions in excess of the limits imposed by the *Western* Judgment, in future years, may be offset by such credits and the Plaintiff party shall not be deemed to be in violation of the extraction limits for the *Western* Judgment.

8. **RELATIONSHIP TO OTHER AGREEMENTS AND JUDGMENTS:** There are a number of existing judgments and agreements that impose conditions on the Parties that may have an effect on the implementation of this Agreement. The EOC procedures outlined in this Agreement shall be developed and implemented in a manner consistent with each Party's rights and obligations under existing judgments and agreements and nothing in this Agreement is intended to modify the rights or obligations of the Parties under the terms of such judgments or agreements.

9. **LIST OF EXHIBITS:** This Agreement includes and incorporates by reference the following exhibits:

9.1 Exhibit A: List and Figure of Index Wells

9.2 Exhibit B: List of Riverside North Basin Wells

9.3 Exhibit C: Coordinated Operating Agreement for Conveyance Facilities and State Water Project Between Metropolitan Water District of Southern California And San Bernardino Valley Municipal Water District, including Attachments 1-6.

9.4 Exhibit D: Sections 12 and 13 of ICSA Settlement

10. **REMEDIES.** In the event that one Party believes that another Party, for reasons other than the lack of funding or other resources, has failed to comply with its obligations under this Agreement, or to dispute a matter referred to or a decision rendered under Section 3.7 hereto, the Parties shall use the dispute resolution provisions set forth in Sections 12 and 13 of the Agreement to Develop and Adopt an Institutional Controls Groundwater Management

Program, dated January 1, 2005 (the "ICSA Settlement"), which Sections are set forth as Exhibit D and incorporated herein by reference. The Parties agree, however, that any challenge to a decision of an arbitrator as described in Section 13 of the ICSA Settlement shall be brought in the Superior Court of Riverside County, not in the United States Court for the Central District of California. The Parties also agree that the arbitrator need not have experience in groundwater contamination or environmental clean-up, as described in Section 12 of the ICSA Settlement.

11. **AUTHORIZED REPRESENTATIVES:** Each Party shall designate by written notice to the other Parties a representative who is authorized to act on its behalf in the implementation of this Agreement and with respect to those matters contained herein which are the functions and responsibilities of such Authorized Representative. Each Party may at any time change the designation of their Authorized Representative by written notice to the other Party. Such Authorized Representative shall have the authority to act for their respective Parties in all matters relating to performance of this Agreement, including any amendment of the Exhibits hereto. However, except as otherwise provided, they shall not have the authority to amend or modify any provision of this Agreement.

12. **GENERAL PROVISIONS:**

12.1 Effective Date and Term. This Agreement shall be effective on the date first written above and shall then continue until terminated by mutual consent of all Parties hereto. Sections 3.3 through 3.10 of this Agreement shall not take effect until the SWRCB issues a permit for the Western/Muni Applications.

12.2 Choice of Law. This Agreement and any dispute hereunder shall be governed by and construed in accordance with the laws, except for laws pertaining to the choice of laws, of the State of California.

12.3 No Waiver. No failure or delay in exercising any right, power or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise thereof

preclude any other or further exercise thereof or the exercise of any right, power or privilege hereunder.

12.4 Entire Agreement. This Agreement shall not be construed to amend or modify any other agreement between any of the Parties or between any Party and a non-Party, which shall remain in all respects in full force and effect. This Agreement represents the entire agreement of the Parties in connection with the subject matter hereof and may be modified only in writing agreed to by all Parties. Further, this Agreement may be executed in counterparts.

12.5 Construction and Interpretation. This Agreement has been arrived at through negotiations and each Party has had a full and fair opportunity to revise the terms of this Agreement. As a result, the normal rule of construction that any ambiguities are to be resolved against the drafting Party shall not apply in the construction or interpretation of this Agreement.

12.6 Partial Invalidity. If, after the date of execution of this Agreement, any provision of this Agreement is held to be illegal, invalid, or unenforceable under present or future laws effective during the term of this Agreement, such provision shall be fully severable. However, in lieu thereof, there shall be added a provision as similar in terms to such illegal, invalid or unenforceable provision as may be possible and be legal, valid and enforceable.

12.7 Necessary Actions. Each Party agrees to execute and deliver additional documents and instruments and to take any additional actions as may be reasonably required to carry out the purposes of this Agreement.

12.8 Third Party Beneficiaries. This Agreement shall not create any right or interest in any non-Party or in any member of the public as a third party beneficiary.

12.9 Authority of Signatories. The signatories hereto represent and warrant that they have been duly authorized to enter into this Agreement by the Party on whose behalf it is indicated that the person is signing and, by such signature, to bind such Party to the

Agreement.

12.10 Jurisdiction and Venue. Any action at law or in equity brought by any of the Parties hereto for the purpose of enforcing a right or rights provided for by this Agreement shall be tried in a court of competent jurisdiction in the County of Riverside, State of California, and the Parties hereby waive all provisions of law providing for a change of venue in such proceedings to any other county.

12.11 Notices. Any notices required to be given, hereunder shall be in writing and shall be personally served or given by mail. Any notice given by mail shall be deemed given when deposited in the United States Mail, certified and postage prepaid, addressed to each Party to be served as follows:

To Riverside
Public Utilities Department
City of Riverside
Attn: Assistant Director – Resources
3901 Orange Street
Riverside, CA 92522

To Muni:
San Bernardino Valley Municipal Water District
1350 S. "E" Street (92408-2725)
P. O. Box 5906 (92412-5906)
San Bernardino, CA
Attn: General Manager

To Western:
Western Municipal Water District of Riverside County
450 Alessandro Boulevard
Riverside, CA 92508
Attn: General Manager

CITY OF RIVERSIDE

By: _____ Dated: 4/2, 2007.
Bradley J. Hudson
City Manager

Attest: _____
City Clerk

Approved as to form only:

By: _____
Susan Wilson
Deputy City Attorney

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: _____ Dated: 3/16, 2007.
Randy Van Gelder
General Manager

Approved as to form only:

By: _____
David R.E. Aladjem
Downey Brand LLP

WESTERN MUNICIPAL WATER DISTRICT OF RIVERSIDE COUNTY

By: _____ Dated: 3/14, 2007.
John V. Rossi
General Manager

Approved as to form only:

By: _____
David R.E. Aladjem
Downey Brand LLP

AGREEMENT
RELATING TO THE DIVERSION OF WATER
FROM THE SANTA ANA RIVER SYSTEM
AMONG
WESTERN MUNICIPAL WATER DISTRICT OF RIVERSIDE COUNTY
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
AND
CITY OF RIVERSIDE

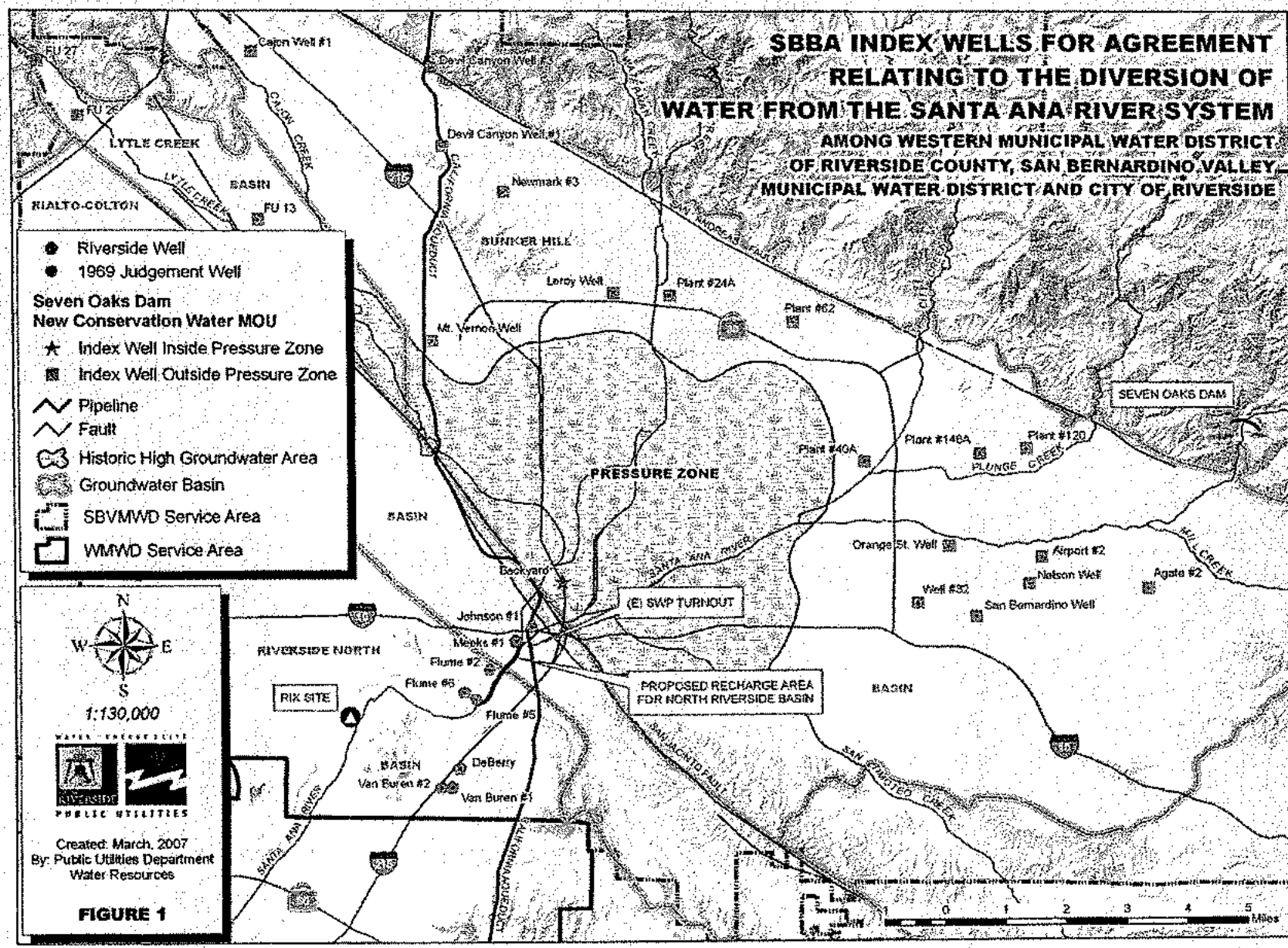
Exhibit A

SBBA INDEX WELLS

OUTSIDE PRESSURE ZONE:
Cajon Well #1
FU #13
Devil Canyon Wells #1 & #3
Newmark #3
Mt. Vernon Well
Well #7
Leroy Well
Plant #24A
Plant #62
Plant #40A
Plant #146A
Plant #120
Orange St. Well
Well #32
Airport #2
Nelson Well
San Bernardino Well
Agate #2

INSIDE PRESSURE ZONE:
USGS/Muni Backyard Well

See attached Figure 1 for locations.


SBBA INDEX WELLS FOR AGREEMENT
RELATING TO THE DIVERSION OF
WATER FROM THE SANTA ANA RIVER SYSTEM
AMONG WESTERN MUNICIPAL WATER DISTRICT
OF RIVERSIDE COUNTY, SAN BERNARDINO VALLEY
MUNICIPAL WATER DISTRICT AND CITY OF RIVERSIDE
Riverside Well
1969 Judgement Well
Seven Oaks Dam
New Conservation Water MOU
Index Well Inside Pressure Zone
Index Well Outside Pressure Zone
Pipeline
Fault
Historic High Groundwater Area
Groundwater Basin
SBVMWD Service Area
WMWD Service Area
N
W
E
S
1:130,000
Created: March, 2007
By: Public Utilities Department
Water Resources
FIGURE 1
Cajon Well #1
Devil Canyon Well #3
Devil Canyon Well #1
Newmark #3
LYTLE CREEK
BASIN
RIALTO-COLTON
FU 27
FU 26
FU 13
CAJON CREEK
BUNKER HILL
Leroy Well
Plant #24A
Plant #62
Mt. Vernon Well
SAN ANDREAS FAULT
SEVEN OAKS DAM
Plant #40A
Plant #148A
Plant #120
PLUNGE CREEK
PRESSURE ZONE
BASIN
SANTA ANA RIVER
Orange St. Well
Airport #2
Nelson Well
Agate #2
Well #32
San Bernardino Well
Backyard
(E) SWP TURNOUT
Johnson #1
Meeks #1
RIVERSIDE NORTH
Flume #2
Flume #6
Flume #5
RIX SITE
PROPOSED RECHARGE AREA
FOR NORTH RIVERSIDE BASIN
BASIN
DeBerry
Van Buren #2
Van Buren #1
SAN JACINTO FAULT
SAN TIMOTEO CREEK
SANTA ANA RIVER
0 1 2 3 4 5 Miles

AGREEMENT
RELATING TO THE DIVERSION OF WATER
FROM THE SANTA ANA RIVER SYSTEM
AMONG
WESTERN MUNICIPAL WATER DISTRICT OF RIVERSIDE COUNTY
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
AND
CITY OF RIVERSIDE

Exhibit B

RIVERSIDE NORTH BASIN WELLS

Flume Well 2

Flume Well 3

Flume Well 4

Flume Well 5

Flume Well 6

Van Buren Well 1

Van Buren Well 2

AGREEMENT
RELATING TO THE DIVERSION OF WATER
FROM THE SANTA ANA RIVER SYSTEM
AMONG
WESTERN MUNICIPAL WATER DISTRICT OF RIVERSIDE COUNTY
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
AND
CITY OF RIVERSIDE

Exhibit C

Coordinated Operating Agreement
Between
Metropolitan Water District of Southern California
And
San Bernardino Valley Municipal Water District

CONSERVED WATER AGREEMENT
BETWEEN
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
AND
WESTERN MUNICIPAL WATER DISTRICT OF RIVERSIDE COUNTY

Agreement made this 23rd day of MARCH, 2005, between San Bernardino Valley Municipal Water District ("Valley District") and Western Municipal Water District of Riverside County ("Western").

RECITALS

1. Valley District and Western have jointly filed two water rights applications with the State Water Resources Control Board. If granted in their entirety, these applications would permit the two districts to conserve up to 200,000 afy of native (local) water from the Santa Ana River ("Conserved Water").

2. Conserved water under this joint application is shared 72.05% to Valley District and 27.95% to Western for use within its boundaries.

3. The parties hereto anticipate that in wet years some portion of the conserved water may be delivered to The Metropolitan Water District of Southern California ("Metropolitan") in exchange for the subsequent delivery by Metropolitan of an equal quantity of water, less reasonable Metropolitan system losses, ("Exchange Water"), for use within the respective service areas of the parties. To that end, Valley District has entered into an agreement with Metropolitan entitled "Attachment 6" to the Coordinated Operating Agreement between Metropolitan and Valley District, dated July 10, 2000.

ORIGINAL

4. Such exchanges pursuant to the terms of Attachment 6 are anticipated to improve the water supply reliability and quality of water delivered by Metropolitan to its member agencies, and the use of local water for local needs within the respective service areas of the parties hereto.

TERMS

In consideration of the foregoing facts, it is hereby agreed as follows:

5. Western accepts the provisions of Attachment 6, subject to the terms of this Agreement.

6. In the implementation of Attachment 6, Valley District shall not deliver Western's share of Conserved Water to Metropolitan without Western's prior consent.

7. In the implementation of Attachment 6, Valley District's approval of the delivery by Metropolitan of Western's share of Exchange Water, and the time, place and manner of such delivery (including any in-lieu deliveries) shall be subject to Western's prior consent.

8. Western is an intended beneficiary of Attachment 6 as to its share of Conserved and Exchange Water, and shall be considered as a third party beneficiary of Attachment 6, and entitled to enforce all legal rights arising from such status.

ORIGINAL

9. The term of this Agreement shall be coincident with the term of Attachment 6, or any extension thereof, and is effective as of the date inserted above.

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By _____
Robert L. Reiter
General Manager and Chief Engineer

WESTERN MUNICIPAL WATER DISTRICT OF RIVERSIDE COUNTY

By _____
John V. Rossi
General Manager

ATTACHMENT 6

COORDINATED EXCHANGE AGREEMENT
BETWEEN
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
AND
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

Objective

The objective of this Attachment 6 to the Coordinated Operating Agreement for Conveyance Facilities and State Water Project Supplies between The Metropolitan Water District of Southern California ("**Metropolitan**") and San Bernardino Valley Municipal Water District ("**Valley District**") dated July 10, 2000 (the "**Coordinated Operating Agreement**") is to provide an institutional arrangement for the residents of Southern California to obtain the maximum benefits from water conserved as a result of the construction and operation of Seven Oaks Dam and Reservoir. Valley District and Metropolitan are each sometimes referred to below as a "**Party**" and are sometimes collectively referred to below as the "**Parties.**"

Recitals

A. Valley District, in conjunction with Western Municipal Water District of Riverside County ("**Western**"), has filed two water right applications with the State Water Resources Control Board. If granted in their entirety, these applications would permit Valley District and Western to conserve up to 200,000 afy of native (local) water from the Santa Ana River.

B. Valley District anticipates that, in wet years, it will deliver some portion of the water that is conserved from the Santa Ana River pursuant to the water right applications to Metropolitan in exchange for the subsequent delivery to Valley District of an equal quantity of water by Metropolitan, less reasonable Metropolitan system losses.

C. Such an exchange of conserved native Santa Ana River water for water from the State Water Project or other sources available to Metropolitan is anticipated to improve water supply reliability and the quality of water delivered to Metropolitan and its member agencies and is

anticipated to improve water supply reliability and the use of local water for local needs within Valley District's service area.

D. Valley District intends to work cooperatively with the Watermaster Committee to determine the quantities of Conserved Water and Exchange Water, as defined below, delivered by or to Valley District pursuant to this Attachment 6. Valley District intends that the Watermaster Committee confirm, on an annual basis, that such quantities of Conserved Water and Exchange Water constitute "new conservation" as that term is defined in the Judgment pursuant to County of Riverside Superior Court Case 78426.

Terms

a. *Term.*

This Attachment 6 shall have a term identical to the Coordinated Operating Agreement.

2. *Exchange of Water.* Pursuant to paragraphs 1 and 3 of the Coordinated Operating Agreement and paragraph 10.2 of Attachment 2 to the Coordinated Operating Agreement, Metropolitan and Valley District agree to take the following actions:

a. If the water conserved from the Santa Ana River pursuant to the foregoing water right applications ("**Conserved Water**") exceeds the immediate demand for such water within Valley District's service area for direct delivery or groundwater recharge and there is capacity available in Metropolitan's facilities to accept all or a portion of the Conserved Water directly, on an in-lieu basis, or via an exchange, for delivery to Metropolitan, Valley District may request that Metropolitan accept into Metropolitan's facilities all or a portion of the Conserved Water on mutually agreeable terms, conditions and locations. Absent other agreement of the Parties, Conserved Water will be delivered to Metropolitan at the Inland Feeder. Valley District shall consult with Metropolitan regarding the delivery of the Conserved Water on a real-time basis and, each October 1 shall prepare an operations plan for the delivery of Conserved Water, which plan shall be updated each April 1 to reflect precipitation, runoff and other relevant factors. The operations plan shall

be subject to approval by Metropolitan, however, Metropolitan agrees to exercise its best efforts to accept the Conserved Water into its facilities to the extent that Metropolitan, in its sole discretion, determines that (1) sufficient capacity is available within Metropolitan's facilities to accept the Conserved Water and (2) that the Conserved Water is of adequate quality for Metropolitan's purposes. The Conserved Water will be delivered to Metropolitan for beneficial uses within Metropolitan's service area in quantities that will not exceed 200,000 afy.

b. Metropolitan shall, after consultation with Valley District, deliver to Valley a substitute quantity of water obtained by Metropolitan from the State Water Project ("**Exchange Water**") equal in quantity to the Conserved Water delivered to Metropolitan pursuant to paragraph 2(a) above, less reasonable Metropolitan system losses as determined by Metropolitan. Exchange Water shall be delivered to Valley District as promptly as practicable at times, locations and in manners mutually agreeable to Valley District and Metropolitan. Absent other agreement of the Parties, Exchange Water will be delivered by Metropolitan to Valley District at the Devil Canyon Afterbay. Exchange Water will be delivered to Valley District for beneficial uses in quantities that will not exceed 200,000 afy.

c. The Parties agree that they may benefit from this Attachment 6 by virtue of increased water supply reliability and improved water quality. Accordingly, neither Party shall pay the other for services provided under this Attachment 6.

3. *Disputes.* The Parties recognize that there may be disputes regarding the obligations of the Parties or the interpretation of this Attachment 6. The Parties agree that they will attempt to resolve disputes in an amicable fashion without the need for litigation.

4. *General Provisions.*

a. *Authority.* Each signatory of this Attachment 6 represents that s/he is authorized to execute this Attachment 6 on behalf of the Party for which s/he signs. Each

Party represents that it has legal authority to enter into this Attachment 6 and to perform all obligations under this Attachment 6.

b. *Amendment.* This Attachment 6 may be amended or modified only by a written instrument executed by each of the Parties to this Attachment 6.

c. *Partial Invalidity.* If, after the date of execution of this Attachment 6, any provision of this Attachment 6 is held to be illegal, invalid, or unenforceable under present or future laws effective during the term of this Attachment 6, such provision shall be fully severable. However, in lieu thereof, there shall be added a provision as similar in terms to such illegal, invalid or unenforceable provision as may be possible and be legal, valid and enforceable.

d. *Incorporation by Reference.* The provisions of paragraph 15 of Attachment 2 are hereby incorporated herein by reference as if set forth in full and shall apply to the Parties' performance of the terms of this Attachment 6.

Dated: December 21 2004.

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Ronald R. Gastelum
Chief Executive Officer

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

Robert L. Reiter
General Manager and Chief Engineer

ATTACHMENT 5 TO THE
COORDINATED OPERATING AGREEMENT

AGREEMENT BETWEEN
THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA
AND
SAN BERNARDINO VALLEY MUNCIPAL WATER DISTRICT
REGARDING FOOTHILL PUMP STATION

THIS CONTRACT, hereinafter referred to as "Agreement" is entered into as of this 21st day of December, 2004, between The Metropolitan Water District of Southern California, a public agency of the State of California (hereinafter referred to as "Metropolitan") and the San Bernardino Valley Municipal Water District, a public agency of the State of California (hereinafter referred to as "Valley District").

EXPLANATORY RECITALS

A. Metropolitan is a public agency of the State of California engaged in transporting, storing, treating and distributing water at wholesale in portions of the counties of Los Angeles, San Bernardino, Orange, Riverside, San Diego and Ventura, within the State of California.

B. Valley District is a public agency of the State of California engaged in developing, transporting, storing, treating and wholesale delivery of water in portions of the counties of San Bernardino and Riverside within the State of California.

C. The parties have previously entered into a Coordinated Operating Agreement and several subsequent attachments thereto, Attachments 1 through 4.

D. Valley District, as a State Water Project (hereinafter "SWP") contractor takes delivery of SWP water from the Devil Canyon First Afterbay by way of its Foothill Pipeline, which has a capacity of 290 cubic feet per second (hereinafter "cfs"), and extends east from the Devil Canyon Afterbay approximately 17 miles. The Foothill Pipeline connects to other

facilities of the East Branch Extension of the State Water Project, which delivers water to the San Gorgonio Pass area of Riverside County.

E. Metropolitan, also an SWP contractor, is constructing a water conveyance system known as the Inland Feeder, which will take water from the Devil Canyon Second afterbay and deliver it into Metropolitan's service territory. The 144-inch inside diameter Inland Feeder has been fully constructed to a point just north of the Santa Ana River, where it is in close proximity to Valley District's Foothill Pipeline. The remainder of Metropolitan's Inland Feeder, to the north and west is still under construction.

F. In accordance with previous understandings reached between the parties, Metropolitan constructed a 78-inch inside diameter intertie pipeline to connect the Foothill Pipeline with the Inland Feeder, known as the Cone Camp Intertie.

G. Since December 2003, Metropolitan has taken water from the Foothill Pipeline through the Cone Camp Intertie and delivered it into the Inland Feeder at flows up to 240 cfs, as capacity was available. Valley District was compensated for the water delivered to Metropolitan from Valley District's Table A amounts at the rate provided for in Attachment 2 to the Coordinated Operating Agreement.

H. Currently, when more than 80 cfs is diverted from the Foothill Pipeline to the Cone Camp Intertie, there is insufficient head in the Foothill Pipeline to meet the minimum hydraulic gradient requirements at Greenspot Pump Station (easterly of the Foothill Pump Station) and therefore, insufficient head to meet Valley District demands downstream of the Greenspot Pump Station.

I. Pursuant to previous understandings reached between the parties, the Foothill Pump Station has been designed and constructed adjacent to the Foothill Pipeline and Cone

Camp Intertie to increase the hydraulic grade line at the Greenspot Pump Station to enable Valley District to meet demands downstream in the Foothill Pipeline when water is being delivered into the Cone Camp Intertie. The Foothill Pump Station includes eight 300-horsepower horizontal pumps with adjustable (variable) frequency drives. Use of the Foothill Pump Station is only needed to meet downstream demands if and when Metropolitan is taking water through the Cone Camp Intertie.

J. The purpose of this Attachment 5 is to provide for the parties' respective responsibilities regarding: (1) the right-of-way for the Foothill Pump Station, (2) the obligation to deliver water to the Cone Camp Intertie, and (3) payment provisions for Foothill Pump Station power costs, and water delivered to Metropolitan through the Cone Camp Intertie.

TERMS OF AGREEMENT

1. Foothill Pump Station Right-of-Way. For good and valuable consideration, the receipt of which is hereby acknowledged, Metropolitan hereby grants to Valley District an exclusive license ("License") to the use of a portion of the parcel of land owned by Metropolitan on which the Foothill Pump Station has been constructed (the "Property") for the operation, maintenance, repair and replacement of the Foothill Pump Station and related facilities located on the Property, which right shall include, without limitation, the right to construct, maintain, repair and replace a fence around the perimeter of the Property and to control all ingress and egress to and from the Property. The Property is more fully described in Exhibits A and B, which are attached hereto and incorporated herein by this reference.

a. The License shall be irrevocable and non-terminable for a term of ten (10) years commencing on January 1, 2005 and terminating on December 31, 2014. The License shall thereafter automatically be renewed on an annual basis, unless, at least 11 months before the

expiration date for the License, as the same may be extended as provided herein, either Valley District or Metropolitan notifies the other in writing of its decision not to renew the License. Valley District shall not be required to pay to Metropolitan any additional consideration for the License.

b. Valley District and Metropolitan agree to allow reasonable access to the other's staff, employees, contractors and/or agents across the lands subject to the License and/or adjacent rights of way upon reasonable notice.

c. Valley District shall be responsible, at its own cost and expense, for the operation, maintenance, repair, rehabilitation and replacement, as necessary, of the Foothill Pump Station (including, without limitation, the repair of any damage to the Foothill Pump Station due to natural disasters such as earthquake, fire or flood) and shall also be responsible for environmental compliance associated with or relating to the operation, maintenance, repair, rehabilitation and replacement of the Foothill Pump Station.

d. Metropolitan hereby grants to Valley District the right to purchase the Property in the event of the expiration or termination of the License, at a purchase price equal to the then current fair market value (as defined under California law) for the real property (excluding improvements thereon) as determined as provided in this paragraph. In order to exercise this right to purchase, Valley District must give written notice of Valley District's intent to exercise the purchase right ("Valley District's Exercise Notice") within 30 days after the date of expiration or termination of the License. Metropolitan and Valley District shall, within 30 business days after receipt of Valley District's Exercise Notice, mutually determine the fair market value of the Property or a process for making that determination using their good faith judgment. In the event that Metropolitan and Valley District cannot agree upon the fair market

value of the Property or such a process within said 30 day period, either party shall have the right to submit the determination of the fair market value of the Property to neutral binding arbitration: (i) administered by the American Arbitration Association under its commercial arbitration rules, or (ii) conducted according to such other arbitration procedures as may be mutually agreed upon in writing by Valley District and Metropolitan. The License shall remain in full force and effect until the purchase is completed. Metropolitan and Valley District agree to execute any additional instructions and documents as are normal and usual for the sale of real property.

2. Water Deliveries to Cone Camp Intertie. During the term of this Agreement, Valley District agrees, upon Metropolitan's request, to deliver water using any unused capacity in the Foothill Pipeline into Metropolitan's Cone Camp Intertie. Unused capacity is defined as the design capacity (approximately 290 cfs) for the Foothill Pipeline less; (i) demand within Valley District's existing service area, and (ii) the demand in San Gorgonio Pass Water Agency's service area, not to exceed San Gorgonio Pass Water Agency's SWP contract capacity, or 32 cfs. For purposes of this Agreement, the term "demand" includes both the direct delivery of water by Valley District to other water purveyors for immediate use within Valley District's service area and the delivery of water to various facilities for the recharge of groundwater basins within Valley District's service area.

3. Payment for Water and Foothill Pump Station Power Costs. Metropolitan shall pay Valley District for water purchased by Metropolitan from Valley District and for power costs at the Foothill Pump Station associated with the delivery of water to Metropolitan's Cone Camp Intertie as follows:

a. Metropolitan shall, as it has in the past, pay to Valley District the rate as provided by Attachment 2 to the Coordinated Operating Agreement for all water purchased from the

Valley District and delivered through the Foothill Pipeline into Metropolitan's Cone Camp Intertie. Costs for water purchased shall be invoiced to Metropolitan no more frequently than monthly. Payment shall be due to Valley District within 60 days of receipt of invoice.

b. Metropolitan shall pay to Valley District all additional power costs for the Foothill Pump Station required to deliver water through the unused capacity in the Foothill Pipeline to Metropolitan's Cone Camp Intertie. The additional power costs for which Metropolitan is responsible shall be calculated by multiplying the power rate in dollars per acre foot at Foothill Pump Station when the water was delivered to Metropolitan times either; (i) the capacity of the Foothill Pipeline less Valley District demands upstream of the Foothill Pump Station and the flow through the Foothill Pump Station, or (ii) flow through the Foothill Pump Station, whichever is less, times the actual power rate at the Foothill Pump Station when the water was delivered to Metropolitan. For purposes of this paragraph the power rate shall be based upon a the monthly power consumption at the Foothill Pump Station divided by the acre feet of water pumped by the Foothill Pump Station during that month. When water is not delivered to Metropolitan, Metropolitan shall not pay for any power costs associated with the Foothill Pump Station. Costs for power shall be invoiced to Metropolitan no more frequently than monthly. Payment shall be due to Valley District within 60 days of receipt of invoice.

4. Term.

a. This Agreement shall be non-terminable for 10 years from the date hereinabove first written and after 10 years, the term of this Agreement shall be coincidental with the term of the Coordinated Operating Agreement and any attachments thereto.

b. Paragraph 5 of the Coordinated Operating Agreement shall be modified to read as follows:

"5. This Agreement shall remain in force for a period ending December 31, 2014, with the expectation that a definitive agreement with a minimum term of twenty years will be entered into by the parties."

5. Notices. Any notice or communication given under this Agreement shall be effective when deposited, postage prepaid, with the United State Postal Service and addressed to the contracting parties as follows:

If to Metropolitan:

The Metropolitan Water District of Southern California
P. O. Box 54153
Los Angeles, CA 90054-0153
Attention: Ms. Debra Man

If to Valley District:

San Bernardino Valley Municipal Water District
P.O. Box 5906
San Bernardino CA 92412-5906
Attention: Mr. Robert Reiter

Either party may change the address to which notice or communication is to be sent by providing written notice to the other party.

6. Indemnification. Valley District agrees that it is solely responsible for the operation, maintenance, repair, rehabilitation and replacement of the Foothill Pump Station and hereby indemnifies and holds harmless Metropolitan and Metropolitan's directors, officers, employees and agents from any and all liabilities, injuries and/or damages, whether to the Foothill Pump Station, its employees, or to third parties, arising from Valley District's use of the Foothill Pump Station and/or the property (Exhibits A and B) subject to the License provided for by this Agreement. Said indemnification shall include all costs and attorney's fees to defend Metropolitan from any such claim or lawsuit for injury or damages. Metropolitan hereby

indemnifies and holds harmless Valley District and Valley District's directors, officers, employees and agents from any and all liabilities, injuries and/or damages, whether to the Inland Feeder or other facilities, its employees, or to third parties, arising from Metropolitan's activities. Said indemnification shall include all costs and attorney's fees to defend Valley District from any such claim or lawsuit for injury or damages.

7. Jurisdiction and Venue. This Agreement shall be deemed a contract under the jurisdiction and venue of the State of California and for all purposes shall be interpreted in accordance with such laws.

8. Alteration. It is mutually understood and agreed that this Agreement represents the complete understanding of the parties and that no oral understanding or agreement not incorporated herein shall be binding on either party. Except as provided herein, this Agreement may not be modified or altered without formal amendment in writing, signed by both parties thereto.

9. Coordinating Operating Agreement. Except to the extent required by the terms of this Agreement, both parties hereby acknowledge that they remain obligated under the terms of the Coordinating Operating Agreement and Attachments 1 through 4, thereto.

Exhibits:
A. Legal Description of Real Property Subject to the License
B. Map of Real Property Subject to the License

/
/
/
/
/
/

IN WITNESS WHEREOF, the parties have hereunto affixed their names as of the date and year hereinabove first written.

APPROVED AS TO FORM:

By: _____
Lauren R. Brainard
Senior Deputy General Counsel

Date: 12/17/04

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

By: _____
Ronald R. Gastelum
Chief Executive Officer

Date: 12/17/04

APPROVED AS TO FORM:

By: _____
David R. E. Aladjem
Special Counsel

Date 12/22/04

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: _____
Robert Reiter
General Manager

Date: 12/21/04

In duplicate

O:\s\contract\MDH_Attachment 5 (Foothill Pump Station) to the Coordinated Operating Agreement 12-15-04.doc

EXHIBIT A

INFED1-27-900RL2287
Revenue Lease RL 2287
MWD to
San Bernardino Valley
Municipal Water District

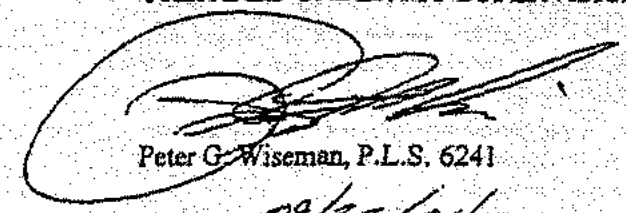
That portion of the southeast quarter (SE¼) of the southeast quarter (SE¼) of Section 1, Township 1 South, Range 3 West, San Bernardino Meridian, in the County of San Bernardino, State of California more particularly described as follows:

COMMENCING at the east quarter corner of said Section 1, marked by 2" I.P. with 3" brass disk stamped "FOR LA DISTRICT U.S. CORPS OF ENGINEERS AND COUNTY OF ORANGE BY JOHNSON-FRANK ASSOC. T1S ¼ S1 S6 LS 4215 R3W R2W 1989" as shown on Record of Survey 04-028 filed in Book 121, page 56 of Record of Surveys, in the Office of the County Recorder of said County; thence S 01° 02' 02" E 2638.77 feet to the southeast corner of said Section 1, marked by a 2-1/2" brass cap stamped "SB COUNTY T1S, R2W, S6 S7, R3W S1 S12", 12" above surface in rock and concrete mound, as shown on said Record of Survey; thence along the southerly line of said SE¼SE¼, S 87° 34' 25" W 53.78 feet to the southeast corner of a triangular shaped parcel of land conveyed to The Metropolitan Water District of Southern California by Grant Deed recorded December 06, 2001 as Document No. 20010553506 of Official Records of said County; thence along the northeasterly line of said triangular parcel of land N 34° 55' 11" W 425.66 feet; thence N 56° 34' 22" W 28.19 feet to the POINT OF BEGINNING; thence leaving said northeasterly line S 88° 44' 43" W 345.98 feet; thence N 00° 32' 52" W 108.87 feet; thence N 89° 27' 08" E 22.00 feet; thence N 00° 32' 52" W 37.00 feet; thence S 89° 27' 08" W 22.00 feet; thence N 00° 32' 52" W 148.72 feet to the southerly line of that certain Grant of Easement to the San Bernardino Valley Municipal Water District recorded June 04, 1973 in Book 8196, page 25 of Official Records of said County; thence along said southerly line S 76° 35' 24" E 106.06 feet to said northeasterly line; thence along said northeasterly line the following courses S 43° 04' 19" E 64.89 feet; thence S 40° 09' 35" E 242.65 feet; thence S 56° 34' 20" E 53.61 feet to the POINT OF BEGINNING,

All as shown on EXHIBIT "B" attached hereto and made a part hereof.

END OF DESCRIPTION

PREPARED UNDER MY SUPERVISION



Peter G. Wiseman, P.L.S. 6241

09/27/04

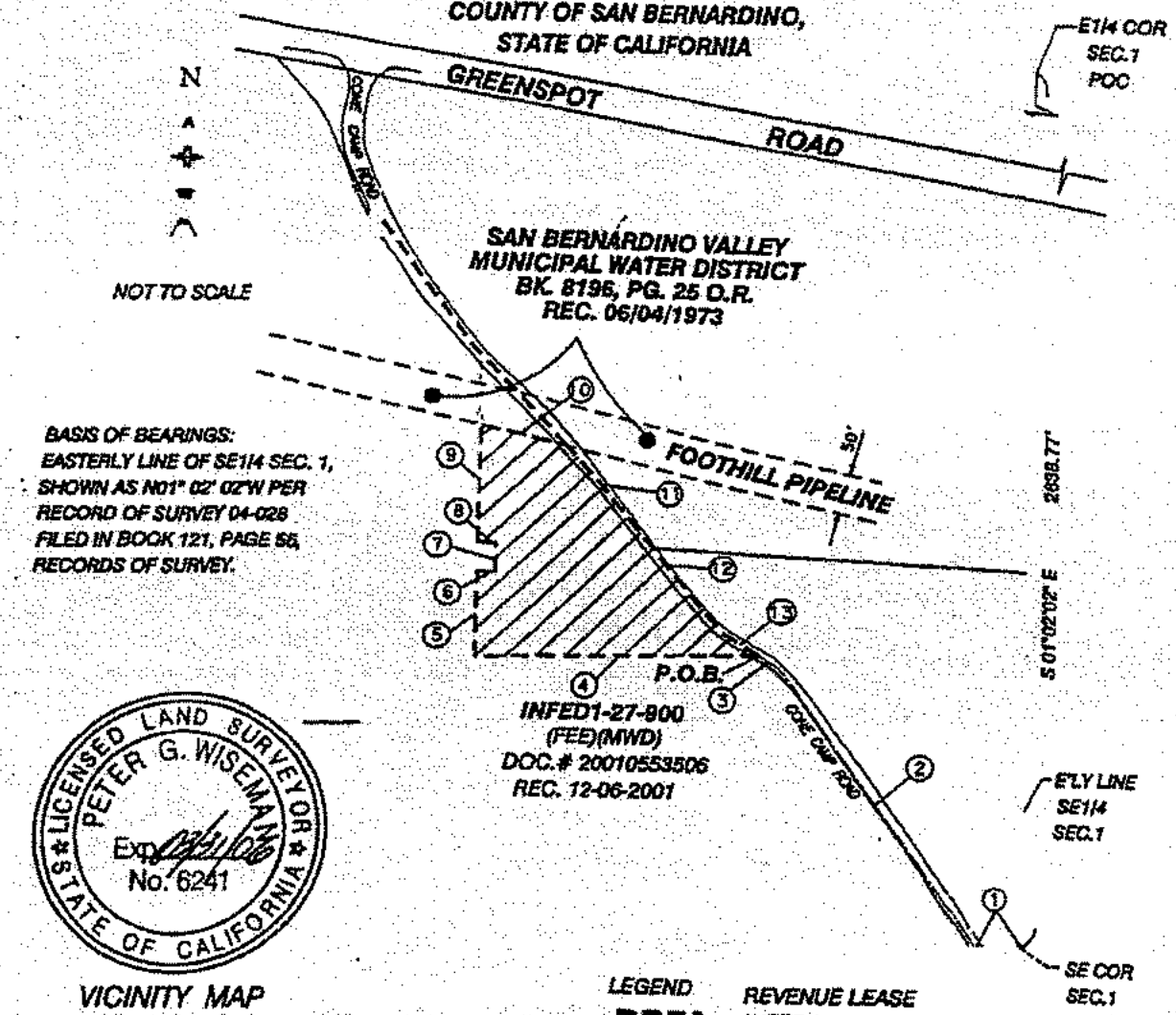
Date

PGW\Inlandrow\legals\27\900RL2287.doc

September 22, 2004

EXHIBIT B

THIS EXHIBIT IS TO BE ATTACHED TO THE LEGAL DESCRIPTION
SE1/4SE1/4 OF SEC. 1, T.1S., R.3W, S.B.M.
COUNTY OF SAN BERNARDINO,
STATE OF CALIFORNIA

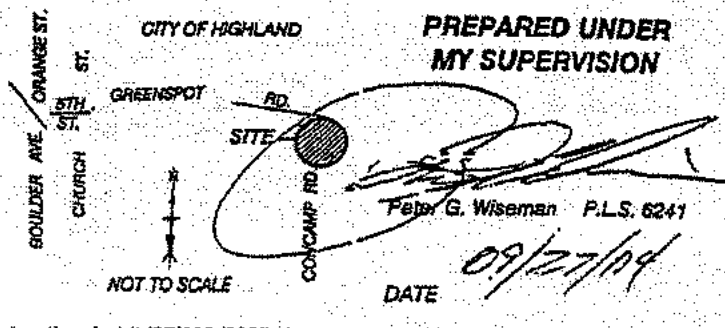


LICENSED LAND SURVEYOR
PETER G. WISEMAN
Exp. 09/30/06
No. 6241
STATE OF CALIFORNIA

VICINITY MAP

LEGEND

REVENUE LEASE
INFED1-27-900RL2287
(1.350 ACS.)



PREPARED UNDER
MY SUPERVISION

Peter G. Wiseman P.L.S. 6241

09/27/04
DATE

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

INLAND FEEDER
REVENUE LEASE R.L. 2287
MWD
TO
SAN BERNARDINO VALLEY
MUNICIPAL WATER DISTRICT
INFED1-27-900RL2287

/inland/row/exhib/27/900rl2287.dgn

09/22/2004 PGW/MDT

EXHIBIT B

THIS EXHIBIT IS TO BE ATTACHED TO THE LEGAL DESCRIPTION
SE1/4 SE1/4 OF SEC. 1, T.1S., R.3W, S.B.M.
COUNTY OF SAN BERNARDINO,
STATE OF CALIFORNIA

COURSE TABLE

LINE NO.	COURSE	DIST.
1	S87°34'25"W	53.78'
2	N34°55'11"W	425.66'
3	N56°34'22"W	28.19'
4	S88°44'43"W	345.98'
5	N00°32'52"W	108.87'
6	N89°27'08"E	22.00'
7	N00°32'52"W	37.00'
8	S89°27'08"W	22.00'
9	N00°32'52"W	148.72'
10	S78°35'24"E	106.06'
11	S43 04'19"E	64.89'
12	S40°09'35"E	242.65'
13	S56°34'20"E	53.61'

LICENSED LAND SURVEYOR
PETER G. WISEMAN
Exp 06/30/06
No. 6241
STATE OF CALIFORNIA

PREPARED UNDER
MY SUPERVISION

Peter G. Wiseman P.L.S. 6241

09/27/04
DATE

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

INLAND FEEDER
REVENUE LEASE R.L. 2287
MWD
TO
SAN BERNARDINO VALLEY
MUNICIPAL WATER DISTRICT
INFED1-27-900RL2287

/inland/row/exhib/27/900rl2287.dgn

09/22/2004 MDT/PGW

San Bernardino Valley Municipal Water District

1350 SOUTH "E" STREET - P. O. BOX 5906 - SAN BERNARDINO, CALIFORNIA 92412-5906 -(909) 387-9200
FAX (909) 387-9247

December 27, 2004

Stephen N. Arakawa
Manager, Water Resources Management
Metropolitan Water District of Southern California
700 North Alameda Street
Los Angeles, CA 90012

Enclosed please find one fully executed original of Attachments 5 and 6 to the Coordinated Operating Agreement between The Metropolitan Water District of Southern California and San Bernardino Valley Municipal Water District.

Very truly yours,

Randy Van Gelder
Assistant General Manager

Directors and Officers

EDWARD B. KILLGORE
Division I

GEORGE A. AGUILAR
Division II

PAT MILLIGAN
Division III

MARK BULOT
Division IV

STEVE COPELAN
Division V

ROBERT L. REITER
General Manager
and Chief Engineer

AGREEMENT
RELATING TO THE DIVERSION OF WATER
FROM THE SANTA ANA RIVER SYSTEM
AMONG
WESTERN MUNICIPAL WATER DISTRICT OF RIVERSIDE COUNTY
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
AND
CITY OF RIVERSIDE

Exhibit D

[Sections 12 and 13 of the ICSA Settlement]

in recitals I.D through I.K inclusive as they may exist as of the effective date of this Agreement. Further nothing in this Agreement is intended to modify or affect in any way the judgments initially referred to in recitals I.D, I.F and I.G above. This Agreement shall not be used as evidence in any water rights claim or cause of action.

12. In the event of the failure of the Parties to this Agreement to reach agreement on the ICGMP or if such an agreement has not yet been reached and there is no approved extension of the term of this Agreement, the matter shall be resolved by limited scope mediation and arbitration. The mediation and arbitration shall be conducted by JAMS (sometimes referred to as the mediation service provider), and shall be administered, to the extent practical in the San Bernardino office, or the JAMS office closest to San Bernardino. In the event, for whatever reason, JAMS is not available or lacks the necessary expertise, the parties shall first attempt to use the services of another judicially oriented service, such as IVAMS, and use the American Arbitration Association only after all other judicially based mediation and arbitration services have refused to undertake the mediation and arbitration of the dispute.

The Parties shall promptly initiate the process when they have reached an impasse with regard to any issues preventing complete agreement on the ICGMP. The process shall require the mediation of all disputes as a condition to the initiation of the arbitration process. The mediator shall be selected by mutual agreement of all of the affected Parties, and the cost of the mediator shall be borne on an equal basis by all of the Parties to this Agreement. In the event the Parties are unable to agree on a mediator, the mediation service provider shall select a mediator with civil judicial experience. The Parties shall meet and confer prior to the mediation and provide to the mediator an agreed list of matters to be resolved by the mediation. Unless all of the Parties to the mediation agree otherwise, the only matters to be discussed at the mediation are those matters

submitted to the mediator following the meet and confer meeting of the Parties. Time shall be of the essence during the process and all Parties shall cooperate to promptly complete the process.

In the event the Parties are unsuccessful in resolving any or all of the issues presented to the mediator, a limited scope arbitration shall be conducted promptly following the completion of the mediation. The mediation service provider shall provide to the arbitrating parties a list of available arbitrators. The Parties shall first attempt to agree on an arbitrator having some background or expertise in water law, groundwater contamination or environmental clean-up matters, and failing to do such the mediation service provider shall select an arbitrator with complex civil judicial experience. The scope of the arbitration shall be limited to the issues presented to the arbitrator by the parties to the arbitration. The Parties shall meet and confer prior to the arbitration and provide to the arbitrator an agreed list of issues to be resolved. The arbitrator shall be instructed that the only issues for decision are those issues presented by the arbitrating parties, and that the arbitrator shall comply with California law, unless the subject matter specifically relates to a federal issue. It is specifically agreed that any decision of an arbitrator subjecting any of the Parties directly or indirectly to the Institutional Controls Ordinance is outside the scope and authority of the arbitrator and shall be unenforceable and void. The arbitrator shall have no authority to award costs or attorneys' fees. Each Party agrees that the costs of arbitration shall be shared equally by the Parties and that each Party shall bear their own attorneys fees and preparation costs. Time shall be of the essence during the arbitration process.

The decision of the arbitrator shall be binding as to those matters presented for determination. Any matters included in the decision of the arbitrator outside the issues presented for determination, including without limitation awards of costs and attorneys fees, shall be unenforceable and not binding on the parties. In the event an arbitrator attempts to include matters

or issues outside the scope of the arbitration or any party fails to abide by the terms of this Agreement limiting the scope of the arbitration, any other party shall have the right to file an action for declaratory relief in United States Court for the Central District of California in the consolidated cases, seeking enforcement of the provisions of this Agreement limiting the scope of arbitration.

13. Defined terms that are used in this Agreement and that are also used in the Consent Decree shall have the meaning set forth in the Consent Decree. In the event that there is any inconsistency between the definition of a term in this Agreement and a definition of the same term in the Consent Decree, the definition of the term in the Consent Decree shall control.

14. Each Party shall have access to and the right to examine any of the other Party's pertinent books, documents, papers or other records (including, without limitation, records contained on electronic media) relating to the performance of that Party's obligations pursuant to this Agreement. The Parties shall each retain all such books, documents, papers or other records to facilitate such review. Access to each Party's books, documents, papers and other records shall be during normal business hours only. Nothing in this paragraph shall be construed to operate as a waiver of any applicable privileges.

15. Each signatory of this Agreement represents that s/he is authorized to execute this Agreement on behalf of the Party for which s/he signs. Each Party represents that it has legal authority to enter into this Agreement and to perform all obligations under this Agreement.

16. This Agreement has been arrived at through negotiations and each Party has had a full and fair opportunity to revise the terms of this Agreement. As a result, the normal rule of construction that any ambiguities are to be resolved against the drafting Party shall not apply in the construction or interpretation of this Agreement.

COOPERATIVE AGREEMENT TO PROTECT WATER QUALITY AND ENCOURAGE THE CONJUNCTIVE USES OF IMPORTED WATER IN THE SANTA ANA RIVER BASIN

This Cooperative Agreement to Protect Water Quality and Encourage the Conjunctive Uses of Imported Water in the Santa Ana River Basin ("**Agreement**") is entered into and effective this 18 day of January, ~~2007~~ 2008 by and among the California Regional Water Quality Control Board, Santa Ana Region (the "**Regional Board**") and the entities listed in paragraph 11(n) below. The Regional Board and each of the entities listed in paragraph 11(n) below are individually referred to as a "**Party**" and are collectively referred to as the "**Parties.**"

Recitals

A. Water imported to the Santa Ana River Region, as defined in Water Code section 13200(e) (the "**Region**"), from the State Water Project, the Colorado River and other sources, and to groundwater basins within the Region from other groundwater basins within the Region, is vital to meet present and future demands for water within the Region. Such water is directly used; injected or percolated within groundwater basins; stored in a groundwater basin for later use; may be combined with or used in addition to the native groundwater supplies in a basin; may be exported/imported from one basin to another; and after consumptive use may form a portion of the wastewater that is treated, recharged and reused within the Region. Such conjunctive uses of surface water and groundwater within the Region have been contemplated by the State of California at least since the issuance of the original California Water Plan in 1957 and the adoption by the State Water Quality Control Board of Resolution No. 64-1.

B. The Regional Board is charged by statute with adopting such water quality objectives as may be required to protect the beneficial uses of water within the Region. In particular, the long-term conjunctive use of groundwater in the Region requires that the quality of water in groundwater basins in the Region be managed to meet the water quality objectives for nitrogen and total dissolved solids (collectively, the "**Salinity Objectives**") adopted by the Regional Board in the 1995 Water Quality Control Plan for the Santa Ana River Basin, as amended in 2004 by R8 2004-0001 (the "**Basin Plan**").

C. The Salinity Objectives presently included in the Basin Plan are the result of a multi-year, multi-million dollar cooperative effort among many of the Parties. The Salinity Objectives are a product of the best scientific and technical information available.

D. The Legislature has declared that the facilitation of voluntary transfers of water and water rights is the established policy of the State. The Legislature has further declared that voluntary water transfers between water users can result in a more efficient use of water and can allow more intensive use of developed water resources so as to conserve all available water resources. The Legislature has directed the Regional Board to encourage voluntary transfers of water and water rights.

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E. The Parties disagree whether the Regional Board may regulate the conjunctive uses of imported water in the Region by means of general waste discharge requirements. Some of the Parties believe the Regional Board lacks authority to regulate the conjunctive uses of water in the Region because, they contend, such water does not constitute "waste" as defined in Water Code section 13050(d); the Regional Board and other Parties believe the Regional Board has such authority.

F. To avoid costly and time-consuming litigation brought to resolve the scope of the Regional Board's authority to regulate imported water and without prejudice to the Parties' competing views on this question, the Parties wish to act cooperatively with the goal of achieving compliance with the Salinity Objectives without the necessity of general waste discharge requirements.

G. The Parties wish to memorialize the terms of their cooperative effort by means of this Agreement.

Agreements

1. *Purpose of Agreement*

This Agreement is intended to allow the Parties to monitor and improve water quality within the Santa Ana River Region in a manner that is consistent both with adopted water quality objectives and with the needs of the inhabitants of the Region for a reliable supply of water. This Agreement is limited in scope to compliance with and implementation of the Salinity Objectives.

2. *Parties*

The Regional Board or any public agency or non-profit mutual water company that imports water to the Region, exports/imports water between basins within the Region, recharges such imported water within the Region, delivers such imported water for potable use within the Region, or treats and/or recharges wastewater within the Region that includes imported water may become a Party to this Agreement.

3. *Term of Agreement*

This Agreement will have an initial term of 10 years and shall automatically renew for subsequent 10-year periods, *provided* that any Party may withdraw at any time by providing one year's written notice of withdrawal to all other Parties.

4. *Preparation of Triennial Water Quality Report*

The Parties that intentionally recharge imported water within the Santa Ana Region (the "**Recharging Parties**") agree voluntarily to collect, compile and analyze the N/TDS water quality data necessary to determine whether the intentional recharge of imported water in the Region may have a significant adverse impact on compliance with the Salinity Objectives within

the Region. To that end, the Recharging Parties will collect, compile and analyze such N/TDS water quality data and prepare, within eighteen months from the effective date of this Agreement and every three years thereafter, a report containing the following information:

a. A summary of the then-current ambient water quality in each groundwater management zone and a comparison of that ambient water quality with the Salinity Objectives. The Recharging Parties shall calculate ambient water quality for each groundwater management zone in a manner that allows for a technically valid comparison with the Salinity Objectives.

b. A summary of the amount and quality of imported water recharged in each groundwater management zone during the previous three-year period.

c. The initial report and each report prepared at six-year intervals thereafter will include a projection of ambient water quality in each groundwater management zone for the subsequent 20 years.

(1) The projection of ambient water quality for each groundwater management zone will be based upon professionally accepted modeling techniques, will reasonably account for surface fluxes of salt input, will reflect the effects of all existing and reasonably foreseeable recharge projects for which there is a certified environmental document and will compare baseline ambient water quality with the Salinity Objectives.

(2) The projections for different groundwater management zones may be based on different modeling techniques.

(3) Each report that includes a 20-year projection of ambient water quality will also present a comparison of then-current water quality in each groundwater management zone with the ambient water quality projection made six years earlier, together with an evaluation of the reason(s) for any differences.

The Recharging Parties will agree among themselves regarding the manner in which they will prepare the report and the manner in which they will share the cost of preparing the report. The Recharging Parties will circulate a draft version of each report to all other Parties for review and written comments for at least a 45-day period. The Recharging Parties shall consider written comments received on the draft report in preparing the final report. Upon completion of the final report, the Recharging Parties shall promptly lodge the final report with the Regional Board.

5. *CEQA Review of Proposed Projects*

Each Recharging Party agrees that, when it serves as a lead agency under the California Environmental Quality Act ("**CEQA**") for a proposed project involving the recharge of imported water within the Region, it will analyze that project as follows:

a. The environmental document will include the water quality data compiled in the most recent triennial report to the Regional Board (see paragraph 4 above) in the analysis of the potential impacts of the proposed project.

b. The environmental document will incorporate professionally acceptable modeling techniques. The Parties agree that the following models meet this standard:

(1) The Wildermuth models used to establish maximum benefit objectives.

(2) The Orange County Basin Groundwater Model.

(3) The USGS/Geoscience/Secor model of the Bunker Hill Groundwater Basin.

(4) The Chino Basin Watermaster/Inland Empire Utilities Agency model.

(5) The Beaumont-Cherry Valley model for the Beaumont management zone

(6) Eastern Municipal Water District's San Jacinto Groundwater Model.

(7) Elsinore Valley Municipal Water District's Elsinore Basin Groundwater Model.

(8) The USGS model of the Beaumont Basin (with MT3D package or equivalent added).

Updates/refinements of these models are presumed to be professionally acceptable.

c. A Recharging Party may base its environmental analysis on a model other than those described above if that model has been presented to the Regional Board at least 180 days prior to the release of the draft environmental document and there has been a determination by the Regional Board or its staff that the alternative model is acceptable.

(1) The Regional Board agrees that an alternative model is acceptable for purposes of this Agreement if the proponent of that model can demonstrate with reasonable certainty that the relative error of the model's calibration for the groundwater management zones in question for a reasonable base period is ± 10% or less when compared with existing groundwater data.

(2) The provisions of the immediately preceding paragraph are not to be construed to preclude other means or methodologies for an alternative model's proponent to demonstrate to the Regional Board that an alternative model is acceptable for purposes of this Agreement.

(3) If an alternative model has not been deemed acceptable by the Regional Board or its staff and a lead agency wishes to include results from that model in the environmental document, the lead agency shall include results from both the alternative model and one of the pre-approved models in the environmental document.

d. The environmental document will include the following analyses:

(1) A summary of the condition of the groundwater management zones, as reflected in the most recent triennial report to the Regional Board, that might be affected by the project.

(2) A 20-year projection of water quality in the groundwater management zone with the proposed project and a comparison of that water quality with conditions expected without the project.

(3) A comparison of the 20-year water quality projection for conditions with the proposed project with the Salinity Objectives for the groundwater management zone.

(4) A description and evaluation of any measures proposed to mitigate the potential effects of the proposed project.

e. The draft environmental document will be circulated to all Parties.

f. Each Recharging Party agrees to adopt the operative guidelines contained in this paragraph 5 as part of its CEQA implementing procedures pursuant to section 15022 of the CEQA Guidelines.

g. The environmental document shall include, if required under CEQA, an effective mitigation monitoring and reporting plan that enables the lead agency to demonstrate compliance with applicable regulatory standards and any performance standards adopted in the environmental document.

6. *Basin Planning Updates*

The Regional Board will review and, if appropriate, revise water quality objectives for the purpose of facilitating the recharge of imported water in groundwater management zones within the Region. The Parties agree to cooperate in such efforts and agree to work cooperatively to develop a program that addresses the use and allocation of assimilative capacity as part of overall Basin planning and management.

7. *Enforcement*

If the Recharging Parties fail timely to prepare the triennial report described in paragraph 4 above or if a Recharging Party fails to include the analyses described in paragraph 5 above in an environmental document prepared in connection with a proposed project involving the recharge of imported water, then any other Party may enforce the terms of this Agreement as

follows.

If the dispute relates to the triennial report on water quality, the Regional Board will hold a hearing asking the Recharging Parties to provide an explanation for the delay or failure to prepare the report. Such a hearing will precede an action for specific performance of the terms of this Agreement by the Regional Board. In the event that the dispute relates to the failure of a Party to provide the appropriate analysis in an environmental document, that dispute will be addressed by the Party(ies) using the remedies available under CEQA.

The Parties recognize that nothing in this Agreement can or is intended to divest the Regional Board of its authority under the Porter-Cologne Water Quality Control Act. Furthermore, nothing in this Agreement shall be construed as a waiver by any Party of any remedies it may have against a non-Party for interference with the implementation of this Agreement.

8. *Books and Records*

Each Party shall have access to and the right to examine any of the other Parties' pertinent books, documents, papers or other records (including, without limitation, records contained on electronic media) relating to the performance of that Party's obligations pursuant to this Agreement. The Parties shall each retain all such books, documents, papers or other records for at least four years after the termination of this Agreement to facilitate such review. Access to each Party's books and records shall be during normal business hours only. Nothing in this paragraph shall be construed to operate as a waiver of any applicable privileges.

9. *No Admissions*

Nothing in this Agreement shall be construed as an admission by any Party regarding any subject matter of this Agreement, including but not limited to the authority of the Regional Board to regulate the importation of water to the Region. The Parties agree that Evidence Code sections 1152 and 1154 render this Agreement inadmissible as evidence against any of the Parties in any adjudicative proceeding, except a proceeding to enforce or interpret the terms or conditions of this Agreement.

10. *Preservation of Rights*

The Parties agree that this Agreement is in settlement of a dispute and preserves all rights of the Parties as they may exist as of the effective date of this Agreement.

11. *General Provisions*

a. *Authority.* Each signatory of this Agreement represents that s/he is authorized to execute this Agreement on behalf of the Party for which s/he signs. Each Party represents that it has legal authority to enter into this Agreement and to perform all obligations under this Agreement.

b. *Amendments.* This Agreement may only be amended with the approval of all Parties.

c. *Jurisdiction and Venue.* This Agreement shall be governed by and construed in accordance with the laws of the State of California, except for its conflicts of law rules. Any suit, action, or proceeding brought under the scope of this Agreement shall be brought and maintained to the extent allowed by law in the County of Riverside, California.

d. *Representations and Warranties.* Each representation and warranty contained herein or made pursuant hereto shall be deemed to be material and to have been relied upon and shall survive the execution, delivery and termination of this Agreement.

e. *Entire Agreement.* This Agreement constitutes the entire agreement of the Parties with respect to the subject matter of this Agreement and supersedes any prior oral or written agreement, understanding, or representation relating to the subject matter of this Agreement.

f. *Successors and Assigns.* This Agreement shall be binding on and inure to the benefit of the successors and assigns of the respective Parties to this Agreement. No Party may assign its interests in or obligations under this Agreement without the written consent of the other Parties, which consent shall not be unreasonably withheld or delayed.

g. *Advice of Counsel; Drafting by Negotiations.* This Agreement has been arrived at through negotiations and each Party has had a full and fair opportunity to revise the terms of this Agreement. As a result, the normal rule of construction that any ambiguities are to be resolved against the drafting Party shall not apply in the construction or interpretation of this Agreement. Each Party represents that it has sought and obtained any legal advice it deems necessary from its own separate counsel before entering into this Agreement.

h. *Waiver.* No waiver of any violation or breach of this Agreement shall be considered to be a waiver of any other violation or breach of this Agreement, and forbearance to enforce one or more of the remedies provided in this Agreement shall not be deemed to be a waiver of that remedy.

i. *Severability.* If, after the date of execution of this Agreement, any provision of this Agreement is held to be illegal, invalid, or unenforceable under present or future laws effective during the term of this Agreement, such provision shall be fully severable. However, in lieu thereof, there shall be added a provision as similar in terms to such illegal, invalid or unenforceable provision as may be possible and be legal, valid and enforceable.

j. *Compliance with Laws.* In performing their respective obligations under this Agreement, the Parties shall comply with and conform to all applicable laws, rules, regulations and ordinances.

k. *No Third-Party Beneficiaries.* This Agreement shall not create any right or interest in any non-Party or in any member of the public as a third party beneficiary.

l. *Necessary Actions.* Each Party agrees to execute and deliver additional documents and instruments and to take any additional actions as may be reasonably required to carry out the purposes of this Agreement.

m. *Counterparts.* This Agreement may be executed in one or more counterparts, which may be executed and delivered via facsimile transmission, each of which shall be deemed to be an original, but all of which together shall constitute but one and the same instrument.

n. *Notices.* All notices, requests, demands or other communications required or permitted under this Agreement shall be in writing unless provided otherwise in this Agreement and shall be deemed to have been duly given and received on: (i) the date of service if served personally or served by facsimile transmission on the Party to whom notice is to be given at the address(es) provided below, (ii) on the first day after mailing, if mailed by Federal Express, U.S. Express Mail, or other similar overnight courier service, postage prepaid, and addressed as provided below, or (iii) on the third day after mailing if mailed to the Party to whom notice is to be given by first class mail, registered or certified, postage prepaid, addressed as follows:

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

California Regional Water Quality Control Board
Santa Ana Region
3737 Main St., Suite 500
Riverside, CA 92501
(951) 782-4130 ph
(951) 781-6288 fax

CITY OF CORONA

City of Corona
400 S. Vicentia Avenue
Corona, CA 92882-2187
(951) 736-2239 ph
(951) 736-2231 fax

CITY OF RIVERSIDE

City of Riverside
5950 Acorn Street
Riverside, CA 92504-1036
(951) 351-6080 ph
(951) 351-6267 fax

EASTERN MUNICIPAL WATER DISTRICT

Eastern Municipal Water District
2270 Trumble Road
Perris, CA 92570
P.O. Box 8300
Perris, CA 92572-8300
(951) 928-3777 ph
(951) 928-6177 fax

ELSINORE VALLEY MUNICIPAL WATER DISTRICT

Elsinore Valley Municipal Water District
31315 Chaney Street
Lake Elsinore, CA 92530
P.O. Box 3000
Lake Elsinore, CA 92531-3000

ORANGE COUNTY WATER DISTRICT

Orange County Water District
10500 Ellis Avenue
Fountain Valley, CA 92708-6921
P.O. Box 8300
Fountain Valley, CA 92728-8300
(714) 378-3200 ph
(714) 378-3371 fax

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

San Bernardino Valley Municipal Water District
1350 South "E" Street
San Bernardino, CA 92408-2725
P.O. Box 5906
San Bernardino, CA 92412-5906
(909) 387-9200 ph
(909) 387-9247 fax

SAN GORGONIO PASS WATER AGENCY

San Gorgonio Pass Water Agency
1210 Beaumont Avenue
Beaumont, CA 92223
(951) 845-2577 ph
(951) 845-0281 fax

WESTERN MUNICIPAL WATER DISTRICT

Western Municipal Water District
450 E. Alessandro Blvd.
Riverside, CA 92508-2449
P.O. Box 5286
Riverside, CA 92517-5286
(951) 789-5000 ph
(951) 780-3837 fax

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

By: _____
Title: Executive Officer

APPROVED AS TO FORM ONLY:

By: _____

CITY OF CORONA

By: _____
Title: CITY MANAGER
Beth Groves

APPROVED AS TO FORM ONLY:

By: _____
Best Best & Krieger, LLP
City of Corona Counsel

831058.3

SAN GORGONIO PASS WATER AGENCY

San Gorgonio Pass Water Agency
1210 Beaumont Avenue
Beaumont, CA 92223
(951) 845-2577 ph
(951) 845-0281 fax

WESTERN MUNICIPAL WATER DISTRICT

Western Municipal Water District
450 E. Alessandro Blvd.
Riverside, CA 92508-2449
P.O. Box 5286
Riverside, CA 92517-5286
(951) 789-5000 ph
(951) 780-3837 fax

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

CITY OF CORONA

By:_____
Title: CITY MANAGER
Beth Groves

APPROVED AS TO FORM ONLY:

By:_____
Best Best & Krieger, LLP
City of Corona Counsel

831058.3

CITY OF RIVERSIDE

By: _____
Title:

APPROVED AS TO FORM ONLY:

By: Susan Wilson
Deputy City Attorney

Attest: _____
City Clerk

EASTERN MUNICIPAL WATER DISTRICT

By: _____
Title:

APPROVED AS TO FORM ONLY:

By: _____

ELSINORE VALLEY MUNICIPAL WATER DISTRICT

By: _____
Title:

APPROVED AS TO FORM ONLY:

By: _____

CITY OF RIVERSIDE

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

EASTERN MUNICIPAL WATER DISTRICT

By:_____
Title: General Manager

APPROVED AS TO FORM ONLY:

By:_____

ELSINORE VALLEY MUNICIPAL WATER DISTRICT

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

CITY OF RIVERSIDE

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

EASTERN MUNICIPAL WATER DISTRICT

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

ELSINORE VALLEY MUNICIPAL WATER DISTRICT

By:_____
Title: General Manager

APPROVED AS TO FORM ONLY:

By:_____

831058.3

ORANGE COUNTY WATER DISTRICT

By: _____
Title: President

By: _____
Title: Acting General Manager

APPROVED AS TO FORM ONLY:

By: _____

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: _____
Title:

APPROVED AS TO FORM ONLY:

By: _____

SAN GORGONIO PASS WATER AGENCY

By: _____
Title:

APPROVED AS TO FORM ONLY:

By: _____

ORANGE COUNTY WATER DISTRICT

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

SAN BERNARDINO VALLEY
MUNICIPAL WATER DISTRICT

By:_____
Title: President

APPROVED AS TO FORM ONLY:

By:_____

SAN GORGONIO PASS WATER
AGENCY

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

ORANGE COUNTY WATER DISTRICT

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

SAN BERNARDINO VALLEY
MUNICIPAL WATER DISTRICT

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

SAN GORGONIO PASS WATER
AGENCY

By: Jeffrey W. Davis
Title: General Manager

APPROVED AS TO FORM ONLY:

By:_____

WESTERN MUNICIPAL WATER DISTRICT

By: _____
Donald D. Galleano
President, Board of Directors

APPROVED AS TO FORM ONLY:

By: _____

CITY OF SAN BERNARDINO
MUNICIPAL WATER DEPARTMENT

By: _____
Title: GENERAL MANAGER

APPROVED AS TO FORM ONLY:

By: _____

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD,
SANTA ANA REGION

RESOLUTION NO. R8-2006-0019

Authorizing the Executive Officer to Sign and Execute the Cooperative Agreement
To Protect Water Quality and Encourage the Conjunctive Use
Of Imported Water in the Santa Ana River Basin

WHEREAS:

1. In Resolution No. R8-2004-0001, the Regional Board revised the Basin Plan to adopt new water quality objectives for N/TDS based upon the recommendations of a stakeholder process;

2. The N/TDS Task Force, as the stakeholder effort has become known, is a model for the cooperative and collaborative development of water policy initiatives;

3. At its May 19, 2006 meeting, the Regional Board considered draft Resolution No. R8-2006-0042 and draft Order No. R8-2006-0005, which would have adopted general waste discharge requirements for 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;

4. At the close of the May 19, 2006 meeting, the Regional Board directed staff to work with appropriate stakeholders – largely the same stakeholders that had participated in the development of the new water quality objectives for N/TDS through the N/TDS Task Force – to investigate the feasibility of a cooperative program to manage salinity within the Region that would serve as an alternative approach to achieve the objectives of draft Resolution R8-2006-0042 and draft Order No. R8-2006-0005;

5. The stakeholder group has met regularly with Regional Board staff and has negotiated a proposed Cooperative Agreement to Protect Water Quality and Encourage the Conjunctive Uses of Imported Water in the Santa Ana River Basin (Attachment A);

6. The City of Corona, the City of Riverside, the City of San Bernardino Municipal Water Department, Eastern Municipal Water District, Elsinore Valley Municipal Water District, Orange County Water District, San Bernardino Valley Municipal Water District, San Gorgonio Pass Water Agency, and Western Municipal Water District of Riverside County have all executed the proposed cooperative agreement and, in doing so, have voluntarily agreed to an enhanced program to manage salinity within the Region;

7. Most water supply agencies in the State, including Metropolitan Water District of Southern California (MWDSC), are already required to collect and report routine chemical analyses to the California Department of Public Health (CDPH). In order to avoid redundant monitoring programs, MWDSC has offered to provide a copy of its annual water quality report, characterizing State Project Water, to the Regional Board. MWDSC's report to CDPH provides substantially the same

information that was originally specified in Table 1 of draft Order No. R8-2006-0005 (see Attachment B) and is a reasonable alternative approach;

8 The Regional Board wishes to obtain increased understanding of so-called "emerging contaminants" that may be present in imported water being used within the Region, however, there is significant uncertainty regarding the methods used to study emerging contaminants, including analytic methods and protocols;

9. The many issues associated with emerging contaminants are presently the subject of a number of studies, including a major study being undertaken by the National Water Research Institute (NWRI), the Metropolitan Water District of Southern California (MWDSC), and the Orange County Water District (OCWD) (NWRI/MWDSC/OCWD Study), estimated to be completed in 2009;

10. Regional Board staff believes that the NWRI/MWDSC/OCWD Study will provide data to satisfy the need for information concerning emerging contaminants for the calendar years 2008 and 2009;

11. For calendar years following 2008 and 2009, until a watershed-specific monitoring plan is developed and approved by the Regional Board, the Santa Ana River Dischargers Association (SARDA) has voluntarily agreed to provide an annual analysis of State Project Water imported to the Region for the suite of parameters sampled as part of the NWRI/MWDSC/OCWD Study;

12. The Cooperative Agreement signatories have agreed to develop a watershed-specific alternative list of emerging contaminants to be submitted for Regional Board consideration as an alternative to the parameters to be monitored during the NWRI/MWDSC/OCWD Study.

13. The Regional Board wishes to encourage voluntary programs to manage salinity and to better understand issues relating to emerging contaminants by partnering with stakeholders in a manner similar to the N/TDS Task Force. The results of the NWRI/MWDSC/OCWD study and other available data will be used in the stakeholder process to inform a program of study and investigation that includes an adaptively managed monitoring program.

14. The Cooperative Agreement and the monitoring program being developed by the stakeholder agencies within the Region obviates the need to bring back to the Board for consideration draft Resolution No. R8-2006-0042 and draft Order No. R8-2006-0005.

NOW, BE IT RESOLVED:

1. In lieu of the adoption of draft Resolution No. R8-2006-0042 and draft Order No. R8-2006-0005, the Regional Board hereby approves the proposed Cooperative Agreement to Protect Water Quality and Encourage the Conjunctive Uses of Imported Water in the

Santa Ana River Basin ("Agreement") and authorizes the Executive Officer to execute the Agreement on behalf of the Regional Board.

2. The Regional Board's execution of the Cooperative Agreement is contingent on the understanding that the other Cooperative Agreement signatories (the "Water Agencies") will, at their own expense, develop and implement a voluntary study program intended to better characterize the presence, extent, distribution and persistence of certain unregulated constituents in imported water used in the Santa Ana Region. The Regional Board supports this voluntary effort to manage water resources so as to avoid the need for future regulatory programs.

   a. The study program will be based on the best available science. Additional data may be collected, as appropriate, as part of the annual plans for investigation described below.

   b. The Water Agencies will, no later than December 31, 2008, prepare a report that provides a preliminary characterization of the presence, extent, distribution and persistence of unregulated constituents (also known as "emerging contaminants") that are indicators of the broader spectrum of constituents of water imported to the Santa Ana Region that may, in the future, be determined by appropriate regulatory agencies (e.g. USEPA or CDPH) to pose concerns for human health ("Imported Water Constituents"). This initial report will use data collected by the Department of Water Resources, the United States Geological Survey, the MWDSC/OCWD/NWRI study and other sources, as may be appropriate, that are developed consistent with generally accepted scientific data analysis protocols. The report shall be distributed to all signatories to this Agreement.

   c. The Water Agencies will, no later than December 31, 2009, and annually thereafter, prepare a plan for investigation (including a summary of the results of all prior monitoring efforts) that addresses at least the following questions for the Imported Water Constituents:

      i. Are there reliable and scientifically accepted protocols to test water for the presence and concentrations of these constituents?

      ii. What is known about the presence, extent, distribution and persistence of these constituents?

      iii. What is known about the toxicity, if any, of these constituents in terms of potential impacts on human health?

      iv. Should additional data be collected on any of these constituents, and, if so, under what sampling and analytical protocols?

   d. The annual plans for investigation described immediately above are not intended to substitute for the process used by USEPA and CDPH to develop MCLs or other water quality standards.

e. It is understood that the constituents that are the subject of the annual plans for investigation will, in all likelihood, change over time as their relative importance or unimportance to human health becomes better known. The Water Agencies will select constituents that they believe will best assist in understanding the potential impacts of imported water on human health.

f. The Regional Board may participate in the development of the report prepared pursuant to paragraph 2(b) above or the annual plans for investigation described in paragraph 2(c) above; however, such participation is not a prerequisite or condition for the development of such plan or reports.

g. The Water Agencies will promptly prepare a status update on the progress of either the report prepared pursuant to paragraph 2(b) above or the current annual plan for investigation prepared pursuant to paragraph 2(c) above upon request by the Regional Board.

h. The Water Agencies will promptly provide a copy of the report prepared pursuant to paragraph 2(b) above, the annual plans for investigation prepared pursuant to paragraph 2(c) above, and the results of analyses conducted pursuant to the Cooperative Agreement and this Resolution to all signatories to this Agreement, including the Regional Board.

I, Gerard J. Thibeault, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of a resolution adopted by the California Regional Water Quality Control Board, Santa Ana Region, on January 18, 2008.

Gerard J. Thibeault
Executive Officer

Table I			
Chemical	***Units***	***Type of Sample***	***Minimum Frequency of Sampling and Analysis***
Total Water Flow	*Mgd*	Flow meter/totalizer	Continuous
Total Nitrogen[1]	*mg/L*	Grab[2]	Annually
Nitrate Nitrogen	*mg/L*	Grab[3]	Annually
Total Inorganic Nitrogen	"	"	"
Total Organic Carbon	"	"	"
Total Dissolved Solids	"	"	"
Total Trihalomethanes (TTHM)[4]	"	"	"
N-Nitrosodimethylamine (NDMA)	"	"	"
Methyl-tert-butyl ether (MTBE)	"	"	"
Perchlorate	*µg/L*	Grab	Annually
Inorganic Chemical			
Aluminum	*µg/L*	Grab	Annually
Antimony	"	"	"
Arsenic	"	"	"
Asbestos	*MFL*	"	"
Barium	*µg/L*	Grab	"
Beryllium	"	"	"
Cadmium	"	"	"
Chromium	"	"	"
Cyanide	"	"	"
Fluoride	"	"	"
Mercury	"	"	"
Nickel	"	"	"
Selenium	"	"	"
Thallium	*µg/L*	Grab	Annually
Volatile Organic Chemicals (VOC)			
Benzene	*µg/L*	Grab	Annually
Carbon Tetrachloride	"	"	"
1,2-Dichlorobenzene	"	"	"
1,4-Dichlorobenzene	"	"	"
1,1-Dichloroethane	*µg/L*	Grab	Annually

1 *Total Nitrogen is defined as the sum of nitrate, nitrite, ammonia, and organic nitrogen concentrations, expressed as nitrogen.*

2 *Grab sample is an individual sample collected in a short period of time not exceeding 15 minutes. Grab samples shall be collected during normal peak loading conditions for the parameter of interest, which may or may not be during hydraulic peaks.*

3 *Grab sample is an individual sample collected in a short period of time not exceeding 15 minutes. Grab samples shall be collected during normal peak loading conditions for the parameter of interest, which may or may not be during hydraulic peaks.*

4 *Sum of bromodichloromethane, dibromochloromethane, bromoform, and chloroform.*

Table 1			
Chemical	***Units***	***Type of Sample***	***Minimum Frequency of Sampling and Analysis***
1,2-Dichloroethane	µg/L	Grab	Annually
1,1-Dichloroethylene	"	"	"
Cis-1,2-Dichloroethylene	"	"	"
trans-1,2-Dichloroethylene	"	"	"
Dichloromethane	"	"	"
1,2-Dichloropropane	"	"	"
1,3-Dichloropropene	"	"	"
Ethylbenzene	"	"	"
Monochlorobenzene	"	"	"
Styrene	"	"	"
1,1,2,2-Tetrachloroethane	"	"	"
Tetrachloroethylene	"	"	"
Toluene	"	"	"
1,2,4-Trichlorobenzene	"	"	"
1,1,1Trichloroethane	"	"	"
1,1,2-Trichloroethane	"	"	"
Trichloroethylene	"	"	"
Trichlorofluoromethane	"	"	"
1,1,2-Trichloro-1,2,2-Trifluoroethane	"	"	"
Vinyl Chloride	"	"	"
Xylenes[5]	µg/L	Grab	Annually
Non-Volatile Synthetic Organic Chemicals (SOCs)			
Alachlor	µg/L	Grab	Annually
Atrazine	"	"	"
Bentazon	"	"	"
Benzo(a)pyrene	"	"	"
Carbofuran	"	"	"
Chlordane	"	"	"
2,4-D	"	"	"
Dalapon	"	"	"
Dibromochloropropane (DBCP)	"	"	"
Di(2-ethylhexyl)adipate	"	"	"
Di(2-ethylhexyl)phthalate	"	"	"
Dinoseb	"	"	"
Diquat	"	"	"
Endothall	"	"	"
Endrin	"	"	"
Ethylene Dibromide (EDB)	"	"	"
Glyphosate	"	"	"
Heptachlor	µg/L	Grab	Annually

5 *Limit is for either a single isomer or the sum of the isomers.*

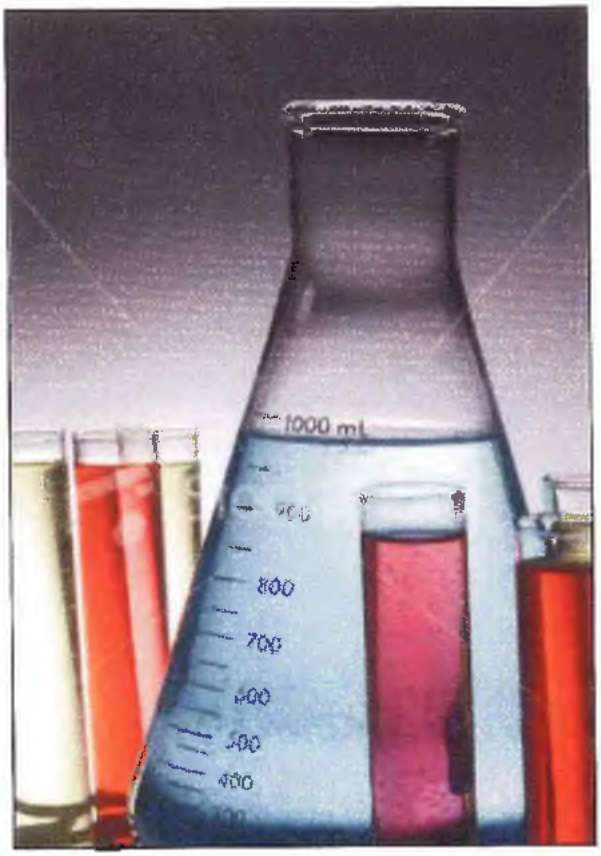
Table I			
Chemical	***Units***	***Type of Sample***	***Minimum Frequency of Sampling and Analysis***
Heptachlor Epoxide	*µg/L*	Grab	Annually
Hexachlorobenzene	"	"	"
Hexachlorocyclopentadiene	"	"	"
Lindane	"	"	"
Methoxychlor	"	"	"
Molinate	"	"	"
Oxamyl	"	"	"
Pentachlorophenol	"	"	"
Picloram	"	"	"
Polychlorinated Biphenyls	"	"	"
Simazine	"	"	"
Thiobencarb	"	"	"
Toxaphene	"	"	"
2,3,7,8-TCDD (Dioxin)	"	"	"
2,4,5-TP (Silvex)	*µg/L*	Grab	Annually
Disinfection By-products			
	µg/L	Grab	Annually
Total Haloacetic acids (five) (HAA5)[6]	"	"	"
Notification Levels			
Copper	*µg/L*	Grab	Annually
Lead	*µg/L*	Grab	Annually
Radionuclides			
Combined Radium-226 and Radium-228	*pCi/l*	Grab	Annually
Gross Alpha particle activity (including Radium-226 but excluding Radon and Uranium)	"	"	"
Tritium	"	"	"
Strontium-90	"	"	"
Gross Beta particle activity	"	"	"
Uranium	*pCi/l*	Grab	Annually

6 *Sum of monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid).*

Phase-II Report

of the

Emerging Constituents Workgroup



A Proposed Work Plan to Characterize Select EC Concentrations in Surface Waters, Imported Waters & Recycled Waters Recharging Groundwaters of the Santa Ana River Watershed.

Proposed Work Plan for Santa Ana Watershed Project Authority's Emerging Constituents Workgroup in 2010-2011

1.0 Introduction

Water quality is routinely sampled at tens of thousands of locations across the U.S. Samples are collected from rain water, storm water runoff, freshwater streams, lakes and reservoirs, groundwater wells and tap water to characterize the quality of various supply sources. Additional samples from the sewage systems are analyzed to ensure pollution prevention programs and wastewater treatment plants are meeting all federal and state water quality standards.

Most sampling programs focus on a few hundred of the most common chemical constituents to assess overall water quality. These chemicals were selected from the larger universe of known chemicals because there is sufficient scientific evidence to indicate they may pose an increased risk to humans, plants or animals (including aquatic organisms) when they occur at elevated concentrations.

Several different regulatory agencies share responsibility for determining the acceptable concentration of potential pollutants. This is a formidable task as there are tens of thousands of chemical compounds in common use. Consequently, state and federal authorities rely on sales/usage information and monitoring data to establish appropriate research priorities for setting new water quality standards through a sophisticated and thorough regulatory review process.[1]

Improvements in analytical technology over the last decade have dramatically increased the number of chemicals we can detect and greatly decreased the concentration at which we can detect them.[2] Today, we are able to identify and quantify some potential pollutants in the range of one part-per-trillion (ppt) or less.[3] For perspective, 1 ppt is approximately equal to a plot of land the size of a postage stamp in an area the size of Orange County.

This new ability to detect infinitesimally small chemical concentrations has fundamentally altered our understanding of what's in the water. Trace levels (approx. 1-100 ppt) of many different man-made chemicals, particularly pesticides, pharmaceuticals and personal care products, have been found in waters across the United States. Collectively, these compounds are referred to as "Emerging Constituents" (ECs) because their presence is just starting to be revealed by rapid advances in analytical technology.[4]

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1 See, for example, U.S. EPA's process for identifying Candidate Contaminant List (CCL).

2 Vanderford, B.J., et al. "Analysis of Endocrine Disrupters and Personal Care Products in Water Using Liquid Chromatography and Tandem Mass Spectrometry." Analytical Chemistry. 2003 (75:6265-6274)

3 Vanderford, B.J. and Shane Snyder. "Analysis of Pharmaceuticals in Water by Isotope Dilution Liquid Chromatography/Tandem Mass Spectrometry." Environmental Science and Technology. 2006 (p. 7312-7320).

4 Emerging Constituents is one of several similar phrases used to describe the same phenomena. Synonyms include: emerging contaminants of concern, chemicals of emerging concern (CEC), micro-constituents, micro-pollutants, trace organics, etc. Such phrases may mistakenly imply that it is the concern that is emerging rather than the knowledge that certain chemicals may be present in a water sample. Similarly, referring to such compounds as Emerging Pollutants or Emerging Contaminants may mistakenly imply that the levels detected

Once new chemicals are detected, the question naturally arises as to what effect, if any, these compounds have on the municipal drinking water supplies. As part of the Recycled Water Policy adopted in early 2009, the California State Water Resources Control Board ("State Board") recently convened a Blue Ribbon Panel of Experts to address this concern.[5] The Panel's mission is to recommend appropriate water quality monitoring strategies for ECs based on the best available pharmacological and toxicological information taking into consideration the fate and transport of such chemicals through advanced treatments systems and the natural environment. The Panel is expected to publish its final recommendations in mid-2010.

2.0 Regulatory Context

In general, chemical compounds can be divided into two categories: regulated and unregulated. Regulated chemicals include those where a formal water quality standard or a state notification level has been established.[6] State and federal authorities may issue orders governing the release of such compounds into the environment. These regulations may range from relatively simple monitoring and reporting requirements to strict discharge prohibitions.

Unregulated chemicals are those for which no water quality standard or state notification level have been established. By definition, ECs are usually considered unregulated chemicals. However, that status may change as new information is developed. To that end, additional data are needed to characterize the presence and persistence of ECs throughout the water supply system. This information, along with epidemiological and toxicological data, may be used to set priorities for developing new water quality criteria, Maximum Contaminant Levels (MCLs), state notification levels and future water quality monitoring requirements.

Because the analytical techniques used to support EC characterization studies are still in the earliest stages of development, great care must be exercised when using the results of those studies. The data generated from the non-standard methods employed during the preliminary characterization studies are not sufficiently accurate for regulatory purposes such as: 303(d) listing decisions, antidegradation analyses, or translating narrative criteria into numeric effluent limits. These legal determinations depend on detailed risk assessments that are not yet available. However, the data from such studies is useful for determining which ECs, if any, should be prioritized for additional method development in order to determine whether more formal regulatory assessments may be needed in the future.

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pose a known hazard to people or the environment. The Emerging Constituents Workgroup in the Santa Ana region has chosen to use the phrase "emerging constituents" to describe a large group of chemicals that may or may not pose a risk to human health and the environment. The California Office of Environmental Health Hazard Assessment and U.S. EPA have primary legal responsibility for making the necessary risk assessments and publishing appropriate water quality standards for all chemicals including Emerging Constituents.

5 SWRCB. Recycled Water Policy. Resolution No. 2009-0011 (adopted 2/3/09). A summary of the Blue Ribbon Panel's work-in-progress is available at www.sccwrp.org

6 Concentrations of concern may be expressed as Maximum Contaminant Levels (MCLs), Public Health Goals (PHGs), State Notification Levels, 304(a) Criteria, Basin Plan objectives, TMDL targets, wasteload allocations, or receiving water limitations. Some of these also serve as formal regulatory thresholds.

Pending development of additional water quality standards, the California Department of Public Health ("DPH") previously suggested that periodic monitoring for trace organic chemicals may serve as a useful indicator of groundwater quality downgradient of recycled water projects.[7] Such data may also be used to corroborate the effectiveness of soil-aquifer treatment and the multi-barrier approach to preventing pathogen pollution. Therefore, as part of the proposed Groundwater Recharge Reuse Regulations, DPH prepared a draft list of ECs to guide planning and permitting efforts for recycled water projects.[8]

Acting on DPH's draft recommendations, Regional Boards began adding EC monitoring requirements to the permits for recycled water projects. As the use of recycled water has increased, so have the number of permits containing such provisions.[9] By 2006, some form of EC monitoring, often based on DPH's preliminary suggestions, was rapidly becoming a permit condition for all direct and indirect recharge of recycled water.[10]

Recognizing that the draft monitoring list for ECs was being misunderstood, DPH subsequently revised the draft Groundwater Recharge Reuse Regulation to clarify its original intent. DPH eliminated the list of specific chemicals and instead proposed that recycled water projects analyze for representative compounds within broad chemical categories (hormones, pharmaceuticals, personal care products, industrial chemicals, pesticides, etc.). The specific choice of chemical would be left to the project proponent and the permitting authorities.[11]

The SWRCB adopted the Recycled Water Policy and convened the aforementioned Blue Ribbon Panel of Experts to review the available science and make appropriate recommendations for future EC monitoring. California's Blue Ribbon Panel is only one of many different groups undertaking similar efforts. Recent news articles and a number of scientific papers and technical reports increased public awareness of the issue and provided impetus for additional EC investigations around the country.[12]

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7 DPH serves several different regulatory roles with respect to groundwater recharge projects. DPH is responsible, under statute, for establishing water quality criteria for groundwater recharge projects. DPH also acts as a consultant to the Regional Boards on the permit requirements for specific groundwater recharge projects. And, DPH has a co-equal role with the Regional Boards in establishing permit requirements for groundwater recharge projects that rely on direct injection rather than surface percolation.

8 http://www.cdph.ca.gov/certlic/drinkingwater/Documents/Recharge/DraftRechargeReg2008.pdf (see Endnote 5). See also http://www.cdph.ca.gov/certlic/drinkingwater/Pages/EmerginContaminants.aspx

9 See, for example, Monitoring and Reporting Program for Regional Board Order No. R8-2005-0033 for Phase I of the Chino Basin Recycled Water Groundwater Recharge Project.

10 See, for example, the NPDES permit issued to Donald C. Tillman Water Reclamation Plant (NPDES No. CA0056227) and the proposed draft NPDES Permit for the Henry N. Wochholz Regional Water Recycling Facility operated by the Yucaipa Valley Water District (NPDES No. CA0105619). Attachment K: List of Unregulated Chemicals: Endocrine Disrupting Chemicals & Pharmaceuticals and Other Chemicals (2007).

11 A more detailed discussion of the history of EC monitoring as it relates to NPDES permitting requirements in California is provided in the Phase-I Report of the Emerging Constituents Task Force. Santa Ana Watershed Project Authority. April, 2009. Available for download at: http://www.sawpa.org

12 Jeff Donn, Martha Mendoza and Justin Pritchard, Associated Press. "AP Probe Finds Drugs in Drinking Water." March 10, 2008.

3.0 Current Studies to Characterize Emerging Constituents

Recently, several large-scale water quality characterization studies began testing for select ECs. The U.S. Geological Survey's National Ambient Water Quality Assessment (NAWQA) and Groundwater Ambient Monitoring Assessment (GAMA) are probably the largest and best known of these research efforts. Results from samples collected throughout the nation indicate that ECs have been detected at trace levels in some surface and groundwater samples.

Subsequent investigations have detected the presence of similar chemicals in both source waters and tap waters.[13] And, follow-on studies found trace amounts of some ECs in highly treated recycled waters.[14] The concentration of trace organic compounds fluctuates greatly from location to location and from day to day. New research is underway to determine if additional treatment can reduce or eliminate ECs cost-effectively.[15]

Given these findings, and the significant role recycled water plays in Southern California, a coordinated effort to characterize the presence of ECs in the Santa Ana River watershed was recently initiated. In 2007-8, the USGS collected and analyzed local groundwater samples as part of the GAMA program. Results of this effort were published in November, 2009 and the EC data are summarized in Table 1.

TABLE 1: EC Characterization for Select Ground Waters in the Santa Ana Region

Compound	Use	# Detections	Detection %	LRL*
Acetaminophen	Analgesic	3 of 89 wells	3%	25 ng/L
Caffeine	Stimulant	3 of 89 wells	3%	15 ng/L
Carbamazepine	Anti-convulsant	5 of 89 wells	6%	30 ng/L
Sulfamethoxazole	Antibiotic	0 of 89 wells	0%	10 ng/L

*LRL = Laboratory Reporting Level

Other pharmaceutical compounds evaluated included: Codeine (narcotic), Continine (nicotine metabolite), Dehydronifedipine (anti-angina metabolite), Diltiaem (anti-angina), Diphenhydramine (antihistamine), Salbutamol (bronchodilator), Thiabendazole (anthelmintic), Trimethoprim (antibacterial), Warfarin (anti-coagulant).

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13 Benotti, M.J., R.A. Trenholm, B.J. Vanderford, J.C. Holady, B.D. Stanford and S. A. Snyder. "Pharmaceuticals and endocrine disrupting compounds in U.S. drinking water." Environmental Science and Technology. 2009

14 Snyder, Shane. Southern Nevada Water Authority Applied R&D Center. Testimony before the Senate Subcommittee on Transportation Safety, Infrastructure Security and Water Quality on Pharmaceuticals in the Nation's Water: Assessing Potential Risks and Actions to Address the Issue. April 15, 2008.

15 See, for example, Dickenson, E.R., J.E. Drewes, D.L. Sedlak, E.C. Wert and S.A. Snyder. "Applying surrogates and indicators to assess removal efficiency of trace organic chemicals during chemical oxidation of wastewaters." Environmental Science and Technology. 2009.

The GAMA study also analyzed for nine other pharmaceutical compounds (listed above). None of these other chemicals were detected in any of the groundwater samples. USGS concluded that:

> *"No pharmaceutical compound was detected in more than five wells, and all of the concentrations were low. Health-based thresholds do not exist for concentrations of pharmaceuticals in drinking water. However, to reach concentrations of the two detected medications (acetaminophen and carbamazepine) equal to dosages typically recommended or prescribed would, in all cases, require consuming more than one million liters of the sampled water. The sampled concentrations of caffeine were, in all cases, less than one-millionth of the concentration of caffeine in regular coffee."*[16] *(pg. 13)*

In addition, three water agencies undertook a focused sampling program to characterize EC concentrations in surface waters including water imported to the region from the State Water Project and the Colorado River. The agencies also evaluated samples collected from the Santa Ana River, its tributaries, and select wastewater discharges to these streams.[17] Consistent with previous studies performed elsewhere, preliminary data from the Santa Ana investigation detected the presence of some ECs in surface waters throughout the region (see Table 2).

TABLE 2: Partial EC Characterization for Surface Waters in Santa Ana River (n=32)[18]

Compound	Use	Minimum	Median	Maximum
Caffeine	Stimulant	9 ng/L	47 ng/L	1620 ng/L
Carbamazepine	Anti-convulsant	49 ng/L	135 ng/L	267 ng/L
Gemfibrozil	Anti-cholesterol	<5 ng/L	48 ng/L	590 ng/L
Primidone	Anti-convulsant	41 ng/L	90 ng/L	146 ng/L
Sulfamethoxazole	Antibiotic	4 ng/L	160 ng/L	721 ng/L

This finding is not surprising considering that recycled water often comprises more than 90% of the flow in the Santa Ana River and trace levels of some ECs were also detected in the treated municipal wastewater discharged to the river (see Table 3).

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[16] Kent, Robert and Kenneth Belitz. Unites States Geological Survey (USGS). Ground-Water Quality Data in the Upper Santa Ana Watershed Study Unit, November 2006 - March 2007: Results from the California GAMA Program. Data Series 404. November, 2009.

[17] Guo, Y.C. et al, "Occurrence, Fate and Transport of PPCPs in Three California Watersheds." AWWA Water Quality Technology Conference, November, 2009. Seattle, WA (Research co-sponsored by Metropolitan Water District of Southern California, Orange County Water District, and National Water Research Institute).

[18] Eight stream sites were each sampled four times between April, 2008 and April, 2009.

TABLE 3: Partial EC Characterization for Municipal Effluents (n=16)[19]

Compound	Use	Minimum	Median	Maximum
Caffeine	Stimulant	<5 ng/L	14 ng/L	1883 ng/L
Carbamazepine	Anti-convulsant	123 ng/L	208 ng/L	331 ng/L
Gemfibrozil	Anti-cholesterol	<5 ng/L	22 ng/L	1178 ng/L
Primidone	Anti-convulsant	84 ng/L	146 ng/L	171 ng/L
Sulfamethoxazole	Antibiotic	4 ng/L	417 ng/L	1593 ng/L

Finally, trace concentrations of some ECs were identified in water imported to the Santa Ana Region from the State Project (see Table 4) and the Colorado River (see Table 5).

TABLE 4: Partial EC Characterization for State Project Water (n=8)[20]

Compound	Use	Minimum	Median	Maximum
Caffeine	Stimulant	<5 ng/L	7 ng/L	37 ng/L
Carbamazepine	Anti-convulsant	<1 ng/L	2 ng/L	4 ng/L
Gemfibrozil	Anti-cholesterol	<5 ng/L	<5 ng/L	5 ng/L
Primidone	Anti-convulsant	< 2 ng/L	2 ng/L	10 ng/L
Sulfamethoxazole	Antibiotic	5 ng/L	10 ng/L	11 ng/L

TABLE 5: Partial EC Characterization for Colorado River Water (n=4)[21]

Compound	Use	Minimum	Median	Maximum
Caffeine	Stimulant	<5 ng/L	<5 ng/L	<5 ng/L
Carbamazepine	Anti-convulsant	<1 ng/L	<1 ng/L	2 ng/L
Gemfibrozil	Anti-cholesterol	<5 ng/L	<5 ng/L	<5 ng/L
Primidone	Anti-convulsant	<2 ng/L	2 ng/L	3 ng/L
Sulfamethoxazole	Antibiotic	<1 ng/L	<1 ng/L	1 ng/L

[19] Four wastewater treatment plans were each sampled four times between April, 2008 and April, 2009. The four plants include three that discharge to the Santa Ana river system and one that discharges to the Colorado River in Nevada.

[20] Two samples locations, representing the east and west branches of the State Project Water in Southern California, were sampled four times each between April, 2008 and April, 2009.

[21] Four samples were collected from Lake Mathews, the terminal reservoir for Colorado River imported to Southern California, between April 2008 and April 2009.

After confirming that ECs were present, water and wastewater agencies throughout the Santa Ana region elected to continue their characterization studies and to coordinate those efforts with one another. This voluntary program is intended to supplement the existing knowledge base pending recommendations from the Blue Ribbon Panel of Experts and potential new policy guidance from DPH and/or the State Board. At this time, it is not known what those recommendations will be or what actions DPH and the State Board will take based on those recommendations.

4.0 Purpose

The water and wastewater agencies serving the Santa Ana region are committed to develop an EC investigation program that addresses the public's desire to know more about what chemicals may be in their water supplies. Such efforts are essential to increase public acceptance and encourage greater use of recycled water.

The rationale for this voluntary program was recently described in a report entitled: "Managing Contaminants of Emerging Concern in California." The report summarizes results and recommendations from a forum of regulatory and scientific experts convened to assist the State Board in developing a scope-of-work for the Blue Ribbon Panel. Workshop participants found that more data characterizing the presence and persistence of ECs will: 1) establish a baseline to evaluate fate and transport mechanisms and potential trends in water quality which is essential to develop a risk-based approach to understanding and managing exposure to ECs; 2) aid federal and state authorities as they set priorities for and determine whether to develop new water quality criteria; and 3) be useful for evaluating the effectiveness of pollution prevention and source control programs.

The report also identified three steps that should be taken as agencies collaborate to characterize and understand the effects of ECs on public health and the environment. The first step will be filling data gaps through investigative monitoring and targeted research. The second step will be identifying, developing and testing accurate and reliable methods for detecting ECs at very low levels. The third step will be to incorporate the measurement of ECs into on-going water quality studies, such as those that have been undertaken by Inland Empire Utilities Agency, the Metropolitan Water District of Southern California, National Water Research Institute and Orange County Water District. The workshop participants stressed that:

"In lieu of regulations or compliance monitoring...investigative chemical monitoring should be used as the first step towards development of a management strategy in California." [A key element] *"of this process will be our ability to adapt the strategy as new information becomes available. Since relatively little is known about CECs at this time, new information and technology will undoubtedly affect our ability to monitor and establish thresholds for CECs. Preliminary CEC monitoring lists will be subject to trial and error."*[22]

As noted earlier, the draft DPH Groundwater Recharge and Reuse regulations do not identify the specific ECs that must be monitored. Rather, DPH states that this determination must be made on a project-by-project basis and will vary based on a number of considerations including the source of the recharge water, the type of treatments applied to the recycled water and the nature of soil conditions in the area and other factors that may affect the fate, transport and degradation of ECs in the environment. DPH also acknowledges that, for some projects, other chemicals (such as the relative amounts of inorganic tracers or total organic carbon) may provide a better indication of the sources influencing groundwater quality than the specific concentration of various trace organic compounds. It is the responsibility of the project proponents to recommend and justify an appropriate monitoring strategy to the state permitting authorities.

Because analytical technology is constantly improving and our knowledge of which chemicals may pose an unacceptable risk to people and the environment is always growing, it is agreed that any EC investigation program must be updated regularly. Therefore, it is likely that the list of chemicals recommended for future characterization studies will change over time. The water and wastewater agencies proposing to undertake this investigation are committed to a process of adaptive management to ensure the EC characterization program fulfills its stated purpose using the best available science.

To facilitate early implementation of these recommendations, stakeholders in the Santa Ana region propose to undertake a water quality characterization study in 2010-11 to fill some of the aforementioned data gaps. Samples collected from select surface water streams, imported water sources and wastewater treatment plants will be analyzed for a representative group of ECs using the best analytical technology presently available.

The EC Workgroup will prepare a written Sampling and Analysis Plan (SAP) describing the specific data quality objectives, sampling locations, sampling protocols, sampling frequency, analytical methods, QA/QC procedures, database management and reporting requirements. The plan will also discuss the appropriate and inappropriate uses of the data given the various method limitations. The SAP will be submitted to the Regional Board staff by March 15, 2010 for review and comment. The general specifications for the 2010-2011 EC Characterization Study are described in Section 5.

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[22] "Managing Contaminants of Emerging Concern in California." California CEC Workshop. Co-sponsored by the Southern California Coastal Water Research Project (SCCWRP), California Ocean Protection Council, California Ocean Science Trust, National Water Research Institute, San Francisco Estuary Institute and the Urban Water Research Center at the University of California-Irvine. Held: April 28-29, 2009. Report published in Sept., 2009 and is available at: ftp://ftp.sccwrp.org/pub/download/DOCUMENTS/TechnicalReports/600_CEC_wkshp2009.pdf

5) 2010-11 Characterization Study

A) Proposed Analytes

Table 6 identifies the trace organic compounds that the stakeholders propose to assess during the 2010 characterization period. The list may be revised for the 2011 characterization period based on recommendations from the Blue Ribbon Panel of Experts or new guidance from the State Board.

Table 6: ECs to be Analyzed

Chemical	Category	Common Use	Notes
Acetaminophen (aka "Tylenol")	Pharmaceutical	Over-the Counter Analgesic	3,4,5,8
Bisphenol-A (BPA)	Industrial	Plastic Manufacturing	7
Caffeine (coffee, tea, soft drinks)	Food Additive	Non-Prescription Stimulant	3,5,6,8
Carbamazepine	Pharmaceutical	Prescription Anti-Convulsant	1,2,3,4, 5,6,8
DEET (aka "Off")	Pesticide	Household Insect Repellent	1,2,6
Diuron	Herbicide	Weed Control	6
Ethynylestradiol/Ethinylestradiol	Hormone	Prescription	1,2,4,6
Gemfibrozil	Pharmaceutical	Prescription Anti-Cholesterol	1,2,3,4,5,6
Ibuprofen (aka "Advil")	Pharmaceutical	Over-the-Counter Analgesic	3,4,5
Sulfamethoxazole	Pharmaceutical	Prescription Antibiotic	1,2,3,5,6,8
TCEP	Industrial	Flame Retardant	1,2,3,6

Selection Criteria Notes:

1) Commonly detected in national studies of water supply sources.
2) Commonly detected in national studies of finished drinking water.
3) Detected in SAR surface waters and/or effluents in MWDSC/NWRI/OCWD study.
4) Detected in Inland Empire Utility Agency's existing EC monitoring program.
5) Detected in previous USGS studies of the Tualatin River system in Oregon.
6) Recommended by expert panel assembled to review an advanced reclamation project proposed for the West Basin.
7) Recently added to U.S. EPA's Candidate Contaminant List (CCL)
8) Detected by the USGS GAMA program in Santa Ana groundwater samples.

B) Proposed Sampling

Table 7: Sampling Locations, Frequency, Type & Responsibilities

Sampling Site	Sampling Frequency	Sample Type	Responsible Agency[23]
Final Effluent from All Wastewater Treatment Plants[24]	Annually	24-hour Composite	Permitted Operator
State Project Water @ Devil Canyon	Annually	Representative Grab	MWDSC
Colorado River @ San Jacinto West Portal	Annually	Representative Grab	MWDSC
Santa Ana River near MWD Crossing	2x/year	Representative Grab	OCWD
Santa Ana River near Prado Dam	2x/year	Representative Grab	OCWD

Water samples will be collected by June of each year. Second samples, when needed, will be collected by September of each year. Due to the time required to analyze samples, review QA/QC and summarize results, data from the summer collection period will be included in the next year's report.[25]

C) Proposed Methods

At present, there are no standardized or certified methods for analyzing most ECs.[26] Until EPA approves such methods, the EC Workgroup is committed to using the best analytical technology commercially available: LC-MS-MS with isotope dilution. In general, this technique is capable of detecting select ECs in de-ionized laboratory water at concentrations of 1 to 10 ng/L. However, the specific reporting detection level (RDL) will vary over time and between laboratories in more complex water matrices. Therefore, more detailed data quality objectives and QA/QC requirements will be specified in the Sampling and Analysis Plan submitted to the Regional Board.

[23] Pending approval and funding authorization from each agency.

[24] Includes all wastewater treatment plants operating under a valid NPDES permit or Waste Discharge Requirement (WDR) issued by the California Regional Water Quality Control Board – Santa Ana Region and/or U.S. EPA regardless of whether the discharge is to waters of the U.S. or waters of the state.

[25] Therefore, the report submitted in November, 2010 will include only the results for samples collected in May, 2010. The report submitted in November, 2011 will include the results for samples collected in August, 2010 and May, 2011.

[26] U.S. EPA approves analytical methods pursuant to 40 CFR Part 136.

D) Proposed Reporting

Participating stakeholders will submit copies of all sampling documents (field notes and chain of custody forms) and laboratory reports to the Santa Ana Watershed Project Authority (SAWPA). SAWPA will input the data to the SAWDMS database and prepare an annual report summarizing results of the EC characterization program. A draft copy of the EC report will be distributed for review and comment and SAWPA will convene a stakeholder meeting shortly thereafter to discuss suggested revisions to the draft document. The final report will be submitted to the Regional Board, on behalf of the stakeholders, by December 31st of each year.

The annual report will include a detailed description of the chemical analytes, sampling locations, sampling dates and protocols, analytical methods, QA/QC procedures and relevant results. Where appropriate, the report will also include any recommended changes to future EC sampling efforts (including revised analytes or sampling locations).

Finally, to facilitate public understanding of the new information, the report will describe the toxicological relevance of the measured EC concentrations. The purpose of this discussion is to provide, where possible, a scientific context for evaluating the relative health risks of these trace organic compounds.[27]

E) Proposed Schedule for 2010-11 Study Period

Task	Description	Deadline
1	Prepare and Submit EC Sampling and Analysis Plan	Mar. 15, 2010
2	Collect and Analyze Initial Samples from All Locations in Table 7	June 30, 2010
3	Submit Initial Sample Results and Related Documentation to SAWPA	July 31, 2010
4	ECW Meeting to Review and Discuss Initial Sample Results	Aug. 31, 2010
5	Collect and Analyze Second Surface Water Samples	Sept. 30, 2010
6	Distribute Draft Annual Report to Emerging Constituents Workgroup	Oct. 31, 2010
7	ECW Meeting to Review and Finalize Annual Report	Nov. 30, 2010
8	Submit First Annual Report to Regional Board	Dec. 31, 2010
9	Submit Second Surface Water Sample Results from 2010 to SAWPA	Jan. 31, 2011

[27] See, for example, "Toxicological Relevance of Endocrine Disrupting Chemicals and Pharmaceuticals in Water" American Water Works Association Research Foundation Report No. 3085/WRF 04-003.

E) Emerging Constituents Workgroup

SAWPA will periodically coordinate meetings of the Emerging Constituents Workgroup (ECW) to organize the next phase of the EC characterization study. This includes reviewing new water quality data, preparing the annual EC report, and integrating new EC policies enacted by the State Board and DPH.

During 2010, and after reviewing the final published results from the GAMA study and the MWDSC/NWRI/OCWD study, the ECW will determine whether it is useful and appropriate to expand the investigation effort to include storm water samples and select groundwater locations in 2011.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

CITY OF CORONA

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

CITY OF RIVERSIDE

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

EASTERN MUNICIPAL WATER DISTRICT

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

ELSINORE VALLEY MUNICIPAL WATER DISTRICT

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

ORANGE COUNTY WATER DISTRICT

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

WESTERN MUNICIPAL WATER DISTRICT

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

WESTERN RIVERSIDE COUNTY REGIONAL WASTEWATER AUTHORITY

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

YUCAIPA VALLEY WATER DISTRICT

By: _____
Title:

APPROVED AS TO FORM ONLY:

By:_____

CITY OF REDLANDS

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

CITY OF RIALTO

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

INLAND EMPIRE UTILITIES AGENCY

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

LEE LAKE WATER DISTRICT

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

CITY OF BEAUMONT

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

SAN GORGONIO PASS WATER AGENCY

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

SANTA ANA WATERSHED PROJECT AUTHORITY

By:_____
Title:

APPROVED AS TO FORM ONLY:

By:_____

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

CRESTLINE-LAKE ARROWHEAD WATER AGENCY

DEMONSTRATION PROJECT

WATER EXCHANGE AGREEMENT

RECITALS

A. San Bernardino Valley Municipal Water District ("VALLEY") is a public agency organized pursuant to the California Municipal Water District Law of 1911 (Water Code §§ 71000 et seq.) with broad powers to acquire and sell water. VALLEY has a Water Supply Contract with the California Department of Water Resources ("DWR") that provides VALLEY with a Table A Amount of up to 102,600 acre-feet per annum of water ("AFA") from the State Water Project ("SWP").

B. Crestline-Lake Arrowhead Water Agency ("AGENCY") is a public agency organized in accordance with Crestline-Lake Arrowhead Water Agency Law (Water Code Appendix §§ 104-1 et seq.) with broad powers to acquire and sell water. AGENCY has a Water Supply Contract with DWR that provides it with a Table A Amount of 5,800 AFA.

C. VALLEY and AGENCY intend by this Agreement to implement a Demonstration Project to exchange water for an initial period of one year to determine the long-term feasibility, including evaluation of benefits, costs, and beneficial distribution of supplemental water to VALLEY and AGENCY.

D. VALLEY and AGENCY desire to enter into this Water Exchange Agreement whereby VALLEY will acquire up to 1,000 AF of SWP water from AGENCY ("INITIAL DELIVERY") in exchange for delivery of a like amount of water from VALLEY to AGENCY ("EXCHANGE WATER") within three years of the INITIAL DELIVERY ("RETURN PERIOD").

E. VALLEY has a need for the INITIAL DELIVERY before December 31, 2008, to improve reliability of supply to existing water users within VALLEY.

F. AGENCY has up to 1,000 AF of SWP water available from its 2008 allocation of SWP water for the INITIAL DELIVERY provided it can receive the EXCHANGE WATER from VALLEY within three years to enable it to meet anticipated demands for water within its service area.

SBVMWD LEGAL
DOCUM

IN CONSIDERATION OF THE MUTUAL PROMISES of the Parties as set forth herein, it is agreed as follows:

1. **Description of the Exchange and Procedures.**

On or before December 1, 2008, AGENCY will in writing request the California Department of Water Resources ("DWR") to deliver up to 1,000 AF of the AGENCY's SWP Table A Amount to VALLEY ("INITIAL DELIVERY") at its designated point of delivery. A copy of such written request shall be delivered to VALLEY. After written confirmation to AGENCY from VALLEY of such INITIAL DELIVERY, at the written request of AGENCY, VALLEY shall deliver a like amount of SWP water or water of equal or better quality ("EXCHANGE WATER") to AGENCY, in whole or in part as specified in such request. AGENCY shall not make such request any earlier than January, 2010. VALLEY and AGENCY shall meet and confer in advance of such delivery date to schedule the delivery of the EXCHANGE WATER over the Return Period. VALLEY shall complete delivery of the EXCHANGE WATER no later than December, 2011. VALLEY's obligation to deliver EXCHANGE WATER shall be from any source provided it is equal to or better than the water quality standards established by DWR for the State Water Project. If AGENCY requests delivery of EXCHANGE WATER in a year which DWR has declared to be critically dry, VALLEY and AGENCY agree to confer in good faith to adjust the quantity of EXCHANGE WATER to be delivered in that year so as to minimize adverse impacts on the ability of both parties to satisfy the needs of their respective customers. AGENCY'S obligation for the INITIAL DELIVERY shall be subject to the availability of water from the SWP.

2. **Points of Delivery and Measurement.**

a. VALLEY. The point of delivery and measurement of the Initial Water from AGENCY shall be from DWR at Silverwood Lake.

b. AGENCY. The point of delivery and measurement of the Exchange Water from VALLEY to AGENCY shall be from VALLEY at Silverwood Lake.

3. **Charges.**

a. Neither VALLEY nor AGENCY shall charge any costs to the other for use of either agency's facilities to the point of delivery.

b. VALLEY shall be responsible for all costs of, and entitled to all power credits generated by, the INITIAL DELIVERY downstream

from the point of delivery. AGENCY shall be responsible for all delivery costs of the EXCHANGE WATER.

4. **Conditions Precedent and Covenants.**

4.1 **DWR Approval.** No provisions of this Agreement requiring DWR approval shall become operative until DWR approves of those provisions. VALLEY and AGENCY shall use their best efforts to promptly obtain such approvals.

4.2 **State Water Contractors.** VALLEY and AGENCY agree they will each with due diligence and in good faith seek to obtain the support and approval of this Agreement by the State Water Contractors and request DWR approve the exchange of water as set forth herein.

5. **Future Banking and Conjunctive Use Projects.**

VALLEY and AGENCY believe that water exchange agreements and coordinated deliveries could lead to improved reliability and more efficient utilization of their respective supplies to meet the needs of their respective water users. In that regard, VALLEY and AGENCY agree to work together in good faith and with due diligence to determine the technical and financial feasibility and implementation of such arrangements subject to compliance with applicable laws, including California Environmental Quality Act.

6. **Notices.**

All written notices required to be given pursuant to the terms of this Agreement shall be either (i) personally delivered, (ii) deposited in the United States express mail or first class mail, (iii) delivered by overnight courier service, or (iv) delivered by facsimile transmission, provided that the original of such notice is sent by certified United States mail, postage prepaid, no later than one (l) business day following such facsimile transmission. All such notices shall be deemed delivered upon actual receipt (or upon first attempt at delivery pursuant to the methods specified in clauses (i), (ii) or (iii) above if the intended recipient refuses to accept delivery). All such notices shall be delivered to the following addresses or to such other address as the receiving party may from time to time specify by written notice to the other party:

VALLEY:

San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
P.O. Box 5906
San Bernardino, CA 92412-5906

Attention: General Manager
Telephone: (909) 387-9211
Facsimile: (909) 387-9247

AGENCY:

Crestline-Lake Arrowhead Water Agency
24116 Crest Forest Drive
P.O. Box 3880
Crestline, CA 92325-3880

Attention: General Manager
Telephone: (909) 338-1779
Fax: (909) 338-3686

7. **Miscellaneous.**

7.1 **No Assignment.** No party shall assign or otherwise transfer its rights or obligations under this Agreement without the prior written consent of the other party.

7.2 **Successors and Permitted Assigns.** All covenants and agreements contained in this Agreement by or on behalf of any of the parties shall bind and inure to the benefit of their respective successors and permitted assigns, wither so expressed or not.

7.3 **No Modification of Existing Contracts.** This Agreement shall not be interpreted to modify the terms or conditions of the water supply contracts between the DWR and AGENCY and between DWR and VALLEY, or to modify the terms or conditions of any other water purchase or exchange agreements between AGENCY and VALLEY.

7.4 **Governing Law/Venue.** This Agreement shall be construed and enforced in accordance with the laws of the State of California. Venue for any actions brought regarding this Agreement shall be in the County of San Bernardino, provided that, in accordance with the provisions of the

Code of Civil Procedure Section 394, a disinterested judge from a neutral county is assigned to hear such action and all proceedings in connection therewith.

7.5 **Ministerial Actions.** Due to increasing State-wide demands for water, water exchanges, water storage, banking and recovery, and various water quality issues throughout the State, the Parties agree that this Project is unique and cannot be duplicated and there is not a plain, speedy, and adequate remedy at law for VALLEY or AGENCY should either refuse or fail to perform their respective obligations as set forth in this Agreement. Consequently, VALLEY and AGENCY agree that the terms of this Agreement are enforceable by writ of mandate and specific performance.

7.6 **Counterparts.** This Agreement may be executed in counterparts, each of which shall be deemed an original, and all of which, taken together, shall constitute one and the same instrument. Signatures sent by facsimile shall be deemed originals and treated in all respects as originals.

7.7 **Further Action.** The parties agree to and shall take such further action and execute such additional documents as may be reasonably required to effectuate the terms and conditions of this Agreement and to the extent consistent with terms thereof.

7.8 **Interpretation.** This Agreement has been jointly negotiated and drafted. The language of this Agreement shall be construed as whole according to its fair meaning and without regard to or aid of Civil Code Section 1654 or similar judicial rules of construction. Each party acknowledges that it has had the opportunity to seek the advice of experts and legal counsel prior to executing this Agreement and that it is fully aware of and understands all of its terms and the legal consequences thereof. The headings used in this Agreement are for reference only and shall not affect the construction of this Agreement.

DATE: 11/7/2008

SAN BERNARDINO VALLEY
MUNICIPAL WATER DISTRICT

By _____

DATE: 11/7/08

CRESTLINE-LAKE ARROWHEAD
WATER AGENCY

By Roxanne M. Holmes

NOTICE OF EXEMPTION

(California Environmental Quality Act)

To: Clerk of the Board of Supervisors
County of San Bernardino
385 N. Arrowhead Ave., 2nd Floor
San Bernardino, CA 92415

Office of Planning and Research
1400 Tenth Street, Room 222
Sacramento, CA 95814
Attn: State Clearinghouse

From: San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
P.O. Box 5906
San Bernardino, CA 92412-5906
Phone: (909) 387-9211

Project Title: The Project entails the approval of a Water Exchange Agreement, which allows for the exchange of 1,000 acre-feet ("AF") of State Water Project ("SWP") water from Crestline-Lake Arrowhead Water Agency ("Agency") to San Bernardino Valley Municipal Water District ("Valley") and vice versa.

Project Location: Within the service areas of Crestline-Lake Arrowhead Watery Agency, see Map attached as Exhibit "1," and San Bernardino Valley Municipal Water District, see Map attached as Exhibit "2," in the County of San Bernardino.

Description of Nature, Purpose, and Beneficiaries of Project: On November 5, 2008, the Board of Directors of Valley approved the execution of the Water Exchange Agreement ("Agreement") with Agency. This Agreement authorizes Valley to acquire up to 1,000 AF of SWP water from Agency, and requires Agency to submit a written request to the California Department of Water Resources on or before December 1, 2008, to deliver up to 1,000 AF of Agency's share of SWP Table A water to Valley. In exchange for delivery of that water, Valley will deliver a like amount of water of equal or better quality to Agency within three years of the initial delivery of water to Valley. This same Agreement was approved by Agency on November 6, 2008.

Name of Public Agency Approving Project: San Bernardino Valley Municipal Water District

Exempt Status (check one):

___ Ministerial Action.
___ Declared Emergency
___ Emergency Project
_X_ Categorical Exemption (State CEQA Guidelines § 15301 [Existing Facilities]; State CEQA Guidelines §15304 [Minor Alterations to Land, Water, or Vegetation].)
_X_ Statutory Exemption (State CEQA Guidelines § 15282(u) [Temporary Transfer or Exchange of Water or Water Rights].)
_X_ Other The Project is also exempt under State CEQA Guidelines section 15061(b)(3) because it can be seen with certainty that there is no possibility the Project may have a significant impact on the environment. The Project is merely an exchange of water. No physical facilities will be constructed to produce or transport water because all such required facilities already exist. In addition, no new water production or transportation capacity is created by the Project.

Reasons why project is exempt: The water exchange approved by Valley will entail no change in type of use or expansion of use, but consist merely of the continued operation of existing facilities and the use of those facilities to temporarily transport water to a different location. State CEQA Guidelines section 15301 provides that environmental review is not required for "the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination." In addition, the exchange of water is a minor, temporary alteration to the condition of water that does not require the removal of any trees and thus is also exempt pursuant to State CEQA Guidelines section 15304 as "minor public or private alterations in the condition of land, water, and/or vegetation which do not involve removal of healthy, mature, scenic trees." The Project's proposed exchange of water is temporary and thus is also exempt pursuant to the State CEQA Guidelines, section 15282(u) exemption for the temporary transfer of water or water rights. Because the water exchange will merely temporarily change the location in which water is used and will be delivered via existing facilities, there is no possibility the Project may have a significant impact on the environment. Accordingly, the Agreement and the water exchange that it authorizes are exempt from environmental review under CEQA. Moreover, the water transfer does not involve cumulative impacts, potentially significant impacts, unusually sensitive environments, or any other unique or unusual environmental impacts that might merit environmental review.

Contact Person & Telephone Number: Randy Van Gelder, General Manager
Phone: (909) 387-9218

11/7/2008
Date

for San Bernardino Valley Municipal Water District

RVPUB\755560.1

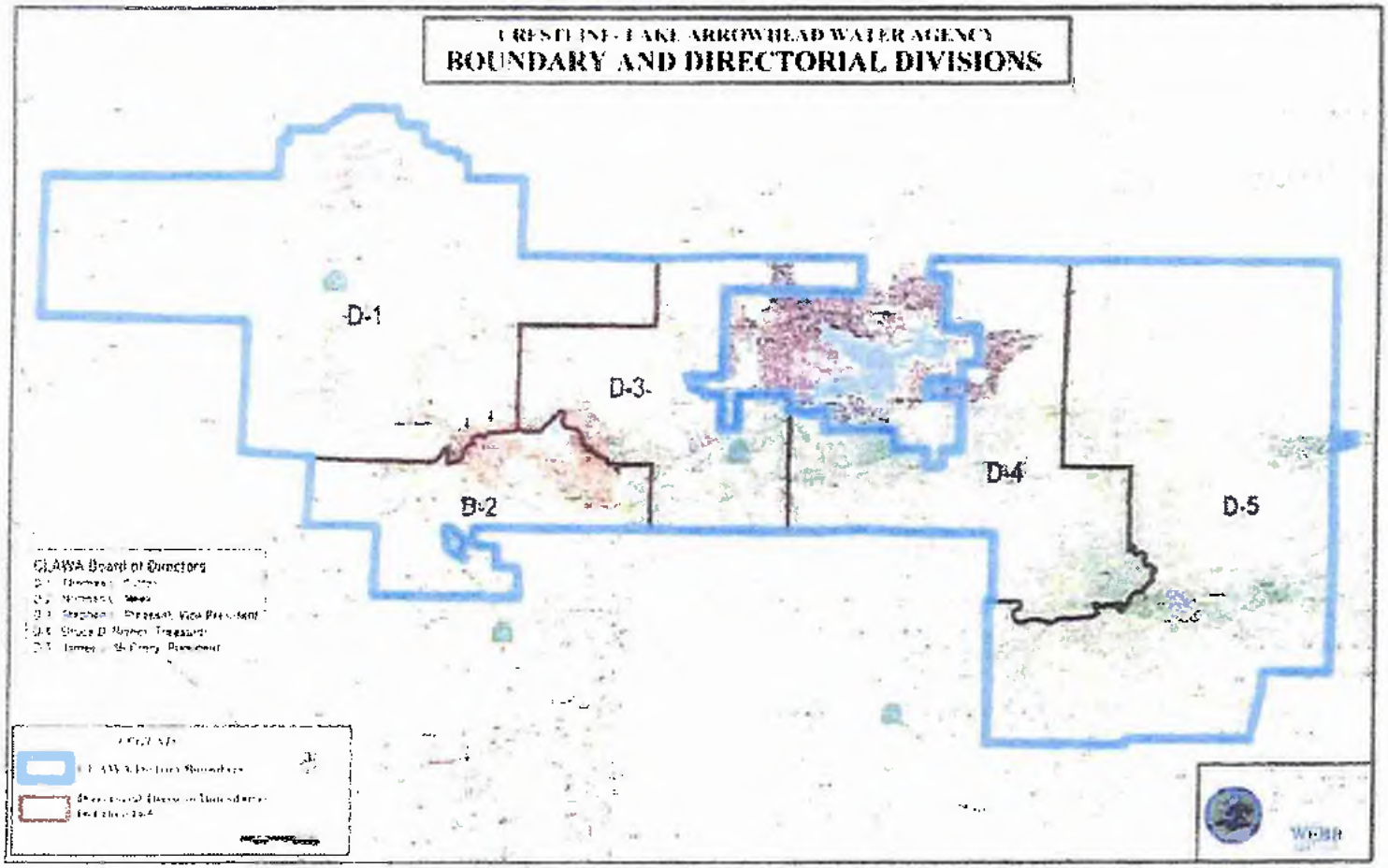
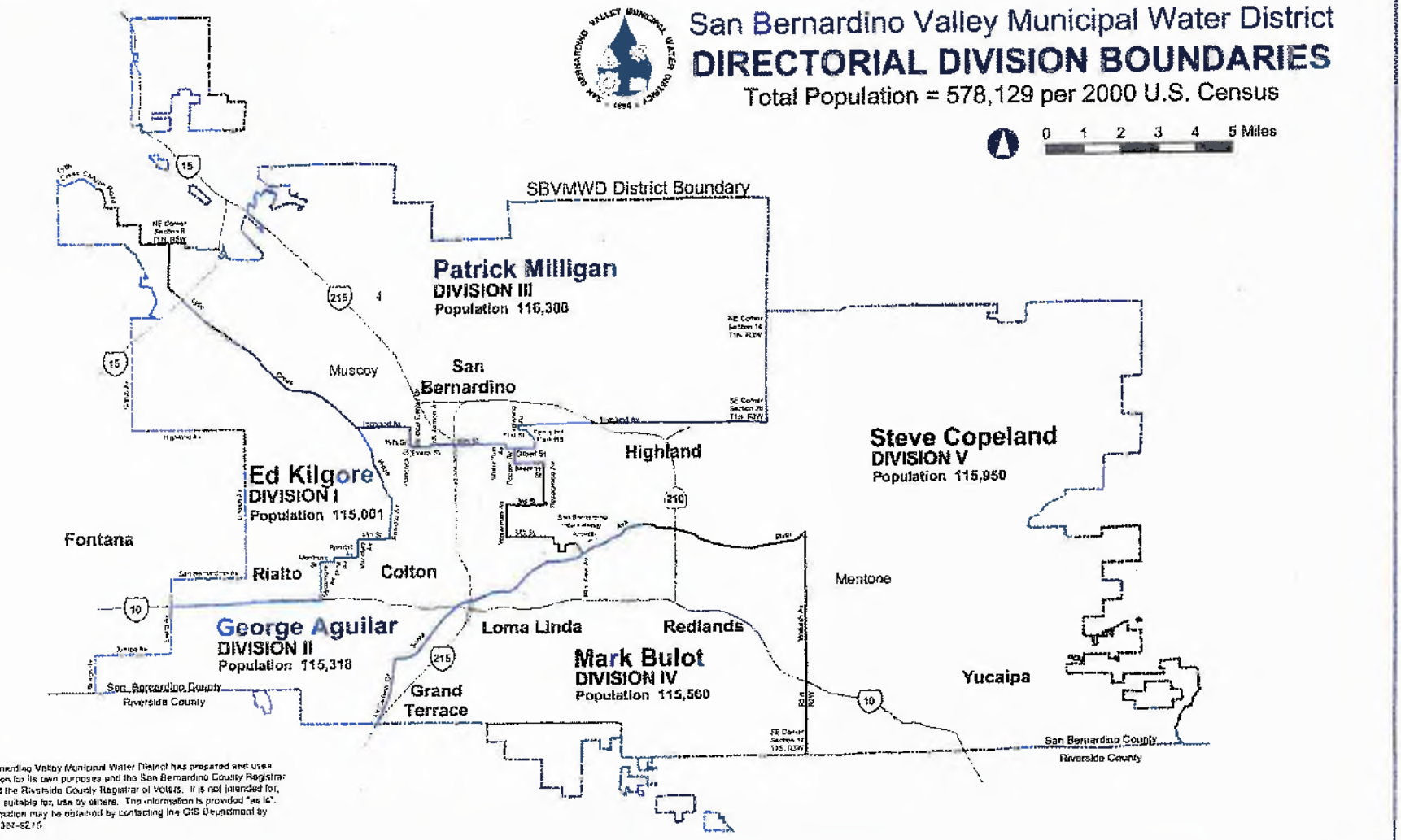

CRESTLINE-LAKE ARROWHEAD WATER AGENCY
BOUNDARY AND DIRECTORIAL DIVISIONS
D-1
D-2
D-3
D-4
D-5
CLAWA Board of Directors

Exhibit 1

San Bernardino Valley Municipal Water District
DIRECTORIAL DIVISION BOUNDARIES
Total Population = 578,129 per 2000 U.S. Census



The San Bernardino Valley Municipal Water District has prepared and uses this information for its own purposes and the San Bernardino County Registrar of Voters and the Riverside County Registrar of Voters. It is not intended for, nor may it be suitable for, use by others. This information is provided "as is". Further information may be obtained by contacting the GIS Department by calling (909) 387-9215.

GIS Dept August, 2004

Exhibit 2

STATE OF CALIFORNIA -- THE RESOURCES AGENCY
ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 942360001
(916) 653-5791

DEC 17 2008

Ms. Roxanne Holmes
General Manager
Crestline-Lake Arrowhead Water Agency
Post Office Box 3880
Crestline, California 92325

Mr. Randy Van Gelder
General Manager
San Bernardino Valley Municipal Water District
Post Office Box 5906
San Bernardino, California 94212-5906

This Letter Agreement is in response to Crestline-Lake Arrowhead Water Agency's (CLAWA) letter requesting the Department of Water Resources (DWR) approval for the exchange of up to 1,000 acre-feet of State Water Project (SWP) Table A water between San Bernardino Valley Municipal Water District (SBVMWD) and CLAWA. SBVMWD will take delivery of, and store within its groundwater basin, up to 1,000 acre-feet of CLAWA's 2008 Table A water by December 31, 2008. SBVMWD will return a portion of its allocation of Table A water by December 31, 2011 to CLAWA as a 1 acre-foot for 1 acre-foot exchange. There will be no monetary payments between CLAWA and SBVMWD for this exchange of Table A water.

DWR will file a Notice of Exemption based on California Environmental Quality Act Guidelines Section 15301 with the following description of this exchange of water: the proposed project is a water management operation using only existing facilities for the exchange of water from one SWP Contractor to another SWP Contractor, the limited term transfer will not support new development or a change in land use, and the transfer is wholly within the SWP place of use. DWR is willing to approve the delivery of up to 1,000 acre-feet of CLAWA's 2008 SWP Table A water to SBVMWD in exchange for the return of a portion of SBVMWD's Table A water subject to the following terms and conditions:

GENERAL PROVISIONS

1. DWR's approval under this Agreement is unique and shall not be considered a precedent for future agreements.

2. This Agreement shall become effective on the date of execution by all the parties and shall provide for the delivery of water to SBVMWD as of December 31, 2008. This Agreement shall terminate upon the delivery of all return water to CLAWA under this Agreement or by December 31, 2011, whichever comes first.

3. The delivery and return of water pursuant to this Agreement shall be contingent on, and subject to, any necessary approvals and shall be governed by the terms and conditions of such approval(s) and any other applicable regulations. CLAWA and SBVMWD shall be responsible for complying with all applicable laws and regulations and for securing any required consent, permit, or order. CLAWA and SBVMWD shall furnish to DWR copies of all approvals and agreements required for the delivery of water under this Agreement.

4. DWR will maintain records documenting the conveyance of up to 1,000 acre-feet of CLAWA's 2008 SWP Table A water to SBVMWD and the return delivery of water to CLAWA. CLAWA and SBVMWD shall certify to the State Water Project Analysis Office (Attention: Chief, Water Contracts Branch, Fax (916) 653-9628) the amount of CLAWA's approved 2008 Table A water delivered to SBVMWD and the return delivery of water from SBVMWD to CLAWA under this Agreement by January 31st of the year following the actual delivery.

WATER DELIVERY FROM CLAWA TO SBVMWD

5. The water delivered to SBVMWD shall be from CLAWA's allocation of 2008 approved Table A water.

6. The delivery of a portion of CLAWA's 2008 Table A water to SBVMWD shall be in accordance with a schedule reviewed and approved by DWR. DWR's approval is dependent upon the times and amounts of the delivery and the overall delivery capability of the SWP. DWR shall not be obligated to deliver the water at times when such delivery would adversely impact SWP operations, facilities, and other SWP contractors.

7. Pursuant to Paragraph 6, CLAWA shall obtain SBVMWD's approval for the water delivery schedule before submitting a schedule to DWR. All water delivery schedules and revisions shall be in accordance with Article 12 of CLAWA's and SBVMWD's respective long-term Water Supply contracts with DWR.

8. Pursuant to Paragraphs 5, 6, and 7, DWR will deliver up to 1,000 acre-feet of CLAWA's 2008 Table A water to SBVMWD's service area, Reach 26A of the California Aqueduct by December 31, 2008.

9. CLAWA and SBVMWD shall submit to the State Water Project Analysis Office for approval (Attention: Chief, Water Deliveries Section, FAX (916) 653-9628) a revised 2008 water delivery schedule and shall reference this Agreement, SWPAO #08063.

10. CLAWA and SBVMWD shall submit a weekly schedule to the Southern Field Division (Attention: Chief, Water Operations Section, FAX (661) 294-3651) showing the deliveries to SBVMWD. The schedules shall be submitted by 10:00 a.m. Wednesday for the following two weeks ahead (Monday through Sunday) and shall be concurrently faxed to the following at the State Water Project Operations Control Office:

    Chief, Pre-Scheduling Section at (916) 574-2782
    Chief, Operations Scheduling at (916) 574-2785

RETURN WATER DELIVERED FROM SBVMWD TO CLAWA

11. SBVMWD shall return all water to CLAWA by December 31, 2011. The return water delivered to CLAWA shall be Table A water allocated to SBVMWD in the year water is returned. In the event that all water is not returned to CLAWA by August 31, 2011, DWR, in coordination with CLAWA and SBVMWD, shall expedite the return of water to CLAWA by so scheduling SBVMWD's Table A by December 31, 2011.

12. The return of water under this Agreement by SBVMWD to CLAWA shall be in accordance with a schedule reviewed and approved by DWR. DWR's approval is dependent upon the times and amounts of the delivery and the overall delivery capability of the SWP. DWR shall not be obligated to deliver the water at times when such delivery would adversely impact SWP operations, facilities, or other SWP Contractors.

13. Pursuant to Paragraph 11, SBVMWD shall obtain CLAWA's approval for the proposed delivery schedule, before submitting a schedule to DWR. All water delivery schedules and revisions shall be in accordance with Article 12 of CLAWA's and SBVMWD's long-term Water Supply contracts with DWR.

14. Pursuant to Paragraphs 11 and 12, DWR will deliver a portion of SBVMWD's Table A water scheduled for delivery to SBVMWD's service area to CLAWA's service area in Reach 24 of the California Aqueduct.

NO IMPACT

15. This Agreement shall not be administered or interpreted in any way that would cause adverse impacts of SWP approved Table A water or of any other SWP approved water allocations, water deliveries, and SWP/CVP operations and facilities. CLAWA and SBVMWD shall be responsible for any adverse impacts that may result from the exchange of water as determined by DWR.

SWP ALLOCATION

16. Water returned to CLAWA pursuant to this Agreement shall not be considered by DWR in the determination of approved annual Table A deliveries to or allocation of other SWP water to CLAWA under Article 18 of CLAWA's long-term Water Supply contract with DWR.

CHARGES

17. CLAWA and SBVMWD shall pay the following charges, including all future adjustments, which shall be calculated in the same manner as charges are calculated for SWP Table A deliveries and shall be in accordance with the provisions of CLAWA's and SBVMWD's long-term Water Supply contracts with DWR. Charges shall be determined for the year the water is delivered, and the year the water is returned.
    a. When a portion of CLAWA's approved 2008 Table A water is delivered to SBVMWD, SBVMWD shall pay to DWR the charges associated with the delivery of the water from the Delta to the point of delivery at SBVMWD's turnouts on the California Aqueduct, Reach 26A. The charges associated with such delivery will be the 2008 Variable Operation, Maintenance, Power, and Replacement components of the Transportation Charge and the 2008 Off-Aqueduct Power Facilities Cost for each acre-foot of water delivered.

    b. In any year that a portion of SBVMWD's future Table A water is returned to CLAWA pursuant to this Agreement, CLAWA shall pay to DWR the charges associated with the delivery of the return water from the Delta to CLAWA's turnouts in Reach 24 of the California Aqueduct. The charges associated with the return water will be the Variable Operation, Maintenance, Power and Replacement components of the Transportation charges and the Off-Aqueduct Power Facilities Cost for each acre-foot of water delivered in effect for the year in which the water is returned to CLAWA.

18. In addition to the charges identified above, CLAWA and SBVMWD agree to pay to DWR any additional identified demonstrable increase in costs that would otherwise be borne by the SWP contractors not signatory to this Agreement or by DWR, as a result of activities pursuant to this Agreement.

19. Payment terms shall be in accordance with CLAWA's and SBVMWD's long-term Water Supply contracts with DWR.

LIABILITY

20. Responsibility for water delivered pursuant to this Agreement shall be governed by Article 13 of CLAWA's and SBVMWD's long-term Water Supply contracts, with responsibilities under the terms of that article shifting from DWR to CLAWA and SBVMWD when the water passes through their respective turnouts.

21. In the event of a claim of liability against DWR or its Directors, officers, or employees, jointly or severally, that arises as a result of this Letter Agreement, CLAWA and SBVMWD shall defend, indemnify, and hold DWR and any of its Directors, officers, employees harmless from any such claim, except to the extent that such claim arises from the sole negligence or willful misconduct of DWR.

EXECUTION

22. This Letter Agreement may be executed in counterpart. The parties agree to accept facsimile signatures as original signatures. The Agreement shall take effect as soon as all parties have signed.

23. Immediately after execution, SBVMWD and CLAWA shall transmit a copy of the executed Letter Agreement by facsimile to Robert Cooke, Chief, State Water Project Analysis Office at (916) 653-9628 and to each other at.
    CLAWA: (909) 338-3686
    SBVMWD: (909) 387-9247

If CLAWA or SBVMWD needs a Board of Directors' approval of this Letter Agreement, that party shall send a facsimile of the board approval to the other two parties. If you have any questions or need additional information, please contact me at (916) 653-4313 and refer to SWPAO #08063.

Sincerely,

Robert B Cooke

Robert B. Cooke, Chief
State Water Project Analysis Office

ACCEPTED:

CRESTLINE-LAKE ARROWHEAD WATER DISTRICT

_____
Signature

_____
Title

_____
Date

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

[signature]
Signature

General Manager
Title

12/22/2008
Date

cc: Mr. Terry Erlewine
General Manager
State Water Contractors
1121 L Street, Suite 1050
Sacramento, California 95814

ACCEPTED:

CRESTLINE-LAKE ARROWHEAD WATER DISTRICT

Roxanne M. Holmes
Signature

General Manager
Title

12/22/08
Date

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

Signature

Title

Date

cc: Mr. Terry Erlewine
General Manager
State Water Contractors
1121 L Street, Suite 1050
Sacramento, California 95814

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

CRESTLINE-LAKE ARROWHEAD WATER AGENCY

WATER EXCHANGE AGREEMENT AND AMENDMENT OF DEMONSTRATION PROJECT

RECITALS

A. On November 7, 2008, San Bernardino Valley Municipal Water District ("Valley") and Crestline-Lake Arrowhead Water Agency ("Agency") entered into an agreement titled "Demonstration Project Water Exchange Agreement" (the "2008 Exchange Agreement"). Pursuant to the terms of the 2008 Exchange Agreement, the Agency arranged for the delivery of 1,000 acre-feet of water from the Agency's State Water Project Table A allocation in exchange for Valley's agreement to allow the Agency to take back a total of 1,000 acre-feet of water from Valley's State Water Project Table A allocations in 2010 and/or 2011 (the "2008 Exchange Arrangement").

B. The Agency and Valley wish to amend the 2008 Exchange Agreement to allow the Agency to take back a total of 1,000 acre-feet of water from Valley's State Water Project Table A allocations in any year or years between 2010 and 2018, inclusive, subject to such reductions in the quantity of water to be returned to the Agency due to high groundwater conditions within Valley's service area as are hereinafter provided.

C. In addition, the Agency and Valley wish to provide for the delivery to Valley of 1,000 acre-feet of water from the Agency's State Water Project Table A allocation in 2009, in exchange for Valley's agreement to allow the Agency to take back a total of 650 acre-feet of water from Valley's State Water Project allocations in any year or years between 2010 and 2018, inclusive, subject to such reductions in the quantity of water to be returned to the Agency due to high groundwater conditions within Valley's service area as are hereinafter provided (the "2009 Exchange Arrangement").

D. The purpose of this Agreement is to amend the terms of the 2008 Exchange Agreement and to set forth the terms of the 2009 Exchange Arrangement.

IN CONSIDERATION OF THE MUTUAL PROMISES set forth herein, the Agency and Valley agree as follows:

1. **Amendment of 2008 Exchange Agreement.**

(a) Return of Exchange Water. The sixth sentence of Section 1 of the 2008 Exchange Agreement, titled "Description of the Exchange and Procedures" is hereby amended to provide as follows:

"VALLEY shall complete delivery of the EXCHANGE WATER no later than December 2018."

In addition, within Paragraphs D and F of the Recitals in the 2008 Exchange Agreement, the term "three years" is hereby amended to read "ten years."

(b) Quantity of Exchange Water. The 2008 Exchange Agreement is further amended to provide that the quantity of "Exchange Water" (as defined therein) to be returned to the Agency during the "Return Period" (as also defined therein) shall be subject to the same reductions as may be applied to the return of water under the 2009 Exchange Arrangement, due to high groundwater conditions within Valley's service area, as provided in Section 2(c) of this Agreement.

2. **2009 Exchange Arrangement.**

(a) Initial Delivery to Valley. Prior to December 1, 2009, Agency will, in writing, request the California Department of Water Resources ("DWR") to deliver 1,000 acre-feet of the Agency's 2009 State Water Project Table A allocation to Valley, at Silverwood Lake. A copy of such written request shall be delivered to Valley.

(b) Return of Exchange Water. After written confirmation that 1,000 acre-feet of water from the Agency's State Water Project Table A allocation in 2009 has been delivered to Valley, Valley shall thereafter deliver to the Agency, at Silverwood Lake, up to a total of 650 acre-feet of water when requested by the Agency, between the years 2010 and 2018, inclusive (the "Exchange Water"). The Exchange Water shall be State Water Project water or water of equal or better quality. If the Agency requests delivery of Exchange Water in a year which DWR has declared to be critically dry, the Agency and Valley agree to confer in good faith to adjust the quantity of Exchange Water to be delivered in that year so as to minimize adverse impacts on the ability of both parties to satisfy the needs of their respective customers.

(c) Quantity of Exchange Water To Be Returned. As of the date of this Agreement, the total quantity of 2008 Exchange Water and 2009 Exchange Water to be returned to the Agency pursuant to the 2008

Exchange Agreement and the 2009 Exchange Arrangement is 1,650 acre-feet. Because water within the San Bernardino Valley Groundwater Basin is lost from the Basin during high groundwater conditions resulting from high precipitation, the Agency and Valley agree that during any year from 2010 to 2018, inclusive, that the Basin Technical Advisory Committee ("BTAC") makes a determination that high groundwater conditions exist in the San Bernardino Basin Area, the balance of the 2008 Exchange Water and the 2009 Exchange Water which has not been returned to the Agency prior to that year shall each be reduced by an amount equal to 10% of the then existing quantity of 2008 Exchange Water and the 2009 Exchange Water not yet returned, for each such year that a declaration of high groundwater conditions is made, and the parties shall jointly advise DWR in writing of such reduction. The declaration of high groundwater conditions shall be made pursuant to the protocol attached hereto as Exhibit "A" as amended by Valley from time to time.

(d) Charges. The Agency shall be responsible for all costs of delivering 1,000 acre-feet of State Water Project to Valley at Silverwood Lake in 2009. Valley shall be responsible for all costs of delivering up to 650 acre-feet of Exchange Water to the Agency at Silverwood Lake, in the year that such water is delivered, pursuant to the terms of this Agreement. The charges for the Agency's delivery of water to Valley, and Valley's delivery of Exchange Water back to the Agency, pursuant to the 2008 Exchange Arrangement shall be as set forth in the 2008 Exchange Agreement. For purposes of this paragraph, Exchange Water returned to the Agency shall be credited first to the exchange obligations set forth in the 2008 Exchange Agreement, until such Exchange Water is fully depleted, and then shall be credited to the exchange obligations created by the 2009 Exchange Arrangement.

3. **Conditions Precedent and Covenants.**

(a) DWR Approval. No provisions of this Agreement requiring DWR approval shall become operative until DWR approves of those provisions. The Agency and Valley shall use their best efforts to promptly obtain such approvals.

(b) State Water Contractors. The Agency and Valley agree that they will each with due diligence and good faith seek to obtain the support and approval of this Agreement by the State Water Contractors.

4. **Notices.**

All written notices required to be given pursuant to the terms of this Agreement shall be (i) personally delivered, (ii) deposited in the United States express mail or first-class mail, (iii) delivered by overnight courier service or (iv) delivered by facsimile transmission, provided that the

original of such notice is sent by certified United States mail, postage prepaid, no later than one business day following such facsimile transmission. All such notices shall be deemed delivered upon actual receipt or upon first attempt at delivery pursuant to the methods specified herein if the intended recipient refuses to accept delivery. All such notices shall be delivered to the following addresses or to such other address as the receiving party may from time to time specify by written notice to the other party:

AGENCY:

Crestline-Lake Arrowhead Water Agency
24116 Crest Forest Drive
P.O. Box 3880
Crestline, CA 92325-3880

Attention: General Manager
Telephone: (909) 338-1779
Facsimile: (909) 338-3686

VALLEY:

San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
P.O. Box 5906
San Bernardino, CA 92412-5906

Attention: General Manager
Telephone: (909) 387-9211
Facsimile: (909) 387-9247

5. **Miscellaneous.**

(a) No Assignment. No party shall assign or otherwise transfer its rights or obligations under this Agreement without the prior written consent of the other party.

(b) Successors and Permitted Assigns. All covenants and agreements contained in this Agreement by or on behalf of any of the parties shall bind and inure to the benefit of their respective successors and permitted assigns, whether so expressed or not.

(c) No Modification of Existing Contracts. This Agreement shall not be interpreted to modify the terms or conditions of the water supply contracts between the DWR and the Agency, and between DWR and Valley.

(d) Governing Law/Venue. This Agreement shall be construed and enforced in accordance with the laws of the State of California. Venue for any actions brought regarding this Agreement shall be in the County of San Bernardino, provided that, in accordance with the provisions of the Code of Civil Procedure Section 394, a disinterested judge from a neutral county is assigned to hear such action and all such proceedings in connection therewith.

(e) Ministerial Actions. Due to increasing State-wide demands for water, water exchanges, water storage, banking and recovery, and various water quality issues throughout the State, the parties agree that this project is unique and cannot be duplicated and there is not a plain, speedy, and adequate remedy at law for the Agency or Valley should either refuse or fail to perform their respective obligations as set forth in this Agreement. Consequently, the Agency and Valley agree that the terms of this Agreement are enforceable by a writ of mandate and specific performance.

(f) Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original, and all of which, taken together, shall constitute one and the same instrument. Signatures sent by facsimile shall be deemed originals and treated in all respects as originals.

(g) Further Action. The parties agree to and shall take such further action and execute such additional documents as may be reasonably required to effectuate the terms and conditions of this Agreement and to the extent consistent with the terms thereof.

(h) Interpretation. This Agreement has been jointly negotiated and drafted. The language of this Agreement shall be construed as a whole according to its fair meaning and without regard to or aid of Civil Code Section 1654 or similar judicial rules of construction. Each party acknowledges that it has had the opportunity to seek the advice of experts and legal counsel prior to executing this Agreement and that it is fully aware of and understands all of the terms and the legal consequences thereof. The headings used in this Agreement are for reference only and shall not affect the construction of this Agreement.

CRESTLINE-LAKE ARROWHEAD WATER AGENCY

By: Roxanne M. Holmes
General Manager

Date: October 22, 2009

SAN BERNARDINO VALLEY MUNICIPAL
WATER DISTRICT

By: _____
General Manager

Date: 10/22/2009

EXHIBIT A

In December 2007, fourteen agencies adopted the *Upper Santa Ana Watershed Integrated Regional Water Management Plan* (Integrated Plan). One of the primary water resources identified in the Integrated Plan is groundwater. The largest groundwater basin in the study area is the San Bernardino Basin Area (SBBA). When the SBBA is too full, high groundwater levels can occur in an area known as the Pressure Zone. Some of the reasons high groundwater levels are undesirable is that they can cause water to flow out of the SBBA and can also prevent water from recharging (rejected recharge).

The Integrated Plan charges the Basin Technical Advisory Committee with monitoring and assessing water levels in the pressure zone and presenting their findings in the annual *Regional Water Management Plan*. The general methodology used each year to assess whether high groundwater conditions exist is as follows:

1. In October of each year, the Basin Technical Advisory Committee collects water level data for a series of wells in the Pressure Zone.
2. Water levels in the Pressure Zone are considered to be "high" if they are shallower than 50 feet below ground surface.
3. The BTAC presents their findings on high groundwater conditions in the annual *Regional Water Management Plan.*
4. In November of each year, the annual *Regional Water Management Plan* is reviewed and approved by the Boards of Directors of the San Bernardino Valley Municipal Water District and Western Municipal Water District.

BEST BEST & KRIEGER LLP
ATTORNEYS AT LAW

INDIAN WELLS
(760) 568-2611
IRVINE
(949) 263-2600
LOS ANGELES
(213) 617-8100
ONTARIO
(909) 989-8584

3750 University Avenue, Suite 400
Post Office Box 1028
Riverside, California 92502-1028
(951) 686-1450
(951) 686-3083 Fax
BBKlaw.com

SACRAMENTO
(916) 325-4000
SAN DIEGO
(619) 525-1300
WALNUT CREEK
(925) 977-3300

Michael T. Riddell
(909) 826-8210
Michael.Riddell@bbklaw.com

October 23, 2009

Ms. Roxanne M. Holmes
General Manager
CRESTLINE-LAKE ARROWHEAD
WATER AGENCY
24116 Crest Forest Drive
P.O. Box 3880
Crestline, CA 92325-3880

Re: 2009 Exchange Agreement with San Bernardino Valley Municipal Water District

Dear Roxanne:

Enclosed is the duplicate original of the 2009 Exchange Agreement with San Bernardino Valley Municipal Water District, signed by Randy Van Gelder on behalf of that District. You should sign this yourself and then keep it in your file so that you have a fully executed duplicate original.

By copy of this letter to Randy Van Gelder, I am also sending to him the duplicate original of the same agreement, signed by you, so that he may do likewise.

DWR is preparing the necessary agreement that it will need to have you and Randy sign as well. That should be ready soon. In addition, in our office we are preparing the Notice of Exemption which should be signed and filed by both the Agency and the District. It is filed with the County of San Bernardino and also with the State Clearinghouse. I will be providing that to both of you, along with some more detailed instructions.

Thanks very much. Please let me know if you have any questions,

Sincerely yours,

Mike

Michael T. Riddell
of BEST BEST & KRIEGER LLP

MTR:mb

Enclosure

Cc: Randy Van Gelder, General Manager
San Bernardino Valley Municipal Water District

Receipt #374032
CLERK OF THE BOARD
NOV - 2 2009
COUNTY OF
SAN BERNARDINO

NOTICE OF EXEMPTION

(California Environmental Quality Act)

To: Clerk of the Board of Supervisors
County of San Bernardino
385 N. Arrowhead Ave., 2nd Floor
San Bernardino, CA 92415

Office of Planning and Research
1400 Tenth Street, Room 222
Sacramento, CA 95814
Attn: State Clearinghouse

From: San Bernardino Valley Municipal
Water District
380 East Vanderbilt Way
San Bernardino, CA 92408
Phone: (909) 387-9200

Project Title: The Project entails the approval of a Water Exchange Agreement, which allows for the delivery of 1,000 acre-feet ("AF") of State Water Project ("SWP") water from Crestline-Lake Arrowhead Water Agency ("Agency") to San Bernardino Valley Municipal Water District ("Valley") in 2009, in exchange for the return of 650 AF of SWP water by Valley to Agency no later than the end of 2018. The Water Exchange Agreement also amends a similar agreement between the same two parties in 2008 by extending the term for the return of 1,000 AF of SWP water from Valley to Agency, from 2011 to 2018.

Project Location: Within the service areas of Crestline-Lake Arrowhead Watery Agency, see Map attached as Exhibit "1," and San Bernardino Valley Municipal Water District, see Map attached as Exhibit "2," in the County of San Bernardino.

Description of Nature, Purpose, and Beneficiaries of Project: On October 1, 2009, the Board of Directors of Agency approved the execution of the Water Exchange Agreement ("Agreement") with Valley. This Agreement provides for the delivery of 1,000 AF of SWP water from Agency to Valley in 2009, and requires Agency submit a written request to the California Department of Water Resources on or before December 1, 2009, to deliver 1,000 AF of Agency's share of SWP Table A water to Valley. In exchange for delivery of that water, Valley will deliver 650 AF of water of equal or better quality to Agency by the end of 2018. This same Agreement was approved by Valley and then executed by Valley on October 22, 2009.

Name of Public Agency Approving Project: Crestline-Lake Arrowhead Water Agency

Exempt Status (check one):

____ Ministerial Action.
____ Declared Emergency
____ Emergency Project
_X_ Categorical Exemption (State CEQA Guidelines § 15301 [Existing Facilities]; State CEQA Guidelines §15304 [Minor Alterations to Land, Water, or Vegetation].)
_X_ Statutory Exemption (State CEQA Guidelines § 15282(u) [Temporary Transfer or Exchange of Water or Water Rights].)
_X_ Other The Project is also exempt under State CEQA Guidelines section 15061(b)(3) because it can be seen with certainty that there is no possibility the Project may have a significant impact on the environment. The Project is merely an exchange of water. No physical facilities will be constructed to produce or transport water

DATE FILED & POSTED

because all such required facilities already exist. In addition, no new water production or transportation capacity is created by the Project.

Reasons why project is exempt: The water exchange will entail no change in type of use or expansion of use, but consist merely of the continued operation of existing facilities and the use of those facilities to temporarily transport water to a different location. State CEQA Guidelines section 15301 provides that environmental review is not required for "the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination." In addition, the exchange of water is a minor, temporary alteration to the condition of water that does not require the removal of any trees and thus is also exempt pursuant to State CEQA Guidelines section 15304 as "minor public or private alterations in the condition of land, water, and/or vegetation which do not involve removal of healthy, mature, scenic trees." The Project's proposed exchange of water is temporary and thus is also exempt pursuant to the State CEQA Guidelines, section 15282(u) exemption for the temporary transfer of water or water rights. Because the water exchange will merely temporarily change the location in which water is used and will be delivered via existing facilities, there is no possibility the Project may have a significant impact on the environment. Accordingly, the Agreement and the water exchange that it authorizes are exempt from environmental review under CEQA. Moreover, the water transfer does not involve cumulative impacts, potentially significant impacts, unusually sensitive environments, or any other unique or unusual environmental impacts that might merit environmental review.

Contact Person & Telephone Number: Randy Van Gelder, General Manager
Phone: (909) 387-9200

10/30/2009
Date

for San Bernardino Valley Municipal Water District

State of California—The Resources Agency
DEPARTMENT OF FISH AND GAME

2009 ENVIRONMENTAL FILING FEE CASH RECEIPT

RECEIPT # 374032

STATE CLEARING HOUSE # *(If applicable)*

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY

LEAD AGENCY: San Bernardino Valley Municipal Water District — DATE: 11-2-09

COUNTY/STATE AGENCY OF FILING: San Bernardino, CA — DOCUMENT NUMBER:

PROJECT TITLE: Water Exchange Agreement · (AF), (SWP) Crestline-Lake Arrowhead Water.

PROJECT APPLICANT NAME: San Bernardino Valley Municipal Water District — PHONE NUMBER: 909 387-9200

PROJECT APPLICANT ADDRESS: 380 E. Vanderbilt Way — CITY: San Bernardino — STATE: CA — ZIP CODE: 92408

PROJECT APPLICANT *(Check appropriate box):*

☒ Local Public Agency ☐ School District ☐ Other Special District ☐ State Agency ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report	$2,768.25	$
☐ Negative Declaration	$1,993.00	$
☐ Application Fee Water Diversion *(State Water Resources Control Board Only)*	$850.00	$
☐ Projects Subject to Certified Regulatory Programs	$941.25	$
☒ County Administrative Fee	$50.00	$ 50.00
☐ Project that is exempt from fees		
☒ Notice of Exemption		
☐ DFG No. Effect Determination (Form Attached)		
☐ Other _____		$

PAYMENT METHOD: #391771

☐ Cash ☐ Credit ☒ Check ☐ Other _____ TOTAL RECEIVED $ 50.00

SIGNATURE: X Norma Tite — TITLE: Deputy Clerk.

WHITE - PROJECT APPLICANT | YELLOW - DFG/ASB | PINK - LEAD AGENCY | GOLDEN ROD - COUNTY CLERK | FG 753.5a (Rev. 7/08)

TRANSMISSION VERIFICATION REPORT

TIME : 11/02/2009 14:24
NAME : SBVMWD
FAX : 9093879247
SER.# : BROD8F869364

DATE,TIME	11/02 14:23
FAX NO./NAME	8191632330l8
DURATION	00:00:48
PAGE(S)	03
RESULT	OK
MODE	STANDARD ECM

San Bernardino Valley Municipal Water District
380 E. Vanderbilt Way, P.O. Box 5906 • San Bernardino, CA 92412
Phone (909) 387-9200 • Fax (909) 387-9247

FACSIMILE TRANSMITTAL

DATE: November 2, 2009
TIME: 1:16 PM
TO FAX NO.: 916-323-3018
SUBJECT: Notice of Exemption
FROM: Randy Van Gelder

PLEASE DIRECT THIS TO THE ATTENTION OF: State Clearinghouse - Office of Planning

NUMBER OF PAGES OF THIS TRANSMISSION, INCLUDING THIS PAGE: 3

MESSAGE/SPECIAL COMMENTS:

- ☐ A copy of this transmission will follow by regular mail.
- ☐ Please call sender upon receipt of this transmission.
- ☐ Other:

Water Exchange Agreement – Crestline Lake Arrowhead Water Agency and San Bernardino Valley Municipal Water District dated October 30, 2009

THIS MESSAGE IS INTENDED ONLY FOR THE USE OF THE INDIVIDUAL OR ENTITY TO WHICH IT IS ADDRESSED AND MAY CONTAIN INFORMATION THAT IS PRIVILEGED, CONFIDENTIAL AND EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAW. IF THE READER OF THIS MESSAGE IS NOT THE INTENDED RECIPIENT, OR THE EMPLOYEE OR AGENT RESPONSIBLE FOR DELIVERING THE MESSAGE TO THE INTENDED RECIPIENT, YOU ARE HEREBY NOTIFIED THAT ANY DISSEMINATION, DISTRIBUTION OR COPYING OF THIS COMMUNICATION IS STRICTLY PROHIBITED. IF YOU HAVE RECEIVED THIS COMMUNICATION IN ERROR, PLEASE NOTIFY US IMMEDIATELY BY TELEPHONE, AND RETURN THE ORIGINAL MESSAGE TO US AT THE ABOVE ADDRESS VIA THE U.S. POSTAL SERVICE. THANK YOU.

Valley SAN BERNARDINO MUNICIPAL WATER DISTRICT

P.O. BOX 5906
SAN BERNARDINO, CA 92412
(909) 387-9200

GENERAL FUND

Wells Fargo Bank, N.A.
California

16-24-1220

11/2/2009

Security features. Details on back.

PAY
TO THE
ORDER OF CLERK OF THE BOARD

$ **50.00

Fifty and 00/100********** DOLLARS

CLERK OF THE BOARD
SAN BERNARDINO COUNTY

MEMO

AUTHORIZED SIGNATURE

⑈391771⑈ ⑆122000247⑆060768588O⑈

San Bernardino Valley Municipal Water District

391771

CLERK OF THE BOARD		11/2/2009	
60 · TAXES & LICENSES	NOE - WATER EXCHANGE AGREEMENT 1000 AF OF SWP FROM CLAWA TO SBVMWD		50.00

CHECKING 50.00

San Bernardino Valley Municipal Water District

391771

CLERK OF THE BOARD		11/2/2009	
60 · TAXES & LICENSES	NOE - WATER EXCHANGE AGREEMENT 1000 AF OF SWP FROM CLAWA TO SBVMWD		50.00

CHECKING 50.00

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 942360001
(916) 653-5791

December 7, 2009

Ms. Roxanne Holmes, General Manager
Crestline-Lake Arrowhead Water Agency
Post Office Box 3880
Crestline, California 92325

Mr. Randy Van Gelder, General Manager
San Bernardino Valley Municipal Water District
Post Office Box 5906
San Bernardino, California 94212-5906

This Letter Agreement is in response to Crestline-Lake Arrowhead Water Agency's (CLAWA) letter requesting the Department of Water Resources' (DWR) approval for the exchange of up to 1,000 acre-feet of State Water Project (SWP) Table A water between San Bernardino Valley Municipal Water District (SBVMWD) and CLAWA. SBVMWD will take delivery of, and store within its groundwater basin, up to 1,000 acre-feet of CLAWA's 2009 Table A water by December 31, 2009. In exchange CLAWA may take back from SBVMWD's future Table A water allocations 650 acre-feet of water at CLAWA's option, no later than December 31, 2018 as an unequal exchange. However, to remain a bona fide exchange, at least one half of the water delivered to SBVMWD under this Agreement must be returned to CLAWA by December 18, 2019. There will be no monetary payments between CLAWA and SBVMWD for this exchange of Table A water. The point of exchange shall be Silverwood Lake.

In the event that the SBVMWD Basin Technical Advisory Committee makes a determination in any year that high groundwater conditions exist in the San Bernardino Basin, resulting in the flow of water out of the that basin, the quantity of water not yet returned to CLAWA will be reduced by 10 percent. In the event that such conditions do occur in any year, however, SBVMWD and CLAWA would advise DWR of the reduction in the quantity of water remaining to be returned to CLAWA pursuant to this Agreement.

DWR will file a Notice of Exemption based on California Environmental Quality Act Guidelines Section 15301 with the following description of this exchange of water: the proposed project is a water management operation using only existing facilities for the exchange of water from one SWP contractor to another SWP contractor, the limited term transfer will not support new development or a change in land use, and the transfer is wholly within the SWP place of use. DWR is willing to approve the delivery of up to 1,000 acre-feet of CLAWA's 2009 SWP Table A water to SBVMWD in exchange for the return of up to 650 acre-feet of SBVMWD's Table A water subject to the following terms and conditions:

GENERAL PROVISIONS

1. DWR's approval under this Agreement is unique and shall not be considered a precedent for future agreements.

2. This Agreement shall become effective on the date of execution by all the parties and shall provide for the delivery of water to SBVMWD as of December 31, 2009. This Agreement shall terminate upon the delivery of all return water to CLAWA under this Agreement or by December 31, 2018, whichever comes first.

3. The delivery and return of water pursuant to this Agreement shall be contingent on, and subject to, any necessary approvals and shall be governed by the terms and conditions of such approval(s) and any other applicable regulations. CLAWA and SBVMWD shall be responsible for complying with all applicable laws and regulations and for securing any required consent, permit, or order. CLAWA and SBVMWD shall furnish to DWR copies of all approvals and agreements required for the delivery of water under this Agreement.

4. DWR will maintain records documenting the conveyance of up to 1,000 acre-feet of CLAWA's 2009 SWP Table A water to SBVMWD and the return delivery of water to CLAWA. CLAWA and SBVMWD shall certify to the State Water Project Analysis Office (Attention: Chief, Water Contracts Branch, Fax (916) 653-9628) the amount of CLAWA's approved 2009 Table A water delivered to SBVMWD and the return delivery of water from SBVMWD to CLAWA under this Agreement by January 31st of the year following the actual delivery.

WATER DELIVERY FROM CLAWA TO SBVMWD

5. The water delivered to SBVMWD shall be from CLAWA's allocation of 2009 approved Table A water.

6. The delivery of a portion of CLAWA's 2009 Table A water to SBVMWD shall be in accordance with a schedule reviewed and approved by DWR. DWR's approval is dependent upon the times and amounts of the delivery and the overall delivery capability of the SWP. DWR shall not be obligated to deliver the water at times when such delivery would adversely impact SWP operations, facilities, or other SWP contractors.

7. Pursuant to Paragraph 6, CLAWA shall obtain SBVMWD's approval for the water delivery schedule before submitting a schedule to DWR. All water delivery schedules and revisions shall be in accordance with Article 12 of CLAWA's and SBVMWD's respective long-term Water Supply contracts with DWR.

8. Pursuant to Paragraphs 5, 6, and 7, DWR will deliver up to 1,000 acre-feet of CLAWA's 2009 Table A water to SBVMWD's service area, Reach 26A of the California Aqueduct by December 31, 2009.

9. CLAWA and SBVMWD shall submit revised monthly water delivery schedules for approval to the State Water Project Analysis Office, Water Deliveries Section, indicating timing and point of delivery requested pursuant to this Agreement with reference to SWPAO #09079. Revised schedules shall be sent by electronic mail to SWPDeliveries@water.ca.gov or by FAX to (916) 653-9628, Attention: Chief, Water Deliveries Section.

10. CLAWA and SBVMWD shall submit weekly water schedules for the delivery of water pursuant to this Agreement to the Southern Field Division, Water Operations Section, indicating timing and point of delivery requested with reference to SWPAO #09079. Schedules shall be sent by electronic mail to SFDwaterschedule@water.ca.gov or by FAX to (661) 294-3651, Attention: Chief, Water Operations Section.

RETURN WATER DELIVERED FROM SBVMWD TO CLAWA

11. SBVMWD shall return at least half of the quantity of water advanced by CLAWA by December 31, 2018. The return water delivered to CLAWA shall be Table A water allocated to SBVMWD in the year water is returned. In the event that at least half of the water advanced is not returned to CLAWA by August 31, 2018, DWR, in coordination with CLAWA and SBVMWD, shall expedite the return of water to CLAWA by so scheduling SBVMWD's Table A by December 31, 2018.

12. The return of water under this Agreement by SBVMWD to CLAWA shall be in accordance with a schedule reviewed and approved by DWR. DWR's approval is dependent upon the times and amounts of the delivery and the overall delivery capability of the SWP. DWR shall not be obligated to deliver the water at times when such delivery would adversely impact SWP operations, facilities, or other SWP contractors.

13. Pursuant to Paragraph 11, SBVMWD shall obtain CLAWA's approval for the proposed delivery schedule, before submitting a schedule to DWR. All water delivery schedules and revisions shall be in accordance with Article 12 of CLAWA's and SBVMWD's long-term Water Supply contracts with DWR.

14. Pursuant to Paragraphs 11 and 12, DWR will deliver a portion of SBVMWD's Table A water scheduled for delivery to SBVMWD's service area to CLAWA's service area in Reach 24 of the California Aqueduct.

NO IMPACT

15. This Agreement shall not be administered or interpreted in any way that would cause adverse impacts to SWP approved Table A water or to any other SWP approved water allocations, water deliveries, or SWP/CVP operations and facilities. CLAWA and SBVMWD shall be responsible for any adverse impacts that may result from the exchange of water as determined by DWR.

SWP ALLOCATION

16. Water returned to CLAWA pursuant to this Agreement shall not be considered by DWR in the determination of approved annual Table A deliveries to or allocation of other SWP water to CLAWA under Article 18 of CLAWA's long-term Water Supply contract with DWR.

CHARGES

17. CLAWA and SBVMWD shall pay the following charges, including all future adjustments, which shall be calculated in the same manner as charges are calculated for SWP Table A deliveries and shall be in accordance with the provisions of CLAWA's and SBVMWD's long-term Water Supply contracts with DWR. Charges shall be determined for the year the water is delivered, and the year the water is returned.

    a. When a portion of CLAWA's approved 2009 Table A water is made available to SBVMWD at Reach 24, CLAWA shall pay to DWR the charges associated with the delivery of the water from the Delta to the point of delivery at Silverwood Lake, Reach 24. The charges associated with such delivery will be the 2009 Variable Operation, Maintenance, Power, and Replacement components of the Transportation Charge and the 2009 Off-Aqueduct Power Facilities Cost for each acre-foot of water delivered.

    b. DWR will deliver water made available by CLAWA at Silverwood Lake, Reach 24 to SBVMWD turnouts at Reach 26A. The charges associated with such delivery will be the 2009 Variable Operation, Maintenance, Power, and Replacement components of the Transportation Charge and the 2009 Off-Aqueduct Power Facilities Cost for each acre-foot of water delivered. SBVMWD will be charged at the Variable rate calculated from Reach 24 to Reach 26A.

c. In any year that a portion of SBVMWD's future Table A water is returned to CLAWA pursuant to this Agreement, SBVMWD shall pay to DWR the charges associated with the delivery of the return water from the Delta to CLAWA's turnouts in Reach 24 of the California Aqueduct. The charges associated with the return water will be the Variable Operation, Maintenance, Power, and Replacement components of the Transportation charges and the Off-Aqueduct Power Facilities Cost for each acre-foot of water delivered in effect for the year in which the water is returned to CLAWA.

18. In addition to the charges identified above, CLAWA and SBVMWD agree to pay to DWR any additional identified demonstrable increase in costs that would otherwise be borne by the SWP contractors not signatory to this Agreement or by DWR, as a result of activities pursuant to this Agreement.

19. Payment terms shall be in accordance with CLAWA's and SBVMWD's long-term Water Supply contracts with DWR.

LIABILITY

20. Responsibility for water delivered pursuant to this Agreement shall be governed by Article 13 of CLAWA's and SBVMWD's long-term Water Supply contracts, with responsibilities under the terms of that article shifting from DWR to CLAWA and SBVMWD when the water passes through their respective turnouts.

21. In the event of a claim of liability against DWR or its Directors, officers, or employees, jointly or severally, that arises as a result of this Letter Agreement, CLAWA and SBVMWD shall defend, indemnify, and hold DWR and any of its Directors, officers, and employees harmless from any such claim, except to the extent that such claim arises from the sole negligence or willful misconduct of DWR.

EXECUTION

22. This Letter Agreement may be executed in counterpart. The parties agree to accept facsimile or electronically scanned signatures as original signatures. The Agreement shall take effect as soon as all parties have signed.

23. Immediately after execution, SBVMWD and CLAWA shall transmit a copy of the executed Letter Agreement by facsimile or electronically to Robert Cooke, Chief, State Water Project Analysis Office at (916) 653-9628 or cooke@water.ca.gov and to each other at.

CLAWA: (909) 338-3686 or Michael.riddell@bbklaw.com
SBVMWD: (909) 387-9247 or dough@sbvmwd.com

If CLAWA or SBVMWD needs a Board of Directors' approval of this Letter Agreement, that party shall send a facsimile or electronically scanned copy of the board approval to the other two parties. If you have any questions or need additional information, please contact me at (916) 653-4313 and refer to SWPAO #09079.

Sincerely,

Robert B Cooke

Robert B. Cooke, Chief
State Water Project Analysis Office
ACCEPTED:

CRESTLINE-LAKE ARROWHEAD WATER DISTRICT

Roxanne M. Holmes
Signature

General Manager
Title

12/08/09
Date

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

Signature

Title

Date

cc: Mr. Terry Erlewine, General Manager
State Water Contractors
1121 L Street, Suite 1050
Sacramento, California 95814

If CLAWA or SBVMWD needs a Board of Directors' approval of this Letter Agreement, that party shall send a facsimile or electronically scanned copy of the board approval to the other two parties. If you have any questions or need additional information, please contact me at (916) 653-4313 and refer to SWPAO #09079.

Sincerely,

Robert B Cooke

Robert B. Cooke, Chief
State Water Project Analysis Office
ACCEPTED:

CRESTLINE-LAKE ARROWHEAD WATER DISTRICT

_____
Signature

_____
Title

_____
Date

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

_____
Signature

General Manager
Title

12/7/2009
Date

cc: Mr. Terry Erlewine, General Manager
State Water Contractors
1121 L Street, Suite 1050
Sacramento, California 95814

CRESTLINE-LAKE ARROWHEAD WATER AGENCY

A Public Agency
P.O. BOX 3880 PHONE (909) 338-1779
24116 CREST FOREST DRIVE
CRESTLINE, CALIFORNIA 92325

Directors
STEPHEN L. PLEASANT, President
BRUCE D. RISHER
NORMAN C. MEEK
THOMAS L. SUTTON
KENNETH A. EATON
Secretary
JENNIFER A. SPINDLER
General Manager
ROXANNE M. HOLMES

November 20, 2009

Randy Van Gelder, General Manager
San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
P.O. Box 5906
San Bernardino, CA 92412

RE: 2009 Water Exchange Agreement

Dear Randy:

The purpose of this letter is to address an issue that has been raised by the Department of Water Resources regarding the Water Exchange Agreement which we both executed on October 22, 2009. As you know, that agreement provides that of the 2,000 acre-feet of water which has been and will be delivered to the District from the Agency's 2008 and 2009 allocations, the Agency will have until the end of 2018 to take back 1,650 acre-feet of exchange water from the District's future allocations. The agreement further provides that in any year in which the District experiences high groundwater conditions, resulting in the loss of water from the Basin, the quantity of water not yet returned to the Agency by way of exchange will be reduced by 10%. That 10% reduction will apply in each year that such high groundwater conditions may occur.

Craig Trombly at DWR has pointed out that exchange agreements such as this must provide for the return of no less than 50% of the water delivered to the exchange partner. Although it is extremely unlikely that we would experience multiple years of heavy precipitation between now and the end of 2018, DWR is nonetheless concerned that the 10% reduction provision theoretically could result in the return of less than half of the 2,000 acre-feet of water delivered to the District pursuant to the 2008 and 2009 Water Exchange Agreements.

In order to eliminate that possibility, we have agreed that if the 10% reduction provision is applied in multiple years, the last year of which would result in a cumulative loss of 650 acre-feet of water or more, in that year the Agency will take back all of the

remainder of the exchange water not yet returned to the Agency so that no more than a cumulative total of 649 acre-feet of water is lost due to the application of that 10% reduction provision. This agreement between us is consistent with the Water Exchange Agreements already executed and thus does not require an amendment of either the 2008 or the 2009 Water Exchange Agreement.

If this letter correctly states the agreement that we have reached regarding the timing of the return of exchange water to the Agency, please sign and return one of the two duplicate originals of this letter, both of which I have already signed. Upon receipt of the duplicate original bearing your signature, I will send a copy to Craig Trombly as written assurance that the exchange arrangement between the Agency and the District will in fact comply with the approved policy which DWR is applying uniformly to all such exchange arrangements.

Yours very truly.

Roxanne M. Holmes,
General Manager

This letter correctly and accurately reflects the agreement between the Agency and the District.

Randy Van Gelder

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY ARNOLD SCHWARZENEGGER, *Governor*

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 942360001
(916) 653-5791

Ms. Roxanne Holmes, General Manager
Crestline-Lake Arrowhead Water Agency
Post Office Box 3880
Crestline, California 92325

Mr. Douglas Headrick, General Manager
San Bernardino Valley Municipal Water District
Post Office Box 5906
San Bernardino, California 94212-5906

This is in response to your letter dated October 6, 2009 in which you requested that we amend the Letter Agreement SWPAO #08063, dated December 17, 2008, among the Department of Water Resources (DWR), Crestline-Lake Arrowhead Water Agency (CLAWA), and San Bernardino Valley Municipal Water District (SBVMWD) to exchange up to 1,000 acre-feet of CLAWA's 2008 State Water Project (SWP) Table A water with SBVMWD.

As described in the original Agreement's introductory paragraph, the quantity of Table A water to be exchanged is up to 1,000 acre-feet and to be returned as a 1 acre-foot for 1 acre-foot exchange. CLAWA and SBVMWD have agreed the returned Table A exchange water will now be subject to high groundwater conditions which could reduce the amount of water available for return to CLAWA. However, to remain a bona fide exchange, at least half the water delivered to SBVMWD must ultimately be returned to CLAWA by December 3, 2018. Paragraph 11 of the original Agreement #08063 provides for the return of all exchange water to CLAWA by December 31, 2011 and water to be scheduled by August 31, 2011 if all water has not been returned prior to that date. CLAWA and SBVMWD have agreed to extend the water return time to December 31, 2018 and schedule it by August 31, 2018. The details of this request are noted in the "Water Exchange Agreement and Amendment of Demonstration Project" signed by CLAWA and SBVMWD on October 22, 2009.

Accordingly, the original agreement is amended as follows:

Provision 2 shall now read:

2. This Agreement shall become effective on the date of execution by all the parties and shall provide for the delivery of water to SBVMWD as of December 31, 2008. This Agreement shall terminate upon the delivery of all return water to CLAWA under this Agreement or by December 31, 2018, whichever comes first.

Provision 11 shall now read:

11. SBVMWD shall return at least half of the water advanced to CLAWA by December 31, 2018. The return water delivered to CLAWA shall be Table A water allocated to SBVMWD in the year water is returned. In the event that at least half of the water advance is not returned to CLAWA by August 31, 2018, DWR, in coordination with CLAWA and SBVMWD, shall expedite the return of water to CLAWA by so scheduling SBVMWD's Table A by December 31, 2018.

A new term is added to the original Agreement to read:

In the event that SBVMWD's Basin Technical Advisory Committee makes a determination in any year that high groundwater conditions exist in the San Bernardino Basin, resulting in the flow of water out of that basin, the quantity of

water not yet returned to CLAWA will be reduced by 10 percent. In the event that such conditions do occur in any year, SBVMWD and CLAWA will advise DWR of the reduction in the quantity of water remaining to be returned to CLAWA pursuant to this Agreement.

If you agree to the terms and conditions of this Amendment, please sign and date all four originals. After signing, forward all four originals to SBVMWD for their signature and request that they return two executed originals to Robert Cooke, Chief, State Water Project Analysis Office, Department of Water Resources, Post Office Box 942836, Sacramento, California 94236-0001. SBVMWD will retain one executed original and return one executed original to CLAWA for their respective records. Please send a copy of the Board of Directors approval of this amendment, if such approval is required. This Amendment will not take effect until signed by both CLAWA and SBVMWD.

If you have any questions or need additional information, you may contact Craig Trombly, of my staff at (916) 653-6250, and refer to SWPAO #08063-A.

Sincerely,

Robert B Cooke

Robert B. Cooke, Chief
State Water Project Analysis Office

ACCEPTED:

CRESTLINE-LAKE ARROWHEAD WATER DISTRICT

Roxanne M. Holmes
Signature

Title

Date

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

Douglas A. Headrick
Signature

General Manager
Title

2-16-2010
Date

Enclosures

cc: Mr. Terry Erlewine, General Manager
State Water Contractors
1121 L Street, Suite 1050
Sacramento, California 95814

CITY OF SAN BERNARDINO
MUNICIPAL WATER DEPARTMENT

RECEIVED

BOARD OF WATER COMMISSIONERS

TONI CALLICOTT
President

Commissioners
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NORINE I. MILLER
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WAYNE HENDRIX

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Deputy General Manager
MATTHEW H. LITCHFIELD, P.E.
Director of Water Utility
JOHN A. CLAUS
Director of Water Reclamation
ROBIN L. OHAMA
Acting Director of Finance
VALERIE HOUSEL
Director of Environmental &
Regulatory Compliance

"Trusted, Quality Service since 1905"

September 16, 2009

Anthony Araiza
General Manager
West Valley Water District
P. O. Box 920
Rialto, CA 92377

Randy Van Gelder
General Manager
San Bernardino Valley Municipal Water District
P.O. Box 5906
San Bernardino, CA 92412-5906

Dear Messrs. Araiza, Van Gelder:

This will confirm the understanding reached today, September 16, 2009, regarding the contributions to replenishment to be made by West Valley Water District in conjunction with deliveries through the Baseline Feeder of water from the Bunker Hill Basin by the City of San Bernardino Municipal Water Department (San Bernardino).

As all parties are aware, for several years, San Bernardino has been producing treated water for delivery to the Baseline Feeder. San Bernardino Valley Municipal Water District (Valley District) pays San Bernardino for all direct costs related to the delivery and then bills West Valley Water District and the city of Rialto, based on allocated deliveries. Deliveries have been made pursuant to periodic negotiations and a purchase order between San Bernardino and Valley District. Last year, it is San Bernardino's understanding, West Valley Water District (WVWD) and Rialto asked Valley District for assurances that San Bernardino's deliveries would continue, at least for a short term. San Bernardino and Valley District began negotiating the terms of a three-year contract for delivery of water to the Baseline Feeder.

It was San Bernardino's position that the costs of the delivered water should include some amount for replenishment of the Bunker Hill Basin. Meanwhile, invoicing for fiscal year 2009/2010 has been delayed, pending resolution of the replenishment issue.

300 North "D" Street, San Bernardino, California 92418 P.O. Box 710, 92402 Phone: (909) 384-5141
FACSIMILE NUMBERS: Administration: (909) 384-5215 Engineering: (909) 384-5532 Customer Service: (909) 384-7211
Corporate Yards: (909) 384-5260 Water Reclamation Plant: (909) 384-5258

SBVMWD LEGAL
DOCUMENT

The following represents our agreement:

1. For fiscal year 2009/2010, there will be **no** amount added for replenishment. This is because WVWD has already committed to pay $72,000 for approximately 1200 acre-feet of replenishment for water year 2009/2010; and

2. For the three-year contract period, in each of the contract years, WVWD agrees to pay Valley District for State Project Water to be delivered to Sweetwater, Devil Canyon and Waterman basins (at San Bernardino's choice) in an amount equal to the cost of one-quarter (1/4) of the amount of water delivered to the Baseline Feeder for WVWD's benefit.

An example: WVWD receives 3000 acre-feet delivered to it in Year 1 of the contract. WVWD pays Valley District (or allows Valley District to draw down from WVWD's account) the amount of money necessary to pay for 750 acre-feet of water. The possibility exists that Valley District will discount that water, thereby providing more water for the money

Thank you for your courtesy and cooperation in resolving this issue.

Very truly yours,

City of San Bernardino
Municipal Water Department

Stacey R. Aldstadt
General Manager

SRA:als

cc: DMS
R. Ohama, SBMWD
D. Headrick, Valley District
T. Crowley, WVWD
A. Hitchings, Somach

Please sign below to indicate your agreement and concurrence.

Anthony Araiza, WVWD — Date 9-28-09

Randy Van Gelder, Valley District — Date 9/28/2009

CITY OF SAN BERNARDINO
MUNICIPAL WATER DEPARTMENT

BOARD OF WATER COMMISSIONERS

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President

Commissioners
B. WARREN COCKE
LOUIS A. FERNANDEZ
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JUDITH VALLES

STACEY R. ALDSTADT
General Manager
ROBIN L. OHAMA
Deputy General Manager
MATTHEW H. LITCHFIELD, P.E.
Director of Water Utility
JOHN A. CLAUS
Director of Water Reclamation
WILLIAM M. KOLBOW, C.P.A
Director of Finance
JENNIFER L. SHEPARDSON
Director of Environmental &
Regulatory Compliance

"Trusted, Quality Service since 1905"

September 30, 2013

Mr. Douglas Headrick, P.E.
General Manager
San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
San Bernardino, CA 92408

Dear Mr. Headrick:

The purpose of this letter is to extend the understanding reached on September 16, 2009, regarding the contributions to replenishment to be made by West Valley Water District (WVWD) and the City of Rialto in conjunction with deliveries through the Baseline Feeder of water from the Bunker Hill Basin by the City of San Bernardino Municipal Water Department (San Bernardino) via the Encanto Booster Station.

As all parties are aware, for several years, San Bernardino has been producing treated water for delivery to the Baseline Feeder. San Bernardino Valley Municipal Water District (Valley District) pays San Bernardino for all direct costs related to the delivery and then bills WVWD and the city of Rialto, based on allocated deliveries. Deliveries have been made pursuant to periodic negotiations and a purchase order between San Bernardino and Valley District. In 2012, Valley District and WVWD placed two (2) new wells online that make deliveries to the Baseline Feeder. This has reduced San Bernardino's deliveries to the Baseline Feeder significantly, especially during winter and spring months. However, San Bernardino continues to make periodic deliveries during the summer months through the Encanto Booster Station.

It continues to be San Bernardino's position that the costs of the delivered water should include a 25 percent replenishment obligation of the Bunker Hill Basin.

300 North "D" Street, San Bernardino, California 92418 P.O. Box 710, 92402 Phone: (909) 384-5141
FACSIMILE NUMBERS: Administration: (909) 384-5215 Engineering: (909) 384-5532 Customer Service: (909) 384-7211
Corporate Yards: (909) 384-5260 Water Reclamation Plant: (909) 384-5258

The following represents our agreement:

1. The term of this agreement will be for five (5) years.

2. For the five-year contract period, in each of the contract years, Valley District agrees to invoice the West Valley Water District and the City of Rialto for State Project Water to be delivered to the Waterman basin in an amount equal to the cost of one-quarter (1/4) of the amount of water delivered to the Baseline Feeder for WVWD's/Rialto's benefit through the Encanto Booster Station.

Thank you for your courtesy and cooperation.

Very truly yours,

City of San Bernardino
Municipal Water Department

Robin Ohama for
Stacey R. Aldstadt
General Manager

SRA:MHL:swd

cc: R. Ohama, SBMWD
A. Hitchings, Somach

Please sign below to indicate your agreement and concurrence.

Douglas H. Headrick
Douglas Headrick, Valley District

10/4/13
Date

STATE OF CALIFORNIA
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

PERMIT FOR DIVERSION AND USE OF WATER

PERMIT 21264

Application **31165** of **San Bernardino Valley Municipal Water District and Western Municipal Water District of Riverside County**
P.O. Box 5906
San Bernardino, CA 92412-5906

filed on **March 21, 2001**, has been approved by the State Water Resources Control Board (State Water Board or Board) SUBJECT TO PRIOR RIGHTS and to the limitations and conditions of this permit.

Permittee is hereby authorized to divert and use water as follows:

1. Source of water

Source:	Tributary to:
Santa Ana River (1, 3, 6, 9, 10)	**Pacific Ocean**
Bear Creek (2)	**Santa Ana River thence Pacific Ocean**
Breakneck Creek (4)	**Santa Ana River thence Pacific Ocean**
Keller Creek (5)	**Santa Ana River thence Pacific Ocean**
Alder Creek (7)	**Santa Ana River thence Pacific Ocean**

within the County of **San Bernardino.**

SBVMWD LEGAL
DOCUME

2. Location of points of diversion (POD) and points of rediversion (POR)

By California Coordinate System of 1983, Zone **5**	40-acre subdivision of public land survey or projection thereof	Section	Township	Range	Base and Meridian
POD & POR #1: Seven Oaks Dam North 1,866,500 ft. and East 6,835,000 ft.	**NE¼ of NW¼**	**4**	**01S**	**02W**	**SB**
POD #2: North 1,882,500 ft. and East 6,859,600 ft.	**SE¼ of NE¼**	**19**	**01N**	**01W**	**SB**
POD #3: North 1,882,400 ft. and East 6,859,700 ft.	**SE¼ of NE¼**	**19**	**01N**	**01W**	**SB**
POD #4: North 1,880,900 ft. and East 6,858,100 ft.	**NW¼ of SE¼**	**19**	**01N**	**01W**	**SB**
POD #5: North 1,877,700 ft. and East 6,846,200 ft.	**NW¼ of NE¼**	**26**	**01N**	**02W**	**SB**
POD #6: North 1,876,700 ft. and East 6,846,700 ft.	**SW¼ of NE¼**	**26**	**01N**	**02W**	**SB**
POD #7: North 1,877,100 ft. and East 6,843,600 ft.	**NW¼ of NW¼**	**26**	**01N**	**02W**	**SB**
POR #8: North 1,865,800 ft. and East 6,837,100 ft.	**SE¼ of NE¼**	**4**	**01S**	**02W**	**SB**
POD & POR #9: North 1,864,900 ft. and East 6,835,000 ft.	**SE¼ of NW¼**	**4**	**01S**	**02W**	**SB**
POD & POR #10: North 1,862,800 ft. and East 6,834,000 ft.	**SW¼ of SW¼**	**4**	**01S**	**02W**	**SB**

3. Purpose of use	4. Place of use	Section	Township	Range	Base and Meridian	Acres
Municipal, Industrial, Irrigation, Heat Control, Frost Protection and Recreational uses	**San Bernardino Valley Municipal Water District and Western Municipal Water District of Riverside County's Service Areas***					

*The place of use is shown on maps dated June 7, 2010 and filed with the State Water Board.

5a. The water appropriated shall be limited to the quantity which can be beneficially used and shall not exceed **400** cubic feet per second (cfs) by direct diversion and **100,000** acre-feet per annum (afa) by underground and/or surface storage to be diverted from **January 1** to **December 31** of each year. The amount of surface storage at Seven Oaks Dam shall not exceed 50,000 afa. The maximum rate of diversion to underground storage shall not exceed 400 cfs. The total amount of water to be taken from the sources shall not exceed 100,000 acre-feet (af) per water-year of October 1 to September 30. The total rate for water to be taken from the sources for either direct use and/or underground storage shall not exceed 800 cfs.

(0000005E)

5b. The total quantity of water to be taken from the sources under both Application 31165 and Application 31370 shall not exceed 198,317 af per water-year of October 1 to September 30. The total amount of water diverted to storage at Seven Oaks Dam under both Applications 31165 and 31370 shall not exceed 50,000 af per water-year of October 1 to September 30. The total combined rate for water to be taken from the sources under Applications 31165 and 31370 for either direct use, underground storage, and/or offstream surface storage shall not exceed an instantaneous rate of 1,250 cfs.

(0000005L)

6. The amount authorized for appropriation may be reduced in the license if investigation warrants.

(0000006)

7. Construction work and the application of water to beneficial use shall be prosecuted with reasonable diligence. Actual construction shall begin no later than June 30, 2010 and be completed by October 1, 2020. Water shall be put to full beneficial use by December 31, 2059.

(0000009)

8. Progress reports shall be submitted promptly by Permittee when requested by the State Water Board until a license is issued.

(0000010)

9. Permittee shall allow representatives of the State Water Board and other parties, as may be authorized from time to time by said State Water Board, reasonable access to project works to determine compliance with the terms of this permit.

(0000011)

10. Pursuant to California Water Code sections 100 and 275, and the common law public trust doctrine, all rights and privileges under this permit and under any license issued pursuant thereto, including method of diversion, method of use, and quantity of water diverted, are subject to the continuing authority of State Water Board in accordance with law and in the interest of the public welfare to protect public trust uses and to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of said water.

The continuing authority of the State Water Board may be exercised by imposing specific requirements over and above those contained in this permit with a view to eliminating waste of water and to meeting the reasonable water requirements of Permittee without unreasonable draft on the source. Permittee may be required to implement a water conservation plan, features of which may include but not necessarily be limited to: (1) reusing or reclaiming the water allocated; (2) using water reclaimed by another entity instead of all or part of the water allocated; (3) restricting diversions so as to eliminate agricultural tailwater or to reduce return flow; (4) suppressing evaporation losses from water surfaces; (5) controlling phreatophytic growth; and (6) installing, maintaining, and operating efficient water measuring devices to assure compliance with the quantity limitations of this permit and to determine accurately water use as against

reasonable water requirements for the authorized project. No action will be taken pursuant to this paragraph unless the State Water Board determines, after notice to affected parties and opportunity for hearing, that such specific requirements are physically and financially feasible and are appropriate to the particular situation.

The continuing authority of the State Water Board also may be exercised by imposing further limitations on the diversion and use of water by the Permittee in order to protect public trust uses. No action will be taken pursuant to this paragraph unless the State Water Board determines, after notice to affected parties and opportunity for hearing, that such action is consistent with California Constitution Article X, Section 2; is consistent with the public interest; and is necessary to preserve or restore the uses protected by the public trust.

(0000012)

11. The quantity of water diverted under this permit and under any license issued pursuant thereto is subject to modification by the State Water Board if, after notice to the Permittee and an opportunity for hearing, the State Water Board finds that such modification is necessary to meet water quality objectives in water quality control plans which have been or hereafter may be established or modified pursuant to Division 7 of the Water Code. No action will be taken pursuant to this paragraph unless the State Water Board finds that: (1) adequate waste discharge requirements have been prescribed and are in effect with respect to all waste discharges which have any substantial effect upon water quality in the area involved, and (2) the water quality objectives cannot be achieved solely through the control of waste discharges.

(0000013)

12. This permit does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish & G. Code, §§ 2050-2097) or the federal Endangered Species Act (16 U.S.C.A. §§ 1531-1544). If a "take" will result from any act authorized under this water right, the Permittee shall obtain authorization for an incidental take prior to construction or operation of the project. Permittee shall be responsible for meeting all requirements of the applicable Endangered Species Act for the project authorized under this permit.

(0000014)

13. Permittee shall maintain records of the amount of water diverted and used to enable State Water Board to determine the amount of water that has been applied to beneficial use pursuant to Water Code section 1605.

(0000015)

14. This permit shall not be construed as conferring upon the Permittee right of access to the point of diversion.

(0000022)

15. Permittee shall consult with the Division of Water Rights (Division) and, within one year from the date of this permit, shall submit to the State Water Board its Urban Water Management Plan as prepared and adopted in conformance with section 10610, et seq. of the California Water Code, supplemented by any additional information that may be required by the Board.

All cost effective measures identified in the Urban Water Management Plan and any supplements thereto shall be implemented in accordance with the schedule for implementation found therein.

(0000029A)

16. If it is determined after permit issuance that the as-built conditions of the project are not correctly represented by the map(s) prepared to accompany the application, Permittee shall, at his expense have the subject map(s) updated or replaced with equivalent as-built map(s).

Said revision(s) or new map(s) shall be prepared by a civil engineer or land surveyor registered or licensed in the State of California and shall meet the requirements prescribed in section 715 and sections 717 through 723 of the California Code of Regulations, Title 23. Said revision(s) or map(s) shall be furnished upon request of the Chief of the Division of Water Rights[1].

(0000030)

17. No work shall commence and no water shall be diverted, stored or used under this permit until a copy of a stream or lake alteration agreement between the State Department of Fish and Game and the Permittee (DFG) is filed with the Division. Compliance with the terms and conditions of the agreement is the responsibility of the Permittee. If a stream or lake alteration agreement is not necessary for this permitted project, the Permittee shall provide the Division a copy of a waiver signed by DFG.

(0000063)

18. In order to prevent degradation of the quality of water during and after construction of the project, prior to commencement of construction undertaken after issuance of the permit, Permittee shall file a report pursuant to Water Code Section 13260 and shall comply with all waste discharge requirements imposed by the California Regional Water Quality Control Board, Santa Ana Region, or by the State Water Board.

(0000100)

19. Prior to diversion of water under this permit, Permittee shall: (1) install devices to measure the instantaneous rate of diversion and the quantities of water placed into underground storage and (2) install devices to measure or provide documentation of the method to be used to determine the quantity of water recovered from underground storage and placed to beneficial use. All measuring devices and the method of determining the quantity of water placed into and recovered from underground storage shall be approved by the State Water Board prior to diversion of water under this permit. All measuring devices shall be properly maintained. The diversion data shall be posted on Permittee's websites on a weekly basis.

(0080117)

20. The Permittee shall obtain all necessary state and local agency permits required by other agencies prior to construction and diversion of water. Copies of such permits and approvals shall be forwarded to the Deputy Director for Water Rights (Deputy Director).

(0000203)

21. No debris, soil, silt, cement that has not set, oil, or other such foreign substance will be allowed to enter into or be placed where it may be washed by rainfall runoff into the waters of the State. When operations are completed, any excess materials or debris shall be removed from the work area.

(0000208)

22. The State Water Board adopts and incorporates by reference into this permit the mitigation measures and monitoring and reporting requirements applicable to the impacts of the Project on biological and cultural resources, geology, hazardous material and groundwater contamination, groundwater and surface water hydrology, water quality and public services, utilities and transportation identified in the Final EIR, specifically mitigation measures MM BIO-1, MM BIO-2 and MM BIO-6 through MM BIO-10, MM CR 1 through MM CR 4, MM HAZ 1 through MM HAZ 5, MM GEO-1 through MM GEO-8, MM GW-1, MM SW-2 and MM PS-12. (See attached Table 1.) Permittee must implement the measures to mitigate significant impacts and conduct the required

[1] The Chief of the Division of Water Rights is hereafter referred by the State Water Board as the Deputy Director for Water Rights.

reporting and monitoring of those measures as provided in the Mitigation Monitoring and Reporting Plan adopted on March 21, 2007 by the respective Boards of Directors of San Bernardino Valley Municipal Water District and Western Municipal Water District of Riverside County. In addition, Permittee shall submit an annual report to the Deputy Director that includes the results of the Mitigation Monitoring and Reporting Program. The State Water Board reserves jurisdiction to require any reasonable amendments to these measures and requirements to ensure that they will accomplish the stated goal.

(0400500)

23. The State Water Board adopts and incorporates by reference into this permit the mitigation measures and monitoring and reporting requirements applicable to the cumulative impacts of the Project on biological and cultural resources, geology, hazardous material and groundwater contamination, groundwater and surface water hydrology and water quality, and public services, utilities and transportation identified in the EIR, specifically mitigation measures MM Cumulative BIO-1, MM Cumulative CR-1, MM Cumulative CR-2, MM Cumulative HAZ-1, MM Cumulative SW-1 and MM Cumulative GW-1. (See attached Table 2.) Permittee must implement the measures to mitigate cumulative impacts and conduct the required reporting and monitoring of those measures as provided in the Mitigation Monitoring and Reporting Plan adopted by the respective Boards of Directors of San Bernardino Valley Municipal Water District and Western Municipal Water District of Riverside County on March 21, 2007. In addition, Permttee shall submit to the Deputy Director an annual report that includes the results of the Mitigation Monitoring and Reporting Program. The State Water Board reserves jurisdiction to require any reasonable amendments to these measures and requirements to ensure that they will accomplish the stated goal.

(0400500)

24. This permit shall not be construed as conferring upon Permittee right of access to facilities of the U.S. Army Corps of Engineers and the Santa Ana River Mainstem Local Sponsors.

(0000022)

25. This permit is specifically subject to the prior rights of Bear Valley Mutual Water Company, City of Redlands, East Valley Water District, Lugonia Water Company, North Fork Water Company and Redlands Water Company to divert the first 88 cfs of the natural flow of the Santa Ana River pursuant to pre-1914 appropriative rights, to the extent that such rights may exist.

(0400500)

26. This permit is specifically subject to the prior rights of San Bernardino Valley Water Conservation District under Licenses 2831 and 2832 issued pursuant to Applications 2217 and 4807, and any valid pre-1914 appropriative right confirmed by the Court.

(0400500)

27. Nothing in this permit shall be construed as authorizing any diversions contrary to the provisions of the December 19, 2002 Biological Opinion issued by United States Fish and Wildlife Service for operation of Seven Oaks Dam, as may be revised in the future, including flow releases for downstream over-bank inundation to preserve State and federally listed threatened and endangered species and their habitat.

(0600500)

28. Permittee shall only divert water at points of diversion 5 though 10 in compliance with the terms and conditions of Federal Energy Regulatory Commission (FERC) license Project No. 1933 and 401 water quality certification as well as any future FERC licenses and 401 water quality certifications.

(0560900)

29. Permittee shall not, without the prior written consent of Southern California Edison (SCE), construct, operate or maintain diversion works at points of diversion located upstream of the flood inundation pool of Seven Oaks Dam in a manner that interferes with the operation and maintenance of the hydroelectric works licensed to SCE by the Federal Energy Regulatory Commission (FERC) license for Project No. 1933. Permittee's diversion of water at such points of diversion shall not interfere with SCE's diversion of water for hydroelectric purposes, again as described in the FERC license for Project No. 1933. Nothing in this permit shall be construed to limit Permittee's diversion of water from such points of diversion at times when the quantity of water available for diversion at such points of diversion exceeds the demand of SCE's facilities to divert water from the Santa Ana River system.

(0430999)

30. This permit shall not be construed as conferring upon Permittee the right of access to Seven Oaks Dam, the points of diversion, the lands necessary for related facilities, or the lands necessary for inundation for water storage. Access to, construction upon, or inundation of National Forest Service lands shall not commence prior to authorization by the Forest Service, in accordance with applicable laws and regulations. Such authorization will require compliance with all applicable federal laws and regulations. Permittee specifically recognizes that completion of the applicable legal process does not guarantee such authorization will be granted, the issuance of this water right permit notwithstanding.

(0000022)

31. This permit shall not be construed as conferring upon Permittee the right of access to Seven Oaks Dam, the points of diversion, and lands necessary for related facilities; or the lands necessary for inundation for water storage. Permittee shall not commence construction and operation of water diversion facilities at Seven Oaks Dam without a written access agreement from the Santa Ana River Mainstem Project Local Sponsors.

(0000022)

32. Flow in the Santa Ana River is highly variable from year to year. Because the face value of this permit is based on a rare storm event, this permit shall not be construed as giving any assurance that such an event will occur. The actual amount of water available for appropriation may be much less.

(0000999)

33. Permittee is required to follow guidance from existing state and federally mandated projects regarding groundwater contaminant plumes within and outside the San Bernardino Basin Area. This includes coordination with appropriate oversight agencies and compliance with policies regarding the remediation of the groundwater contaminant plumes.

(0400800)

34. Permittee shall not use the Cactus Spreading and Flood Control Basins under this permit.

(0400800)

35a. In order to prevent degradation of the quality of water released to the Santa Ana River from storage at Seven Oaks Dam, the State Water Board may modify this permit to set conditions that apply water quality objectives to any release from storage.

35b. No water shall be released from storage of Seven Oaks Dam for purposes of rediversion by Permittee until Permittee has consulted with the Chief Deputy Director for Water Quality or his or her delegee and the Chief Deputy Director has determined that the releases will be consistent with applicable water quality objectives. The releases shall be consistent with any conditions the Chief Deputy Director determines are necessary to ensure compliance with applicable water quality objectives.

(0400800)

36. In order to prevent degradation of water quality during and after construction of the project, prior to commencement of any construction undertaken after issuance of the permit, Permittee shall file a report pursuant to Water Code Section 13260 and shall comply will all waste discharge requirements imposed by the California Regional Water Quality Control Board, Santa Ana Region, or by the State Water Board.

(0290800)

This permit is issued and Permittee takes it subject to the following provisions of the Water Code:

Section 1390. A permit shall be effective for such time as the water actually appropriated under it is used for a useful and beneficial purpose in conformity with this division (of the Water Code), but no longer.

Section 1391. Every permit shall include the enumeration of conditions therein which in substance shall include all of the provisions of this article and the statement that any appropriator of water to whom a permit is issued takes it subject to the conditions therein expressed.

Section 1392. Every Permittee, if he accepts a permit, does so under the conditions precedent that no value whatsoever in excess of the actual amount paid to the State therefor shall at any time be assigned to or claimed for any permit granted or issued under the provisions of this division (of the Water Code), or for any rights granted or acquired under the provisions of this division (of the Water Code), in respect to the regulation by any competent public authority of the services or the price of the services to be rendered by any Permittee or by the holder of any rights granted or acquired under the provisions of this division (of the Water Code) or in respect to any valuation for purposes of sale to or purchase, whether through condemnation proceedings or otherwise, by the State or any city, city and county, municipal water district, irrigation district, lighting district, or any political subdivision of the State, of the rights and property of any Permittee, or the possessor of any rights granted, issued, or acquired under the provisions of this division (of the Water Code).

STATE WATER RESOURCES CONTROL BOARD

James W. Kassel
for *Victoria A. Whitney*
Deputy Director for Water Rights

Dated: JUN 29 2010

Attachments

Table 1: Mitigation Measures

MM BIO-1	Muni/Western will minimize disturbance to native habitats and listed and non-listed sensitive species by the implementation of the following measures at construction sites prior to and during construction. Where ground disturbance is required, the Muni/Western program will include the following: (1) Clearly marking and delineating the limits of the staging areas as well as the construction corridors/zones in the field and graphically on all final construction drawings and blueprints. Personnel and equipment will be prohibited in native habitats outside the construction limits. (2) Biologically sensitive areas, including individuals or colonies of listed and non-listed sensitive plant species and wildlife species, will be identified and delineated in the field prior to ground disturbance (see MM BIO-3) and will be clearly marked graphically on all final construction plans or blueprints so they will be avoided to maximum extent feasible. (3) Use methods to minimize the construction corridor width to the maximum extent feasible in sensitive habitats, such as transporting and stockpiling excavated materials in disturbed area of the right-of-way (ROW), or into other parts of the ROW by truck or conveyor belt. **Employee Training** Implementation of an employee training program. Muni/Western's program will include an initial meeting with all personnel presented by a qualified biologist familiar will all affected species, habitats, and permit conditions. The employee training program will include a discussion of each species, all applicable laws, the permit conditions, and the potential penalties for violating permit conditions. The employee training program will be conducted before construction activities begin. Regular updates will occur during weekly tailgate meetings with construction personnel, and newly hired personnel will be informed of the permit conditions as well as the habitat and species issues before working on the Project site. **On-Site Monitoring** Biological monitoring of habitat clearing activities and removal of sedentary animals, both common and sensitive, within the ROW prior to clearing. This will require a qualified biologist to be at the location of habitat removal before clearing to attempt to remove animals where visible and, during removal activities, to ensure that no inadvertent impacts to adjacent habitats occur. Weekly inspections of the ROW perimeter near work areas will also reduce the potential for inadvertent impacts to adjacent habitat. **Best Management Practices (BMPs)** Dust control. All areas of mechanical ground disturbance, including dirt access roadways, will be consistently moistened to reduce the creation of dust clouds. The frequency of watering will be consistent with the desired goal and in accordance with regional standards and BMPs. Erosion control. Devices such as straw bales and "v" ditches will be installed in areas where construction activities may directly or indirectly cause erosion or sediment deposition on adjacent habitats. Routine removal of trash from construction areas. All refuse, including non-construction materials such as paper and miscellaneous food packaging materials, will be removed from the ROW to prevent littering of the adjacent habitat areas outside of the ROW. At a minimum, site clean-ups should occur weekly. **Listed Species Protection Measures** In areas where the San Bernardino Kangaroo Rat (SBKR) is present, either within or adjacent to the ROW, Muni/Western will install exclusionary fencing where appropriate to reduce the potential for SBKR entering the ROW.

MM BIO-1 (continued)	Specification for the fencing will be particular to the goal of the SBKR exclusion and will be approved by the United States Fish and Wildlife Service (USFWS). Muni/Western may not install fencing in certain areas such as boulder-strewn washes where fence construction may cause substantial habitat disturbance. Following the installation of fencing, the animals within the ROW will be trapped and released within adjacent suitable habitat outside the ROW. These methods will be approved by the USFWS. In areas where the SBKR is present, either within or adjacent to the ROW, Muni/Western will limit construction activities to daylight hours (approximately 7:00 A.M. to 6:00 P.M.). During night hours, no activities that would unnaturally increase the light or noise within adjacent occupied habitat will occur. In areas where the SBKR, coastal California gnatcatcher CAGN, least Bell's vireo, or southwestern willow flycatcher are present either within or adjacent to the ROW, Muni/Western will avoid or reduce construction activities in the vicinity of occupied habitat during the breeding season. Avoidance will take place from March 1 through June 30. In certain areas, avoidance of southwestern willow flycatcher will continue through July 31. Where complete avoidance is not possible, construction activities will be conducted in a manner that attempts to minimize disturbance during early morning hours and avoids the most sensitive breeding months of April and May. In areas where preconstruction sensitive species surveys and other seasonally limited activities such as seed collection and plant propagation are needed, Muni/Western will prepare a calendar of when such activities need to be accomplished and incorporate this into design and construction schedules to ensure that the surveys can be conducted in the appropriate season without causing delays. (Draft EIR page 3.3-37 through 3.3-39; Final EIR Section 2.4.)
MM BIO-2	Muni/Western will develop a Habitat Revegetation, Restoration, and Monitoring Program (Program), obtaining input from CDFG, and USFWS, for implementation in all habitat areas directly affected by construction activities. The Program will include the following measures: **Invasive Species Control** Where appropriate and feasible, the area to be treated will be treated to kill invasive exotics species and limit their seed production before initiating any earthmoving activity with the objectives of: (1) preventing invasive species from spreading from the disturbance area, and (2) removing weed sources from the salvaged topsoil. Herbicides will be used only by a licensed herbicide applicator and may require notification to property owners or resource agencies. The treatment will be completed before earthmoving in order for this mitigation to have its intended effect (e.g., the treatment would need to occur before target species set seed). **Topsoil Salvage and Replacement** In areas where vegetation and soil are to be removed, the topsoil will be salvaged and replaced, where practicable. This may be accomplished using two lifts, the first to salvage the seed bank, and the second to salvage soil along with soil biota in the root zone. Soil will be stockpiled in two areas near the Project site, with the seed bank labeled to identify it. Topsoil will be replaced in the proper layers after final reconfiguration of disturbed areas. Where presence of extensive deposits of boulders and cobbles limit the opportunity to salvage topsoil and make the above-mentioned procedure infeasible, Muni/Western will salvage available surface material and stockpile it for replacement on the surface of the restored area. Stockpiles will be covered if the soil is to be left for an extended period to prevent losses due to erosion and invasion of weeds. **Habitat Rehabilitation and Revegetation** Muni/Western will develop and implement plans and specifications for replanting areas disturbed by the Project. Replanting will be with native species propagated from locally collected seed or cuttings, and, if applicable, will include seed or sensitive species that would be impacted during construction activities.

MM BIO-2 (continued)	Monitoring procedures and performance criteria will be developed by Muni/Western to address revegetation and erosion control. The performance criteria will consider the level of disturbance and the condition of adjacent habitats. Monitoring will continue for three-to-five years, or until performance criteria have been met. Appropriate remedial measures, such as replanting, erosion control or weed control, will be identified and implemented if it is determined that performance criteria are not being met. (Draft EIR page 3.3-39 through 3.3-40; Final EIR Section 2.4.)
MM BIO-6	Prior to ground disturbance or other activities, qualified botanists will survey all proposed construction, staging, stockpile, and access areas for presence of non-listed sensitive plant species. Preconstruction surveys will occur during appropriate season and in accordance with established protocols (if required). These surveys will be conducted in all construction areas that occur in native habitats. In the event that non-listed sensitive plant species are observed in the impact area during pre-Project surveys, Muni/Western will implement the following measures: (a) Colonies will be clearly marked, mapped, and recorded along with the numbers of individuals in each colony and their respective condition. To the extent feasible, construction areas and access roads will be configured to avoid or minimize loss of individual plants and damage to occupied habitats. (b) Where impacts to non-listed sensitive plant species are unavoidable, Muni/Western will develop and implement a salvage, propagation, replanting, and monitoring program that will use both seed and salvaged plants constituting an ample and representative sample of each colony. (Draft EIR page 3.3-42.)
MM BIO-7	To reduce impacts on biological resources, Muni/Western will realign pipelines to avoid sensitive resources and habitat to the maximum extent feasible. Specifically, Muni/Western will realign Phase II of the Plunge Pool Pipeline northward and place it adjacent to Greenspot Road. (See Draft EIR Figure 3.3-7). This will put the project-related disturbance at the edge of the habitat and avoid bisecting the intermediate to mature RAFSS habitat along the western portion of the alignment. If it is infeasible to implement MM BIO-7, then the residual impact could be compensated by implementation of MM BIO-8, which is intended to compensate for permanent or long-term losses of sensitive RAFSS habitat as a result of installation of permanent facilities or long-term construction impacts that cannot be fully mitigated by MM BIO-1, MM BIO-2, and MM BIO-7. (Draft EIR page 3.3-44.)
MM BIO-8	To compensate for permanent long-term and temporal losses of RAFSS habitat value, Muni/Western will acquire, for every 1 acre impacted, a minimum of 1 acre of good quality habitat of similar or greater habitat value than the RAFSS area impacted by the Plunge Pool pipeline and dedicate it in perpetuity as a habitat conservation easement area, or other appropriate designation, and provide funding for its future management as native habitat in perpetuity. The acquired RAFSS habitat area would ideally be contiguous with existing habitat already set aside in the WSPA or other dedicated RAFSS habitat. If good quality habitat in such a locality is not available for purchase, availability of other RAFSS habitat will be investigated, with the objective of obtaining good quality habitat near the Project area. Implementation of this mitigation measure will be subject to the requirement that such long-term mitigation and reporting plans for such acquisitions are to be approved by the Deputy Director for Water Rights of the State Water Board prior to construction of the Plunge Pool Pipeline. (Draft EIR page 3.3-44; Final EIR Section 2.4.)
MM BIO-9	Muni/Western will monitor and remove invasive non-native species establishing in the channel and adjacent RAFSS habitats between Seven Oaks Dam and Mill Creek. Target species include species of tamarisk or salt cedar (*Tamarix* spp.), fountain grass (*Pennisetum setaceum*), and giant reed (*Arundo donax*). These species establish in

MM BIO-9 (continued)	habitats suitable to SBKR and Santa Ana River woolly-star and have the potential to spread further into adjacent suitable habitat areas. Initial control will be established using a combination of physical removal and herbicidal treatment using appropriate environmental safeguards. Herbicides will be used pursuant to manufacturer's instructions, and standard measures will be taken to avoid impacts to water quality. Two to several follow-up treatments would be anticipated during the first year with follow-up monitoring and treatments at least once annually in the ensuing years. (Draft EIR page 3.3-61; Final EIR Section 2.4.)
MM BIO-10	Muni/Western will develop a program, in coordination with MSHCP agency participants, to selectively restore SBKR and Santa Ana River woolly-star habitat by using habitat manipulation, either by mechanical means or high pressure water, to remove vegetation and leave freshly deposited sand and silt, simulating the habitat-renewing aftermath of natural flooding. This will be done using an adaptive management approach with input from Multispecies Habitat Conservation Plan (MSHCP) stakeholders. If the high pressure water method is used, water will be piped. A high-pressure nozzle will be directed at localized areas of habitat determined to be suitable for SBKR and Santa Ana River woolly-star after renewal. The nozzle will be hand operated or operated from a light vehicle. Treatments will be accomplished in a randomized block design to allow experimental testing of variables such as duration and intensity of spray, addition of clean stand, season of disturbance, application of seed vs. allowing natural dispersal, etc. A rigorous monitoring program funded by Muni/Western will be established to enable the differences among experimental treatments to be determined. The primary indicator of success will be related to development of habitat characteristics identified with pioneer to intermediate RAFSS habitat within the SBKR and Santa Ana River woolly-star populations that have been documented. These characteristics are documented in the literature and will be specified as part of the Muni/Western Program. The program will be adjusted appropriately as results from earlier efforts become available. The design and implementation of the ongoing effort will be funded by Muni/Western and conducted by representatives of Muni/Western with input from the USFWS and CDFG. A complete description of this method is also included in Appendix E7 of the Draft EIR, Section 2.0. Muni/Western commit to achieving a mitigation performance of restoring 10 acres of intermediate- to late-stage RAFSS habitat to the early or intermediate stage RAFSS habitat during the first 20 years of Project implementation. (Draft EIR pages 3.3-61 and 3.3-62; Final EIR Section 2.4.)
MM CR-1	In the event of an unanticipated archaeological or paleontological resource discovery during construction, all ground disturbances within 150 feet of the discovery will be halted or redirected to other areas until the discovery has been documented by a qualified archaeologist or paleontologist, and its potential significance evaluated consistent with CEQA. Resources considered significant will be avoided by Project design. If avoidance is not feasible, the resource will be subject to a data recovery mitigation program, as appropriate. If human remains are discovered the County Coroner will be contacted, and all procedures required by the California Health and Safety Code Section 7050.5, State CEQA Guidelines Section 15064.5(e) and PRC Section 5097.98 will be followed. (Draft EIR page 3.9-19.)
MM-CR-2	Proposed construction of the Plunge Pool Pipeline will avoid physical impacts to the Francis Cuttle Weir Dam to the extent feasible. In the event that any portion of the Francis Cuttle Weir Dam would be modified or demolished, a qualified architectural historian will prepare a historic recordation of the Francis Cuttle Weir Dam, in the context of the Conservation District's groundwater spreading system. The recordation will conform to the standards of either the Historic American Buildings Survey (HABS) or the Historic American Engineering Record (HAER). (Draft EIR page 3.9-20.)

MM CR-3	Prior to construction activities along the segment of the Plunge Pool Pipeline, Phase I, align north of Greenspot Road, the location of the North Fork Canal will be precisely mapped on engineering design plans to identify where the canal falls within the construction corridor. Temporary fencing will be placed 5 feet south of the canal along the portion of the canal that falls within the construction corridor to provide a small buffer area, and no heavy construction equipment or vehicles will be allowed north of the fencing. (Draft EIR page 3.9-21.)
MM CR-4	If it is necessary to install the Morton Canyon Connector II Pipeline through the "Hole in the Wall" within the retaining wall of Greenspot Bridge, construction activities will be confined to previously disturbed sections only and the wall will be restored to pre-Project conditions. Prior to construction, a qualified architectural historian will review the final construction designs of the Morton Canyon Connector II Pipeline to verify avoidance of significant impacts to any Greenspot Bridge feature. (Draft EIR page 3.9-24.)
MM HAZ-1	Muni/Western will direct the contractor to wash out concrete trucks in a designated area where the material cannot run off into a stream or percolate into the groundwater. This area will be specified on all applicable construction plans and be in place before any concrete is poured. Muni/Western will direct the contractor to construction vehicles in a manner that contains fluids, such as lubricants, within an impervious area to avoid spill-related water quality impacts. (Draft EIR page 3.12-12.)
MM HAZ-2	Muni/Western will direct the contractor to inspect and, as necessary, service all equipment before it enters the construction site and regularly thereafter, and before working immediately adjacent to the Santa Ana River or any other drainage or creek to avoid equipment leak-related water quality impacts. Muni/Western will direct the contractor to repair any leaks or hoses/fittings in poor condition before the equipment begins work. (Draft EIR page 3.12-12.)
MM HAZ-3	Muni/Western will direct the contractor to prepare a spill prevention and contamination plan prior to equipment use on the site. Muni/Western will direct the contractor to follow the spill prevention plan during Project construction to prevent spill-related water quality impacts. This plan will include, but not necessarily be limited to: a. Specific bermed equipment maintenance and refueling areas. b. Bermed and lined hazardous material storage areas on site that are covered during the rainy season. c. Hazardous material spill cleanup equipment on site (e.g.,absorbent pads, shovels, and bags to contain contaminated soil). d. Workers trained in the location and use of cleanup equipment. (Draft EIR page 3.12-12.)
MM HAZ-4	Using available data, in conjunction with the integrated surface and groundwater models, Muni/Western will identify groundwater trends, including plume movement and isolate changes attributable to implementation of the Project. To the extent feasible given existing infrastructure, and consistent with meeting other basin management objectives, Muni/Western will direct Project water spreading to limit adverse plume movements. (Draft EIR page 3.12-14.)
MM-HAZ-5	Muni/Western will make an alternative water supply available to parties affected by contaminated wells, or provide treatment for affected wells, at Muni/Western's discretion. The alternative supply or treatment for affected wells will be made available for all times when pertinent water quality standards are exceeded as a result of the Project. (Final EIR section 2.3.2.)

MM GEO-1	Before beginning construction, a sedimentation and erosion control plan will be prepared by Muni/Western and submitted to the Santa Ana Regional Water Quality Control Board (SARWQCB) for approval. In addition, a Storm Water Pollution Prevention Plan (SWPPP) will be prepared by Muni/Western and submitted to the SARWQCB for approval prior to construction. Where possible, erosion control measures will be implemented by Muni/Western before beginning work in the rainy season. To minimize short-term impacts associated with erosion and off-site siltation of the SAR, standard erosion and sediment control features will be used during and immediately after grading and excavations.
MM GEO-2	Muni/Western will direct the contractor to install, prior to de-watering activities, energy dissipation devices at discharge points to prevent erosion. Sedimentation basins (such as straw bales lined with filter fabric) will be used at dewatering discharge points to prevent excess downstream sedimentation. These basins will be constructed during dewatering and regularly maintained during construction, including after storm events, to keep them in good working order.
MM GEO-3	Muni/Western will implement recommendations established in a site-specific geotechnical report, prepared by a qualified engineer or engineering geologist. The report recommendations will be based on comprehensive evaluation of slope stability, seismic, and soil conditions that may affect construction of the pipelines and related facilities. Recommendations will be consistent with provisions of California Code of Regulations, Title 8, Construction and Safety Orders. Project grading and excavations will be observed by a geotechnical engineer, engineering geologist, or other qualified representative, to verify compliance with recommendations of the geotechnical report. The geotechnical investigation will be completed in accordance with: (1) CDMG Special Publication 117, *Guidelines for Evaluating and Mitigating Seismic Hazards in California* (CDMG 1997). (2) Southern California Earthquake Center, Recommended Procedures for Implementation of DMG Special Publication 117 Guidelines for Analyzing and Mitigating Liquifaction in California (SCEC1999).
MM GEO-4	Muni/Western will implement seismic-related recommendations contained in a site-specific geotechnical report, as discussed in MM GEO-3, to minimize seismically induced damage to the pipeline.
MM GEO-5	A water flow shut-off mechanism will be installed by Muni/Western at the Plunge Pool Pipeline Intake Structure to terminate flow immediately following a large earthquake in the vicinity of the site.
MM GEO-6	Muni/Western will complete emergency repairs to the pipeline and/or related facilities, in the event of seismically induced damage. MM GEO-1 and MMGEO-2 will be applied to reduce erosion related impacts associated with soil disturbance during emergency repairs.
MM GEO-7	Muni/Western will implement a groundwater level monitoring program using data from Index Wells (see Figure 3.4-5). This information will be used in conjunction with forecasts of groundwater levels derived from Muni/Western integrated surface and groundwater models to identify trends in groundwater levels and identify changes attributable to the Project. To the extent feasible given existing infrastructure, and consistent with meeting other basin management objectives, Muni/Western will direct Project water spreading to limit high groundwater conditions in the vicinity of Devil Canyon, Lytle Creek, Mill Creek, and areas in the forebay and intermediate area of the SBBA.

MM GEO-8	Muni/Western will implement a groundwater level monitoring program using data from Index Wells. This information will be used in conjunction with forecasts of groundwater levels derived from Muni/Western integrated surface and groundwater models to identify trends in groundwater levels and isolate changes attributable to the Project. To the extent feasible given existing infrastructure, and consistent with meeting other basin management objectives, Muni/Western will direct Project water spreading to limit potential for subsidence in the Pressure Zone area of the SBBA.
MM GW-1	Using available reliable data, Muni/Western will, on an annual basis, evaluate impacts of the Project on TDS and nitrate concentrations in the SBBA. To the extent feasible given existing infrastructure, and consistent with meeting other basin management objectives, Muni/Western will direct Project water spreading to reduce significant TDS and nitrate impacts.
MM SW-2	An energy dissipation structure, a device to slow fast moving flows so as to prevent erosion, will be placed at the terminus of the pipeline delivering water to Lytle Basins channel to ensure that water from the Project does not scour or erode the channel.
MM PS-12	Per the requirements of the Seven Oaks Accord, to avoid a significant effect on groundwater levels at one or more index wells located outside the Pressure Zone, Muni/Western will spread sufficient water to maintain static groundwater levels at the affected index wells. To implement this mitigation measure, Muni/Western will use a groundwater monitoring program based on information derived from the index wells. This information will be used in conjunction with forecasts of groundwater levels derived from Muni/Western integrated surface and groundwater models to identify trends in groundwater levels and isolate the share of change attributable to the Project. Remedial action will be implemented prior to an actual 10-foot reduction being reached, to avoid the significant impact.

Table 2: Cumulative Mitigation Measures

MM Cumulative BIO-1	The San Bernardino General Plan continues a number of policies in the Natural Resources Element designed to require review of biological impacts for each development project in coordination with the development and enforcement of Habitat Conservation Plans, and development of monitoring programs. The Riverside County General Plan Draft Program EIR identifies policies form the Multipurpose Open Space Element of the County of Riverside General Plan as well as additional measures to reduce impacts to biological resources associated with growth. Policies are designed to require review of biological impacts for each development project, avoidance of habitat fragmentation, and use of constructed wetlands to treat water before it enters the natural stream system. Residual impacts: despite General Plan policies, significant unavoidable cumulative biological impacts would still occur in San Bernardino and Riverside Counties.
MM Cumulative CR-1	Individual review of each of the related projects under CEQA would likely result in the identification of any significant cultural resource impacts and provide mitigation to reduce or avoid impacts. It is not certain that all significant cumulative impacts could be successfully mitigated, given the potentially large amount of ground disturbance involved with the Project and related projects. Residual impacts: potential cumulative impacts on cultural resources would remain significant.
MM Cumulative CR-2	The Natural Resources Element of the San Bernardino County General Plan contains a number of policies to mitigate impacts to cultural resources. Generally, these policies require cultural resource field surveys with all project submittals; the preparation of cultural resource overlays for all existing Planning Areas not covered by an overlay map; preliminary cultural resource reviews by the Archaeological Information Center; the cataloging of artifacts discovered as a result of a cultural resource investigation; and notification of the Native American Heritage Commission if projects require the excavation of Native American archaeological sites. The Multipurpose Open Space Element of the Riverside County General Plan also contains relevant policies that would mitigate impacts to cultural resources. The Riverside County General Plan Draft Program EIR identifies additional mitigation measures including compliance with State Health and Safety Code Section 7050.5 that requires disturbance of an area to cease where human remains have been encountered until the Riverside County Coroner has made a determination of the origin and disposition; avoidance of

MM Cumulative CR-2 (Continued)	cultural resources where possible, where avoidance of cultural resources is not possible, the planting of deterrent plant species such as prickly pear cactus shall be completed to minimize public availability to the site; and additional measures if avoidance and/or preservation of cultural resources is not possible, such as having a participant-observer present from the appropriate Indian Band or Tribe during archaeological testing or excavation of a project site. Residual impacts: significant cumulative impacts to cultural resources could still occur given the potentially large amount of ground disturbance related to growth and development.
MM Cumulative HAZ-1	The San Bernardino County General Plan includes policies to reduce impacts related to hazardous materials. Specifically, the Hazardous Waste/Materials section of the Man-made Hazards Element includes policies HW-1 through HW-26. In general, these measures establish an effective and expeditious permitting process for siting hazardous waste facilities that includes extensive public participation; ensures the protection of public health and safety when siting needed hazardous waste facilities; develops uniform set of criteria for the siting of hazardous waste facilities in the County, including a requirement that facilitates the siting only in areas with a zoning overlay of Specified Hazardous Waste Facility; and ensures coordination among agencies and County departments in the review of all hazardous waste applications within the County.
MM Cumulative SW-1	The San Bernardino General Plan contains a number of policies in the Water section of the Natural Resources Element designed to coordinate and manage water resources throughout the County. However, with regard to water resources in San Bernardino County, significant unavoidable impacts would still occur. The Riverside County General Plan addresses localized flooding risks in the Safety Element of the proposed Riverside County General Plan. Additionally, the proposed Riverside County General Plan Draft Program EIR contains measures to further mitigate flooding impacts including use of FEMA documents to minimize flood hazards, prohibition by the County of the alteration of floodways and channelization where possible, and the requirement that the 10–year flood flows be contained within the tops of curbs and the 100-year flood flows within the street rights-of-way. These policies would mitigate impacts related to surface water in Riverside County. Residual impacts: significant cumulative impacts to surface water resources related to water demand and generation of urban contaminants could still occur in San Bernardino County.

MM Cumulative GW-1	The San Bernardino County General Plan contains a number of policies in the Water section of the Natural Resources Element designed to coordinate and manage water resources throughout the County. The Riverside County General Plan contains a number of policies in the multipurpose Open Space Element and Land Use Element designed to avoid overdraft and groundwater contamination. Residual impacts: significant unavoidable cumulative groundwater impacts would still occur in San Bernardino County.

STATE OF CALIFORNIA
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

PERMIT FOR DIVERSION AND USE OF WATER

PERMIT 21265

Application **31370** of **San Bernardino Valley Municipal Water District and Western Municipal Water District of Riverside County**
P.O. Box 5906
San Bernardino, CA 92412-5906

filed on **November 4, 2002**, has been approved by the State Water Resources Control Board (State Water Board or Board) SUBJECT TO PRIOR RIGHTS and to the limitations and conditions of this permit.

Permittee is hereby authorized to divert and use water as follows:

1. Source of water

Source:	Tributary to:
Santa Ana River (1, 3, 6, 9, 10, 11,12)	**Pacific Ocean**
Bear Creek (2)	**Santa Ana River thence Pacific Ocean**
Breakneck Creek (4)	**Santa Ana River thence Pacific Ocean**
Keller Creek (5)	**Santa Ana River thence Pacific Ocean**
Alder Creek (7)	**Santa Ana River thence Pacific Ocean**

within the County of **San Bernardino.**

2. Location of points of diversion (POD) and points of rediversion (POR)

By California Coordinate System of 1983, Zone **5**	40-acre subdivision of public land survey or projection thereof	Section	Township	Range	Base and Meridian
POD & POR #1: Seven Oaks Dam North 1,866,500 ft. and East 6,835,000 ft.	**NE¼ of NW¼**	**4**	**01S**	**02W**	**SB**
POD #2: North 1,882,500 ft. and East 6,859,600 ft.	**SE¼ of NE¼**	**19**	**01N**	**01W**	**SB**
POD #3: North 1,882,400 ft. and East 6,859,700 ft.	**SE¼ of NE¼**	**19**	**01N**	**01W**	**SB**
POD #4: North 1,880,900 ft. and East 6,858,100 ft.	**NW¼ of SE¼**	**19**	**01N**	**01W**	**SB**
POD #5: North 1,877,700 ft. and East 6,846,200 ft.	**NW¼ of NE¼**	**26**	**01N**	**02W**	**SB**
POD #6: North 1,876,700 ft. and East 6,846,700 ft.	**SW¼ of NE¼**	**26**	**01N**	**02W**	**SB**
POD #7: North 1,877,100 ft. and East 6,843,600 ft.	**NW¼ of NW¼**	**26**	**01N**	**02W**	**SB**
POR #8: North 1,865,800 ft. and East 6,837,100 ft.	**SE¼ of NE¼**	**4**	**01S**	**02W**	**SB**
POD & POR #9: North 1,864,900 ft. and East 6,835,000 ft.	**SE¼ of NW¼**	**4**	**01S**	**02W**	**SB**
POD & POR #10: North 1,864,900 ft. and East 6,834,600 ft.	**SE¼ of NW¼**	**4**	**01S**	**02W**	**SB**
POD & POR #11: North 1,863,500 ft. and East 6,834,000 ft.	**NW¼ of SW¼**	**4**	**01S**	**02W**	**SB**
POD & POR #12: North 1,862,800 ft. and East 6,834,000 ft.	**SW¼ of SW¼**	**4**	**01S**	**02W**	**SB**

2 (continued) Location of point of diversion

By California Coordinate System of 1983, Zone **6**	40-acre subdivision of public land survey or projection thereof	Section	Township	Range	Base and Meridian
POR #13: **Lake Mathews (Cajalco Dam)** **North 2,249,950 ft. and** **East 6,193,550 ft.**	**NE¼ of SW¼**	**12**	**04S**	**06W**	**SB**
POR #14: **Diamond Valley Lake Dam** **North 2,188,680 ft. and** **East 6,313,210 ft.**	**NE¼ of NW¼**	**11**	**06S**	**02W**	**SB**
POR #15 **Lake Skinner Dam** **North 2,157,870 ft. and** **East 6,311,180 ft.**	**SW¼ of SE¼**	**3**	**07S**	**02W**	**SB**

3. Purpose of use	4. Place of use	Section (Projected)*	Township	Range	Base and Meridian	Acres
Municipal, Industrial, Irrigation, Heat Control, Frost Protection and Recreational uses	**San Bernardino Valley Municipal Water District and Western Municipal Water District of Riverside County's Service Areas***					

*The place of use is shown on maps dated June 7, 2010 and June 14, 2010 and filed with the State Water Board.

5a. The water appropriated shall be limited to the quantity which can be beneficially used and shall not exceed **1,100** cubic feet per second (cfs) by direct diversion and **100,000** acre-feet per annum (afa) by underground and/or surface storage to be diverted from **January 1** to **December 31** of each year. The amount of surface storage at Seven Oaks Dam shall not exceed 50,000 afa. The maximum rate of diversion to offstream storage shall not exceed 1,250 cfs. The maximum rate of diversion to underground storage shall not exceed 400 cfs. The total amount of water to be taken from the sources shall not exceed 100,000 acre-feet (af) per water-year from October 1 to September 30. The total rate for water to be taken from the sources for either direct use, underground storage, and/or offstream surface storage shall not exceed 1,250 cfs.

(0000005E)

5b. The total quantity of water to be taken from the sources under both Application 31165 and Application 31370 shall not exceed 198,317 af per water-year from October 1 to September 30. The total amount of water diverted to storage at Seven Oaks Dam under both Applications 31165 and 31370 shall not exceed 50,000 af per water-year from October 1 to September 30. The total combined rate for water to be taken from the sources under Applications 31165 and 31370 for either direct use, underground storage, and/or offstream surface storage shall not exceed an instantaneous rate of 1,250 cfs.

(0000005L)

6. The amount authorized for appropriation may be reduced in the license if investigation warrants.

(0000006)

7. Construction work and the application of water to beneficial use shall be prosecuted with reasonable diligence. Actual construction shall begin no later than June 30, 2010 and be completed by October 1, 2020. Water shall be put to full beneficial use by December 31, 2059.

(0000009)

8. Progress reports shall be submitted promptly by Permittee when requested by the State Water Board until a license is issued.

(0000010)

9. Permittee shall allow representatives of the State Water Board and other parties, as may be authorized from time to time by said State Water Board, reasonable access to project works to determine compliance with the terms of this permit.

(0000011)

10. Pursuant to California Water Code sections 100 and 275, and the common law public trust doctrine, all rights and privileges under this permit and under any license issued pursuant thereto, including method of diversion, method of use, and quantity of water diverted, are subject to the continuing authority of State Water Board in accordance with law and in the interest of the public welfare to protect public trust uses and to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of said water.

The continuing authority of the State Water Board may be exercised by imposing specific requirements over and above those contained in this permit with a view to eliminating waste of water and to meeting the reasonable water requirements of Permittee without unreasonable draft on the source. Permittee may be required to implement a water conservation plan, features of which may include but not necessarily be limited to: (1) reusing or reclaiming the water allocated; (2) using water reclaimed by another entity instead of all or part of the water allocated; (3) restricting diversions so as to eliminate agricultural tailwater or to reduce return flow; (4) suppressing evaporation losses from water surfaces; (5) controlling phreatophytic growth; and (6) installing, maintaining, and operating efficient water measuring devices to assure compliance with the quantity limitations of this permit and to determine accurately water use as against reasonable water requirements for the authorized project. No action will be taken pursuant to this paragraph unless the State Water Board determines, after notice to affected parties and opportunity for hearing, that such specific requirements are physically and financially feasible and are appropriate to the particular situation.

The continuing authority of the State Water Board also may be exercised by imposing further limitations on the diversion and use of water by the Permittee in order to protect public trust uses. No action will be taken pursuant to this paragraph unless the State Water Board determines, after notice to affected parties and opportunity for hearing, that such action is consistent with California Constitution Article X, Section 2; is consistent with the public interest; and is necessary to preserve or restore the uses protected by the public trust.

(0000012)

11. The quantity of water diverted under this permit and under any license issued pursuant thereto is subject to modification by the State Water Board if, after notice to the Permittee and an opportunity for hearing, the State Water Board finds that such modification is necessary to meet water quality objectives in water quality control plans which have been or hereafter may be established or modified pursuant to Division 7 of the Water Code. No action will be taken

pursuant to this paragraph unless the State Water Board finds that: (1) adequate waste discharge requirements have been prescribed and are in effect with respect to all waste discharges which have any substantial effect upon water quality in the area involved, and (2) the water quality objectives cannot be achieved solely through the control of waste discharges.

(0000013)

12. This permit does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish & G. Code, §§ 2050-2097) or the federal Endangered Species Act (16 U.S.C.A. §§ 1531-1544). If a "take" will result from any act authorized under this water right, the Permittee shall obtain authorization for an incidental take prior to construction or operation of the project. Permittee shall be responsible for meeting all requirements of the applicable Endangered Species Act for the project authorized under this permit.

(0000014)

13. Permittee shall maintain records of the amount of water diverted and used to enable State Water Board to determine the amount of water that has been applied to beneficial use pursuant to Water Code section 1605.

(0000015)

14. This permit shall not be construed as conferring upon the Permittee right of access to the point of diversion.

(0000022)

15. Permittee shall consult with the Division of Water Rights (Division) and, within one year from the date of this permit, shall submit to the State Water Board its Urban Water Management Plan as prepared and adopted in conformance with section 10610, et seq. of the California Water Code, supplemented by any additional information that may be required by the Board.

All cost effective measures identified in the Urban Water Management Plan and any supplements thereto shall be implemented in accordance with the schedule for implementation found therein.

(0000029A)

16. If it is determined after permit issuance that the as-built conditions of the project are not correctly represented by the map(s) prepared to accompany the application, Permittee shall, at his expense have the subject map(s) updated or replaced with equivalent as-built map(s). Said revision(s) or new map(s) shall be prepared by a civil engineer or land surveyor registered or licensed in the State of California and shall meet the requirements prescribed in section 715 and sections 717 through 723 of the California Code of Regulations, Title 23.. Said revision(s) or map(s) shall be furnished upon request of the Chief of the Division of Water Rights[1].

(0000030)

17. No work shall commence and no water shall be diverted, stored or used under this permit until a copy of a stream or lake alteration agreement between the State Department of Fish and Game (DFG) and the Permittee is filed with the Division. Compliance with the terms and conditions of the agreement is the responsibility of the Permittee. If a stream or lake alteration agreement is not necessary for this permitted project, the Permittee shall provide the Division a copy of a waiver signed by DFG.

(0000063)

[1] The Chief of the Division of Water Rights is hereafter referred by the State Water Board as the Deputy Director for Water Rights.

18. In order to prevent degradation of the quality of water during and after construction of the project, prior to commencement of construction undertaken after issuance of the permit, Permittee shall file a report pursuant to Water Code Section 13260 and shall comply with all waste discharge requirements imposed by the California Regional Water Quality Control Board, Santa Ana Region, or by the State Water Board.

(0000100)

19. Prior to diversion of water under this permit, Permittee shall: (1) install devices to measure the instantaneous rate of diversion and the quantities of water placed into underground storage, and (2) install devices to measure or provide documentation of the method to be used to determine the quantity of water recovered from underground storage and placed to beneficial use. All measuring devices and the method of determining the quantity of water placed into and recovered from underground storage shall be approved by the State Water Board prior to diversion of water under this permit. All measuring devices shall be properly maintained. The diversion data shall be posted on Permittee's websites on a weekly basis.

(0080117)

20. The Permittee shall obtain all necessary state and local agency permits required by other agencies prior to construction and diversion of water. Copies of such permits and approvals shall be forwarded to the Deputy Director for Water Rights (Deputy Director).

(0000203)

21. No debris, soil, silt, cement that has not set, oil, or other such foreign substance will be allowed to enter into or be placed where it may be washed by rainfall runoff into the waters of the State. When operations are completed, any excess materials or debris shall be removed from the work area.

(0000208)

22. The State Water Board adopts and incorporates by reference into this permit the mitigation measures and monitoring and reporting requirements applicable to the impacts of the Project on biological and cultural resources, geology, hazardous material and groundwater contamination, groundwater and surface water hydrology, water quality and public services, utilities and transportation identified in the Final EIR, specifically mitigation measures MM BIO-1, MM BIO-2 and MM BIO-6 through MM BIO-10, MM CR 1 through MM CR 4, MM HAZ 1 through MM HAZ 5, MM GEO-1 through MM GEO-8, MM GW-1, MM SW-2 and MM PS-12. (See attached Table 1.) Permittee must implement the measures to mitigate significant impacts and conduct the required reporting and monitoring of those measures as provided in the Mitigation Monitoring and Reporting Plan adopted on March 21, 2007 by the respective Boards of Directors of San Bernardino Valley Municipal Water District and Western Municipal Water District of Riverside County. In addition, Permittee shall submit an annual report to the Deputy Director that includes the results of the Mitigation Monitoring and Reporting Program. The State Water Board reserves jurisdiction to require any reasonable amendments to these measures and requirements to ensure that they will accomplish the stated goal.

(0400500)

23. The State Water Board adopts and incorporates by reference into this permit the mitigation measures and monitoring and reporting requirements applicable to the cumulative impacts of the Project on biological and cultural resources, geology, hazardous material and groundwater contamination, groundwater and surface water hydrology and water quality, and public services, utilities and transportation identified in the EIR, specifically mitigation measures MM Cumulative BIO-1, MM Cumulative CR-1, MM Cumulative CR-2, MM Cumulative HAZ-1, MM Cumulative SW-1 and MM Cumulative GW-1. (See attached Table 2.) Permittee must implement the measures to mitigate cumulative impacts and conduct the required reporting and monitoring of those measures as provided in the Mitigation Monitoring and Reporting Plan adopted by the respective Boards of Directors of San Bernardino Valley Municipal Water District and Western

Municipal Water District of Riverside County on March 21, 2007. In addition, Permttee shall submit to the Deputy Director an annual report that includes the results of the Mitigation Monitoring and Reporting Program. The State Water Board reserves jurisdiction to require any reasonable amendments to these measures and requirements to ensure that they will accomplish the stated goal.

(0400500)

24. This permit shall not be construed as conferring upon Permittee right of access to facilities of the U.S. Army Corps of Engineers and the Santa Ana River Mainstem Local Sponsors.

(0000022)

25. This permit is specifically subject to the prior rights of Bear Valley Mutual Water Company, City of Redlands, East Valley Water District, Lugonia Water Company, North Fork Water Company and Redlands Water Company to divert the first 88 cfs of the natural flow of the Santa Ana River pursuant to pre-1914 appropriative rights, to the extent that such rights may exist.

(0400500)

26. This permit is specifically subject to the prior rights of San Bernardino Valley Water Conservation District under Licenses 2831 and 2832 issued pursuant to Applications 2217 and 4807, and any valid pre-1914 appropriative right confirmed by the Court.

(0400500)

27. Nothing in this permit shall be construed as authorizing any diversions contrary to the provisions of the December 19, 2002 Biological Opinion issued by United States Fish and Wildlife Service for operation of Seven Oaks Dam, as may be revised in the future, including flow releases for downstream over-bank inundation to preserve State and federally listed threatened and endangered species and their habitat.

(0600500)

28. Permittee shall only divert water at points of diversion 5 though 10 in compliance with the terms and conditions of Federal Energy Regulatory Commission (FERC) license Project No. 1933 and 401 water quality certification as well as any future FERC licenses and 401 water quality certifications.

(0560900)

29. Permittee shall not, without the prior written consent of Southern California Edison (SCE), construct, operate or maintain diversion works at points of diversion located upstream of the flood inundation pool of Seven Oaks Dam in a manner that interferes with the operation and maintenance of the hydroelectric works licensed to SCE by the Federal Energy Regulatory Commission (FERC) license for Project No. 1933. Permittee's diversion of water at such points of diversion shall not interfere with SCE's diversion of water for hydroelectric purposes, again as described in the FERC license for Project No. 1933. Nothing in this permit shall be construed to limit Permittee's diversion of water from such points of diversion at times when the quantity of water available for diversion at such points of diversion exceeds the demand of SCE's facilities to divert water from the Santa Ana River system.

(0430999)

30. This permit shall not be construed as conferring upon Permittee the right of access to Seven Oaks Dam, the points of diversion, the lands necessary for related facilities, or the lands necessary for inundation for water storage. Access to, construction upon, or inundation of National Forest Service lands shall not commence prior to authorization by the Forest Service, in accordance with applicable laws and regulations. Such authorization will require compliance with all applicable federal laws and regulations. Permittee specifically recognizes that completion of

the applicable legal process does not guarantee such authorization will be granted, the issuance of this water right permit notwithstanding.

(0000022)

31. This permit shall not be construed as conferring upon Permittee the right of access to Seven Oaks Dam, the points of diversion, and lands necessary for related facilities, or the lands necessary for inundation for water storage. Permittee shall not commence construction and operation of water diversion facilities at Seven Oaks Dam without a written access agreement from the Santa Ana River Mainstem Project Local Sponsors.

(0000022)

32. Flow in the Santa Ana River is highly variable from year to year. Because the face value of this permit is based on a rare storm event, this permit shall not be construed as giving any assurance that such an event will occur. The actual amount of water available for appropriation may be much less.

(0000999)

33. Permittee is required to follow guidance from existing state and federally mandated projects regarding groundwater contaminant plumes within and outside the San Bernardino Basin Area. This includes coordination with appropriate oversight agencies and compliance with policies regarding the remediation of the groundwater contaminant plumes.

(0400800)

34. Permittee shall not use the Cactus Spreading and Flood Control Basins under this permit.

(0400800)

35a. In order to prevent degradation of the quality of water released to the Santa Ana River from storage at Seven Oaks Dam, the State Water Board may modify this permit to set conditions that apply water quality objectives to any release from storage.

35b. No water shall be released from storage of Seven Oaks Dam for purposes of rediversion by Permittee until Permittee has consulted with the Chief Deputy Director for Water Quality or his or her delegee and the Chief Deputy Director has determined that the releases will be consistent with applicable water quality objectives. The releases shall be consistent with any conditions the Chief Deputy Director determines are necessary to ensure compliance with applicable water quality objectives.

(0400800)

36. In order to prevent degradation of water quality during and after construction of the project, prior to commencement of any construction undertaken after issuance of the permit, Permittee shall file a report pursuant to Water Code Section 13260 and shall comply will all waste discharge requirements imposed by the California Regional Water Quality Control Board, Santa Ana Region, or by the State Water Board.

(0400800)

This permit is issued and Permittee takes it subject to the following provisions of the Water Code:

Section 1390. A permit shall be effective for such time as the water actually appropriated under it is used for a useful and beneficial purpose in conformity with this division (of the Water Code), but no longer.

Section 1391. Every permit shall include the enumeration of conditions therein which in substance shall include all of the provisions of this article and the statement that any appropriator of water to whom a permit is issued takes it subject to the conditions therein expressed.

Section 1392. Every Permittee, if he accepts a permit, does so under the conditions precedent that no value whatsoever in excess of the actual amount paid to the State therefore shall at any time be assigned to or claimed for any permit granted or issued under the provisions of this division (of the Water Code), or for any rights granted or acquired under the provisions of this division (of the Water Code), in respect to the regulation by any competent public authority of the services or the price of the services to be rendered by any Permittee or by the holder of any rights granted or acquired under the provisions of this division (of the Water Code) or in respect to any valuation for purposes of sale to or purchase, whether through condemnation proceedings or otherwise, by the State or any city, city and county, municipal water district, irrigation district, lighting district, or any political subdivision of the State, of the rights and property of any Permittee, or the possessor of any rights granted, issued, or acquired under the provisions of this division (of the Water Code).

STATE WATER RESOURCES CONTROL BOARD

James W. Kassel

for *Victoria A. Whitney*
Deputy Director for Water Rights

Dated: JUN 29 2010

Attachments

Table 1: Mitigation Measures

MM BIO-1	Muni/Western will minimize disturbance to native habitats and listed and non-listed sensitive species by the implementation of the following measures at construction sites prior to and during construction. Where ground disturbance is required, the Muni/Western program will include the following: (1) Clearly marking and delineating the limits of the staging areas as well as the construction corridors/zones in the field and graphically on all final construction drawings and blueprints. Personnel and equipment will be prohibited in native habitats outside the construction limits. (2) Biologically sensitive areas, including individuals or colonies of listed and non-listed sensitive plant species and wildlife species, will be identified and delineated in the field prior to ground disturbance (see MM BIO-3) and will be clearly marked graphically on all final construction plans or blueprints so they will be avoided to maximum extent feasible. (3) Use methods to minimize the construction corridor width to the maximum extent feasible in sensitive habitats, such as transporting and stockpiling excavated materials in disturbed area of the right-of-way (ROW), or into other parts of the ROW by truck or conveyor belt. **Employee Training** Implementation of an employee training program. Muni/Western's program will include an initial meeting with all personnel presented by a qualified biologist familiar with all affected species, habitats, and permit conditions. The employee training program will include a discussion of each species, all applicable laws, the permit conditions, and the potential penalties for violating permit conditions. The employee training program will be conducted before construction activities begin. Regular updates will occur during weekly tailgate meetings with construction personnel, and newly hired personnel will be informed of the permit conditions as well as the habitat and species issues before working on the Project site. **On-Site Monitoring** Biological monitoring of habitat clearing activities and removal of sedentary animals, both common and sensitive, within the ROW prior to clearing. This will require a qualified biologist to be at the location of habitat removal before clearing to attempt to remove animals where visible and, during removal activities, to ensure that no inadvertent impacts to adjacent habitats occur. Weekly inspections of the ROW perimeter near work areas will also reduce the potential for inadvertent impacts to adjacent habitat. **Best Management Practices (BMPs)** Dust control. All areas of mechanical ground disturbance, including dirt access roadways, will be consistently moistened to reduce the creation of dust clouds. The frequency of watering will be consistent with the desired goal and in accordance with regional standards and BMPs. Erosion control. Devices such as straw bales and "v" ditches will be installed in areas where construction activities may directly or indirectly cause erosion or sediment deposition on adjacent habitats. Routine removal of trash from construction areas. All refuse, including non-construction materials such as paper and miscellaneous food packaging materials, will be removed from the ROW to prevent littering of the adjacent habitat areas outside of the ROW. At a minimum, site clean-ups should occur weekly. **Listed Species Protection Measures** In areas where the San Bernardino Kangaroo Rat (SBKR) is present, either within or adjacent to the ROW, Muni/Western will install exclusionary fencing where appropriate to reduce the potential for SBKR entering the ROW.

MM BIO-1 (Continued)	Specification for the fencing will be particular to the goal of the SBKR exclusion and will be approved by the United States Fish and Wildlife Service (USFWS). Muni/Western may not install fencing in certain areas such as boulder-strewn washes where fence construction may cause substantial habitat disturbance. Following the installation of fencing, the animals within the ROW will be trapped and released within adjacent suitable habitat outside the ROW. These methods will be approved by the USFWS. In areas where the SBKR is present, either within or adjacent to the ROW, Muni/Western will limit construction activities to daylight hours (approximately 7:00 A.M. to 6:00 P.M.) During night hours, no activities that would unnaturally increase the light or noise within adjacent occupied habitat will occur. In areas where the SBKR, coastal California gnatcatcher CAGN, least Bell's vireo, or southwestern willow flycatcher are present either within or adjacent to the ROW, Muni/Western will avoid or reduce construction activities in the vicinity of occupied habitat during the breeding season. Avoidance will take place from March 1 through June 30. In certain areas, avoidance of southwestern willow flycatcher will continue through July 31. Where complete avoidance is not possible, construction activities will be conducted in a manner that attempts to minimize disturbance during early morning hours and avoids the most sensitive breeding months of April and May. In areas where preconstruction sensitive species surveys and other seasonally limited activities such as seed collection and plant propagation are needed, Muni/Western will prepare a calendar of when such activities need to be accomplished and incorporate this into design and construction schedules to ensure that the surveys can be conducted in the appropriate season without causing delays. (Draft EIR page 3.3-37 through 3.3-39; Final EIR Section 2.4.)
MM BIO-2	Muni/Western will develop a Habitat Revegetation, Restoration, and Monitoring Program (Program), obtaining input from CDFG, and USFWS, for implementation in all habitat areas directly affected by construction activities. The Program will include the following measures: **Invasive Species Control** Where appropriate and feasible, the area to be treated will be treated to kill invasive exotics species and limit their seed production before initiating any earthmoving activity with the objectives of: (1) preventing invasive species from spreading from the disturbance area, and (2) removing weed sources from the salvaged topsoil. Herbicides will be used only by a licensed herbicide applicator and may require notification to property owners or resource agencies. The treatment will be completed before earthmoving in order for this mitigation to have its intended effect (e.g., the treatment would need to occur before target species set seed). **Topsoil Salvage and Replacement** In areas where vegetation and soil are to be removed, the topsoil will be salvaged and replaced, where practicable. This may be accomplished using two lifts, the first to salvage the seed bank, and the second to salvage soil along with soil biota in the root zone. Soil will be stockpiled in two areas near the Project site, with the seed bank labeled to identify it. Topsoil will be replaced in the proper layers after final reconfiguration of disturbed areas. Where presence of extensive deposits of boulders and cobbles limit the opportunity to salvage topsoil and make the above-mentioned procedure infeasible, Muni/Western will salvage available surface material and stockpile it for replacement on the surface of the restored area. Stockpiles will be covered if the soil is to be left for an extended period to prevent losses due to erosion and invasion of weeds. **Habitat Rehabilitation and Revegetation** Muni/Western will develop and implement plans and specifications for replanting areas disturbed by the Project. Replanting will be with native species propagated from locally collected seed or cuttings, and, if applicable, will include seed or sensitive species that would be impacted during construction activities. Monitoring procedures and performance criteria will be developed by Muni/Western to

MM BIO-2 (Continued)	address revegetation and erosion control. The performance criteria will consider the level of disturbance and the condition of adjacent habitats. Monitoring will continue for three-to-five years, or until performance criteria have been met. Appropriate remedial measures, such as replanting, erosion control or weed control, will be identified and implemented if it is determined that performance criteria are not being met. (Draft EIR page 3.3-39 through 3.3-40; Final EIR Section 2.4.)
MM BIO-6	Prior to ground disturbance or other activities, qualified botanists will survey all proposed construction, staging, stockpile, and access areas for presence of non-listed sensitive plant species. Preconstruction surveys will occur during appropriate season and in accordance with established protocols (if required). These surveys will be conducted in all construction areas that occur in native habitats. In the event that non-listed sensitive plant species are observed in the impact area during pre-Project surveys, Muni/Western will implement the following measures: (a) Colonies will be clearly marked, mapped, and recorded along with the numbers of individuals in each colony and their respective condition. To the extent feasible, construction areas and access roads will be configured to avoid or minimize loss of individual plants and damage to occupied habitats. (b) Where impacts to non-listed sensitive plant species are unavoidable, Muni/Western will develop and implement a salvage, propagation, replanting, and monitoring program that will use both seed and salvaged plants constituting an ample and representative sample of each colony. (Draft EIR page 3.3-42.)
MM BIO-7	To reduce impacts on biological resources, Muni/Western will realign pipelines to avoid sensitive resources and habitat to the maximum extent feasible. Specifically, Muni/Western will realign Phase II of the Plunge Pool Pipeline northward and place it adjacent to Greenspot Road. (See Draft EIR Figure 3.3-7). This will put the project-related disturbance at the edge of the habitat and avoid bisecting the intermediate to mature RAFSS habitat along the western portion of the alignment. If it is infeasible to implement MM BIO-7, then the residual impact could be compensated by implementation of MM BIO-8, which is intended to compensate for permanent or long-term losses of sensitive RAFSS habitat as a result of installation of permanent facilities or long-term construction impacts that cannot be fully mitigated by MM BIO-1, MM BIO-2, and MM BIO-7. (Draft EIR page 3.3-44.)
MM BIO-8	To compensate for permanent long-term and temporal losses of RAFSS habitat value, Muni/Western will acquire, for every 1 acre impacted, a minimum of 1 acre of good quality habitat of similar or greater habitat value than the RAFSS area impacted by the Plunge Pool pipeline, and dedicate it in perpetuity as a habitat conservation easement area, or other appropriate designation, and provide funding for its future management as native habitat in perpetuity. The acquired RAFSS habitat area would ideally be contiguous with existing habitat already set aside in the WSPA or other dedicated RAFSS habitat. If good quality habitat in such a locality is not available for purchase, availability of other RAFSS habitat will be investigated, with the objective of obtaining good quality habitat near the Project area. Implementation of this mitigation measure will be subject to the requirement that such long-term mitigation and reporting plans for such acquisitions are to be approved by the Deputy Director for Water Rights of the State Water Resources Control Board prior to construction of the Plunge Pool Pipeline. (Draft EIR page 3.3-44; Final EIR Section 2.4.)
MM BIO-9	Muni/Western will monitor and remove invasive non-native species establishing in the channel and adjacent RAFSS habitats between Seven Oaks Dam and Mill Creek. Target species include species of tamarisk or salt cedar (*Tamarix* spp.), fountain grass (*Pennisetum setaceum*), and giant reed (*Arundo donax*). These species establish in habitats suitable to SBKR and Santa Ana River woolly-star and have the potential to

MM BIO-9 (Continued)	spread further into adjacent suitable habitat areas. Initial control will be established using a combination of physical removal and herbicidal treatment using appropriate environmental safeguards. Herbicides will be used pursuant to manufacturer's instructions, and standard measures will be taken to avoid impacts to water quality. Two to several follow-up treatments would be anticipated during the first year with follow-up monitoring and treatments at least once annually in the ensuing years. (Draft EIR page 3.3-61; Final EIR Section 2.4.)
MM BIO-10	Muni/Western will develop a program, in coordination with MSHCP agency participants, to selectively restore SBKR and Santa Ana River woolly-star habitat by using habitat manipulation, either by mechanical means or high pressure water, to remove vegetation and leave freshly deposited sand and silt, simulating the habitat-renewing aftermath of natural flooding. This will be done using an adaptive management approach with input from Multispecies Habitat Conservation Plan (MSHCP) stakeholders. If the high-pressure water method is used, water will be piped. A high-pressure nozzle will be directed at localized areas of habitat determined to be suitable for SBKR and Santa Ana River woolly-star after renewal. The nozzle will be hand-operated or operated from a light vehicle. Treatments will be accomplished in a randomized block design to allow experimental testing of variables such as duration and intensity of spray, addition of clean stand, season of disturbance, application of seed vs. allowing natural dispersal, etc. A rigorous monitoring program funded by Muni/Western will be established to enable the differences among experimental treatments to be determined. The primary indicator of success will be related to development of habitat characteristics identified with pioneer to intermediate RAFSS habitat within the SBKR and Santa Ana River woolly-star populations that have been documented. These characteristics are documented in the literature and will be specified as part of the Muni/Western Program. The program will be adjusted appropriately as results from earlier efforts become available. The design and implementation of the ongoing effort will be funded by Muni/Western and conducted by representatives of Muni/Western with input from the USFWS and CDFG. A complete description of this method is also included in Appendix E7 of the Draft EIR, Section 2.0. Muni/Western commit to achieving a mitigation performance of restoring 10 acres of intermediate- to late-stage RAFSS habitat to the early or intermediate stage RAFSS habitat during the first 20 years of Project implementation (Draft EIR pages 3.3-61 and 3.3-62; Final EIR Section 2.4.)
MM CR-1	In the event of an unanticipated archaeological or paleontological resource discovery during construction, all ground disturbances within 150 feet of the discovery will be halted or redirected to other areas until the discovery has been documented by a qualified archaeologist or paleontologist, and its potential significance evaluated consistent with CEQA. Resources considered significant will be avoided by Project design. If avoidance is not feasible, the resource will be subject to a data recovery mitigation program, as appropriate. If human remains are discovered the County Coroner will be contacted, and all procedures required by the California Health and Safety Code Section 7050.5, State CEQA Guidelines Section 15064.5(e) and PRC Section 5097.98 will be followed. (Draft EIR page 3.9-19.)
MM-CR-2	Proposed construction of the Plunge Pool Pipeline will avoid physical impacts to the Francis Cuttle Weir Dam to the extent feasible. In the event that any portion of the Francis Cuttle Weir Dam would be modified or demolished, a qualified architectural historian will prepare a historic recordation of the Francis Cuttle Weir Dam, in the context of the Conservation District's groundwater spreading system. The recordation will conform to the standards of either the Historic American Buildings Survey (HABS) or the Historic American Engineering Record (HAER). (Draft EIR page 3.9-20.)

MM CR-3	Prior to construction activities along the segment of the Plunge Pool Pipeline, Phase I, align north of Greenspot Road, the location of the North Fork Canal will be precisely mapped on engineering design plans to identify where the canal falls within the construction corridor. Temporary fencing will be placed 5 feet south of the canal along the portion of the canal that falls within the construction corridor to provide a small buffer area, and no heavy construction equipment or vehicles will be allowed north of the fencing. (Draft EIR page 3.9-21.)
MM CR-4	If it is necessary to install the Morton Canyon Connector II Pipeline through the "Hole in the Wall" within the retaining wall of Greenspot Bridge, construction activities will be confined to previously disturbed sections only and the wall will be restored to pre-Project conditions. Prior to construction, a qualified architectural historian will review the final construction designs of the Morton Canyon Connector II Pipeline to verify avoidance of significant impacts to any Greenspot Bridge feature. (Draft EIR page 3.9-24.)
MM HAZ-1	Muni/Western will direct the contractor to wash out concrete trucks in a designated area where the material cannot run off into a stream or percolate into the groundwater. This area will be specified on all applicable construction plans and be in place before any concrete is poured. Muni/Western will direct the contractor to construction vehicles in a manner that contains fluids, such as lubricants, within an impervious area to avoid spill-related water quality impacts. (Draft EIR page 3.12-12.)
MM HAZ-2	Muni/Western will direct the contractor to inspect and, as necessary, service all equipment before it enters the construction site and regularly thereafter, and before working immediately adjacent to the Santa Ana River or any other drainage or creek to avoid equipment leak-related water quality impacts. Muni/Western will direct the contractor to repair any leaks or hoses/fittings in poor condition before the equipment begins work. (Draft EIR page 3.12-12.)
MM HAZ-3	Muni/Western will direct the contractor to prepare a spill prevention and contamination plan prior to equipment use on the site. Muni/Western will direct the contractor to follow the spill prevention plan during Project construction to prevent spill-related water quality impacts. This plan will include, but not necessarily be limited to: a. Specific bermed equipment maintenance and refueling areas. b. Bermed and lined hazardous material storage areas on site that are covered during the rainy season. c. Hazardous material spill cleanup equipment on site (e.g.,absorbent pads, shovels, and bags to contain contaminated soil). d. Workers trained in the location and use of cleanup equipment. (Draft EIR page 3.12-12.)
MM HAZ-4	Using available data, in conjunction with the integrated surface and groundwater models, Muni/Western will identify groundwater trends, including plume movement and isolate changes attributable to implementation of the Project. To the extent feasible given existing infrastructure, and consistent with meeting other basin management objectives, Muni/Western will direct Project water spreading to limit adverse plume movements. (Draft EIR page 3.12-14.)
MM-HAZ-5	Muni/Western will make an alternative water supply available to parties affected by contaminated wells, or provide treatment for affected wells, at Muni/Western's discretion. The alternative supply or treatment for affected wells will be made available for all times when pertinent water quality standards are exceeded as a result of the Project. (Final EIR section 2.3.2.)
MM GEO-1	Before beginning construction, a sedimentation and erosion control plan will be prepared by Muni/Western and submitted to the Santa Ana Regional Water Quality Control Board

MM GEO-1 (Continued)	(SARWQCB) for approval. In addition, a Storm Water Pollution Prevention Plan (SWPPP) will be prepared by Muni/Western and submitted to the SARWQCB for approval prior to construction. Where possible, erosion control measures will be implemented by Muni/Western before beginning work in the rainy season. To minimize short-term impacts associated with erosion and off-site siltation of the SAR, standard erosion and sediment control features will be used during and immediately after grading and excavations.
MM GEO-2	Muni/Western will direct the contractor to install, prior to de-watering activities, energy dissipation devices at discharge points to prevent erosion. Sedimentation basins (such as straw bales lined with filter fabric) will be used at dewatering discharge points to prevent excess downstream sedimentation. These basins will be constructed during dewatering and regularly maintained during construction, including after storm events, to keep them in good working order.
MM GEO-3	Muni/Western will implement recommendations established in a site-specific geotechnical report, prepared by a qualified engineer or engineering geologist. The report recommendations will be based on comprehensive evaluation of slope stability, seismic, and soil conditions that may affect construction of the pipelines and related facilities. Recommendations will be consistent with provisions of California Code of Regulations, Title 8, Construction and Safety Orders. Project grading and excavations will be observed by a geotechnical engineer, engineering geologist, or other qualified representative, to verify compliance with recommendations of the geotechnical report. The geotechnical investigation will be completed in accordance with: (1) CDMG Special Publication 117, *Guidelines for Evaluating and Mitigating Seismic Hazards in California* (CDMG 1997). (2) Southern California Earthquake Center, Recommended Procedures for Implementation of DMG Special Publication 117 Guidelines for Analyzing and Mitigating Liquifaction in California (SCEC1999).
MM GEO-4	Muni/Western will implement seismic-related recommendations contained in a site-specific geotechnical report, as discussed in MM GEO-3, to minimize seismically induced damage to the pipeline.
MM GEO-5	A water flow shut-off mechanism will be installed by Muni/Western at the Plunge Pool Pipeline Intake Structure to terminate flow immediately following a large earthquake in the vicinity of the site.
MM GEO-6	Muni/Western will complete emergency repairs to the pipeline and/or related facilities, in the event of seismically induced damage. MM GEO-1 and MMGEO-2 will be applied to reduce erosion related impacts associated with soil disturbance during emergency repairs.
MM GEO-7	Muni/Western will implement a groundwater level monitoring program using data from Index Wells (see Figure 3.4-5). This information will be used in conjunction with forecasts of groundwater levels derived from Muni/Western integrated surface and groundwater models to identify trends in groundwater levels and identify changes attributable to the Project. To the extent feasible given existing infrastructure, and consistent with meeting other basin management objectives, Muni/Western will direct Project water spreading to limit high groundwater conditions in the vicinity of Devil Canyon, Lytle Creek, Mill Creek, and areas in the forebay and intermediate area of the SBBA.

MM GEO-8	Muni/Western will implement a groundwater level monitoring program using data from Index Wells. This information will be used in conjunction with forecasts of groundwater levels derived from Muni/Western integrated surface and groundwater models to identify trends in groundwater levels and isolate changes attributable to the Project. To the extent feasible given existing infrastructure, and consistent with meeting other basin management objectives, Muni/Western will direct Project water spreading to limit potential for subsidence in the Pressure Zone area of the SBBA.
MM GW-1	Using available reliable data, Muni/Western will, on an annual basis, evaluate impacts of the Project on TDS and nitrate concentrations in the SBBA. To the extent feasible given existing infrastructure, and consistent with meeting other basin management objectives, Muni/Western will direct Project water spreading to reduce significant TDS and nitrate impacts.
MM SW-2	An energy dissipation structure, a device to slow fast moving flows so as to prevent erosion, will be placed at the terminus of the pipeline delivering water to Lytle Basins channel to ensure that water from the Project does not scour or erode the channel.
MM PS-12	Per the requirements of the Seven Oaks Accord, to avoid a significant effect on groundwater levels at one or more index wells located outside the Pressure Zone, Muni/Western will spread sufficient water to maintain static groundwater levels at the affected index wells. To implement this mitigation measure, Muni/Western will use a groundwater monitoring program based on information derived from the index wells. This information will be used in conjunction with forecasts of groundwater levels derived from Muni/Western integrated surface and groundwater models to identify trends in groundwater levels and isolate the share of change attributable to the Project. Remedial action will be implemented prior to an actual 10-foot reduction being reached, to avoid the significant impact.

Table 2: Cumulative Mitigation Measures

MM Cumulative BIO-1	The San Bernardino General Plan continues a number of policies in the Natural Resources Element designed to require review of biological impacts for each development project in coordination with the development and enforcement of Habitat Conservation Plans, and development of monitoring programs. The Riverside County General Plan Draft Program EIR identifies policies form the Multipurpose Open Space Element of the County of Riverside General Plan as well as additional measures to reduce impacts to biological resources associated with growth. Policies are designed to require review of biological impacts for each development project, avoidance of habitat fragmentation, and use of constructed wetlands to treat water before it enters the natural stream system. Residual impacts: despite General Plan policies, significant unavoidable cumulative biological impacts would still occur in San Bernardino and Riverside Counties.
MM Cumulative CR-1	Individual review of each of the related projects under CEQA would likely result in the identification of any significant cultural resource impacts and provide mitigation to reduce or avoid impacts. It is not certain that all significant cumulative impacts could be successfully mitigated, given the potentially large amount of ground disturbance involved with the Project and related projects. Residual impacts: potential cumulative impacts on cultural resources would remain significant.
MM Cumulative CR-2	The Natural Resources Element of the San Bernardino County General Plan contains a number of policies to mitigate impacts to cultural resources. Generally, these policies require cultural resource field surveys with all project submittals; the preparation of cultural resource overlays for all existing Planning Areas not covered by an overlay map; preliminary cultural resource reviews by the Archaeological Information Center; the cataloging of artifacts discovered as a result of a cultural resource investigation; and notification of the Native American Heritage Commission if projects require the excavation of Native American archaeological sites. The Multipurpose Open Space Element of the Riverside County General Plan also contains relevant policies that would mitigate impacts to cultural resources. The Riverside County General Plan Draft Program EIR identifies additional mitigation measures including compliance with State Health and Safety Code Section 7050.5 that requires disturbance of an area to cease where human remains have been encountered until the Riverside County Coroner has made a determination of the origin and disposition; avoidance of

	cultural resources where possible, where avoidance of cultural resources is not possible, the planting of deterrent plant species such as prickly pear cactus shall be completed to minimize public availability to the site; and additional measures if avoidance and/or preservation of cultural resources is not possible, such as having a participant-observer present from the appropriate Indian Band or Tribe during archaeological testing or excavation of a project site. Residual impacts: significant cumulative impacts to cultural resources could still occur given the potentially large amount of ground disturbance related to growth and development.
MM Cumulative HAZ-1	The San Bernardino County General Plan includes policies to reduce impacts related to hazardous materials. Specifically, the Hazardous Waste/Materials section of the Man-made Hazards Element includes policies HW-1 through HW-26. In general, these measures establish an effective and expeditious permitting process for siting hazardous waste facilities that includes extensive public participation; ensures the protection of public health and safety when siting needed hazardous waste facilities; develops uniform set of criteria for the siting of hazardous waste facilities in the County, including a requirement that facilitates the siting only in areas with a zoning overlay of Specified Hazardous Waste Facility; and ensures coordination among agencies and County departments in the review of all hazardous waste applications within the County.
MM Cumulative SW-1	The San Bernardino General Plan contains a number of policies in the Water section of the Natural Resources Element designed to coordinate and manage water resources throughout the County. However, with regard to water resources in San Bernardino County, significant unavoidable impacts would still occur. The Riverside County General Plan addresses localized flooding risks in the Safety Element of the proposed Riverside County General Plan. Additionally, the proposed Riverside County General Plan Draft Program EIR contains measures to further mitigate flooding impacts including use of FEMA documents to minimize flood hazards, prohibition by the County of the alteration of floodways and channelization where possible, and the requirement that the 10–year flood flows be contained within the tops of curbs and the 100-year flood flows within the street rights-of-way. These policies would mitigate impacts related to surface water in Riverside County. Residual impacts: significant cumulative impacts to surface water resources related to water demand and generation of urban contaminants could still occur in San Bernardino County.

MM Cumulative GW-1	The San Bernardino County General Plan contains a number of policies in the Water section of the Natural Resources Element designed to coordinate and manage water resources throughout the County. The Riverside County General Plan contains a number of policies in the multipurpose Open Space Element and Land Use Element designed to avoid overdraft and groundwater contamination. Residual impacts: significant unavoidable cumulative groundwater impacts would still occur in San Bernardino County.

Receipt # 4155519

DATE FILED & POSTED

NOTICE OF EXEMPTION

To:
San Bernardino County Clerk
Hall of Records Building, First Floor
222 W. Hospitality Lane
San Bernardino, CA 92415

Kern County Clerk
1115 Truxtun Avenue
Bakersfield, CA 93301

From:
San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
San Bernardino, CA 92408

CLERK OF THE BOARD
OCT 07 2011
COUNTY OF
SAN BERNARDINO

Project Title: Water Banking and Water Supply Reliability Program with Kern Delta Water District

Location -- Specific: Counties of Kern and San Bernardino, within service areas of Kern Delta Water District and San Bernardino Valley Municipal Water District

Description of Nature, Purpose, and Beneficiaries of Project: San Bernardino Valley Municipal Water District (hereinafter, "Valley District") proposes to bank State Water Project water in banking facilities operated by the Kern Delta Water District (hereinafter, "Kern Delta") for later withdrawal and use within Valley District. Under the program, the Valley District will bank up to 30,000 acre-feet of the water it would otherwise be allocated during the 2011-2012 water year pursuant to Table "A" of its State Water Project contract in existing water banking facilities operated by the Kern Delta. Diversions to the water banking facilities will be made through existing water conveyance facilities and will occur during the period between October 2011 and February 2012. Under the proposal, Kern Delta will, at Valley District's request, return up to 5,000 acre-feet per year to Valley District through existing conveyance facilities during or after the 2011-12 water year.

The proposal is consistent with and included within the scope of Kern Delta's 2002 Final Environmental Impact Report ("FEIR") for its Groundwater Banking And In-Lieu Water Supply Project (State Clearinghouse # 2001011103), which addressed the environmental impacts of the use of Kern Delta's facilities for the banking of up to 213,000 acre-feet by other water agencies, such as Valley District. Because Valley District's proposal involves making use of presently-unused capacity of the California Aqueduct, other State Water Project facilities, and Kern Delta's conveyance and banking facilities, all of which were indentified in Kern Delta's FEIR as facilities that would be used to bank water, the project represents the use of existing facilities within the limits established by applicable legal requirements. Moreover, the environmental effects, if any, of the project were fully analyzed in Kern Delta's FEIR, and the project does not alter the conclusions of the 2002 FEIR.

SBVMWD LEGAL
DOC

Name of Public Agency Approving or Carrying Out Activity: San Bernardino Valley Municipal Water District

Finding of Exempt Status:

☒ Categorical Exemption. CEQA Guidelines § 15301 (Existing Facilities)

Reasons why activity is exempt:

The project is exempt from CEQA review pursuant to 14 Cal. Code Regs. § 15301 (Existing Facilities) because the proposal is for the banking and recovery of up to 30,000 acre feet of water delivered pursuant to an existing long term State Water Project contract through existing water conveyance facilities to and from existing water banking facilities. The overall program for water banking by Kern Delta (of which this banking project is a small part) was previously analyzed under CEQA and any significant effects on the environment were fully mitigated.

Agency Contact Person: Douglas Headrick **Telephone:** (909) 387-9200

Signature: Douglas D Headrick **Date:** 10/7/2011

Douglas Headrick

Title: General Manager

☑ Signed by Public Agency

☐ Signed by Applicant

Date received for filing by County Clerk:

1190069.3

State of California—The Resources Agency
DEPARTMENT OF FISH AND GAME

2011 ENVIRONMENTAL FILING FEE CASH RECEIPT

RECEIPT # 415519
STATE CLEARING HOUSE # (If applicable)

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY

LEAD AGENCY: San Bernardino Valley Municipal Water District
DATE: 10/7/2011
COUNTY/STATE AGENCY OF FILING: County of San Bernardino
DOCUMENT NUMBER:
PROJECT TITLE: Water Banking and Water Supply Reliability Program with Kern Delta
PROJECT APPLICANT NAME: San Bernardino Valley Municipal Water District
PHONE NUMBER: 909 387-9200
PROJECT APPLICANT ADDRESS: 380 East Vanderbilt Way
CITY: San Bernardino
STATE: CA
ZIP CODE: 92408

PROJECT APPLICANT (Check appropriate box):
☒ Local Public Agency ☐ School District ☐ Other Special District ☐ State Agency ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report (EIR)	$2,839.25	$
☐ Mitigated/Negative Declaration (ND)(MND)	$2,044.00	$
☐ Application Fee Water Diversion (State Water Resources Control Board Only)	$850.00	$
☐ Projects Subject to Certified Regulatory Programs (CRP)	$965.50	$
☑ County Administrative Fee	$50.00	$ 50.00
☐ Project that is exempt from fees		
☑ Notice of Exemption		
☐ DFG No Effect Determination (Form Attached)		
☐ Other		$

PAYMENT METHOD: #394150
☐ Cash ☐ Credit ☑ Check ☐ Other
TOTAL RECEIVED $ 50.00

SIGNATURE: X
TITLE: Deputy Clerk

WHITE - PROJECT APPLICANT YELLOW - DFG/ASB PINK - LEAD AGENCY GOLDENROD - COUNTY CLERK FG 753.5a (Rev. 11/10)

State of California—The Resources Agency
DEPARTMENT OF FISH AND GAME
2011 ENVIRONMENTAL FILING FEE CASH RECEIPT
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STATE: CA
ZIP CODE: 92408
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CHECK APPLICABLE FEES:
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☐ Mitigated/Negative Declaration (ND)(MND) $2,044.00 $
☐ Application Fee Water Diversion (State Water Resources Control Board Only) $850.00 $
☐ Projects Subject to Certified Regulatory Programs (CRP) $965.50 $
☑ County Administrative Fee $50.00 $ 50.00
☐ Project that is exempt from fees
☑ Notice of Exemption
☐ DFG No Effect Determination (Form Attached)
☐ Other $
PAYMENT METHOD: #394150
☐ Cash ☐ Credit ☑ Check ☐ Other
TOTAL RECEIVED $ 50.00
SIGNATURE: X
TITLE: Deputy Clerk
WHITE - PROJECT APPLICANT YELLOW - DFG/ASB PINK - LEAD AGENCY GOLDENROD - COUNTY CLERK

AGREEMENT BETWEEN KERN DELTA WATER DISTRICT AND THE SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT FOR A WATER MANAGEMENT PROGRAM

THIS AGREEMENT ("**Agreement**"), dated as of Oct 26, 2011, is entered into by and between the **KERN DELTA WATER DISTRICT** ("**Kern Delta**"), and **THE SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT** ("**Valley**"). Valley and Kern Delta may be referred to individually as Party or collectively as Parties.

PREAMBLE

This Agreement is in furtherance of development of a water management program ("Regulation Program") that is being implemented by Kern Delta and Valley for the purpose of enhancing the water supply available to both entities. It is intended that nothing in this Agreement or the Regulation Program is to (1) materially impair the integrity of existing and ongoing Kern Delta operations; (2) adversely impact either physically, operationally or economically the Kern Delta or its landowners; or (3) result in a net decrease in water supplies available for beneficial use within Kern Delta's boundaries specifically and the southern San Joaquin Valley generally. It is the intention of the Parties that, through provisions of this Agreement, actual or prospective adverse impacts of the Regulation Program will be avoided. The Regulation Program is intended to be operated in a manner to optimize available water supplies. It will utilize Kern Delta Facilities, as well as the Cross Valley Canal and the Intertie

Canal of the Arvin-Edison Transportation Facilities.

RECITALS

A. Kern Delta includes approximately 129,000 acres within its boundaries. Attached Exhibit B includes maps setting forth the boundaries (service area) of Kern Delta (Exhibit B-1); the Regulation Program Facilities (Exhibits B-2 and B-3). Approximately 87,000 acres have existing service connections to the Kern Delta distribution system (2,000 acres of which lie outside Kern Delta's boundaries), and the landowners within said surface water service area are in large part dependent on Kern Delta for a water supply. Additionally, Kern Delta's operations enhance groundwater conditions for the remaining approximately 34,000 acres within the District. To meet landowner demand, Kern Delta has, among other things, (i) contracted for a water supply with the Kern County Water Agency ("KCWA") providing for delivery to Kern Delta of 25,500 acre-feet of Table A Water from the California State Water Project ("Table A Water"); (2) entered into agreements with Buena Vista Water Storage District ("Buena Vista") providing for the exchange of Kern Delta's Table A Water for a like amount of Buena Vista's Kern River water; (3) acquired various Kern River water rights historically utilized to serve lands within and without Kern Delta's boundaries ("Kern River Entitlement"); and (4) entered into agreements with The Metropolitan Water District of Southern California ("Metropolitan") providing for the regulation of Metropolitan's water in the groundwater basin underlying Kern Delta. At times, Kern Delta has water available from its Table A Water, its Kern River Entitlement, or other sources, which could be better regulated through additional facilities constructed within Kern Delta and, in consideration of the benefits to be derived through this Agreement, Kern Delta is willing to regulate for Valley other water provided by Valley.

B. Valley is a public agency formed under the Municipal Water District Act of 1911. Valley provides imported supplies for water agencies to supplement local municipal water supplies within service area located in San Bernardino and Riverside Counties. Valley obtains its water supplies from the State Water Project, and other sources. Valley seeks to augment its dry year water supplies by arranging for delivery to and banking of water within Kern Delta and the extraction and delivery of banked water to Valley during periods of insufficient supply from available sources.

C. Valley and Kern Delta find that it will be mutually advantageous to enter into the Regulation Program as provided in this Agreement, whereby Kern Delta will regulate water on Valley's behalf and deliver that water to Valley upon request. The regulated water generally will be banked in the Kern Delta Basin and, upon demand of Valley; such water will be delivered to Valley through either an existing intertie into the California Aqueduct or through an exchange for water in the California Aqueduct, or both.

D. The Regulation Program will provide for usage by Valley of existing Kern Delta Facilities and construction and operation, for Valley usage, of Kern Delta Regulation Program Facilities, as well as Valley's usage of certain of Arvin-Edison Transportation Facilities and Cross Valley Canal. This Regulation Program is intended to provide a minimum recharge and return capability of 5,000 acre-feet annually.

E. This Agreement, through regulation and conservation of water supplies, is intended to (1) provide Valley with additional supplies of water and (ii) consistent with providing benefit to Valley also provide Kern Delta with access to new facilities, improved reliability of supplies and improve Kern Delta's ability to enhance groundwater conditions.

F. Consistent with the California Environmental Quality Act ("CEQA"), Kern Delta,

acting as lead agency, has completed an Environmental Impact Report concerning the Regulation Program. Kern Delta's Board of Directors, on November 12, 2002, considered, approved and certified the Final Environmental Impact Report ("FEIR"), as being in compliance with CEQA, and Valley's Board of Directors, acting as a responsible agency, on October 4, 2011,considered and approved a Notice of Exemption for the activities contemplated under this Agreement. A Notice of Determination to proceed with the Regulation Program was adopted by Kern Delta on November 12, 2002. In August 2011 Kern Delta prepared an addendum to the aforementioned EIR; this action is consistent with Kern Delta's 2002 Environmental Impact Report, which addresses the use of Kern Delta's existing and new recharge and conveyance facilities to enhance Kern Delta surface and groundwater supplies, (Exhibit E, Addendum to the FEIR).

G. The parties have relied upon various studies to make the following assumption upon which this Agreement is based: that, with existing facilities and wells along with the new facilities contemplated under this Agreement for the operation of the Regulation Program, it will be possible to regulate sufficient water in, and return sufficient water from, the groundwater basin for both Kern Delta's Normal and Customary Uses and Regulation Program purposes.

ARTICLE 1. DEFINITIONS

As used in this Agreement, each of the following terms shall have the respective meaning given to it in this Article 1 unless expressly stated to the contrary where such term is used.

1.1 "Account" means an account maintained by Kern Delta for the benefit of Valley pursuant to this Agreement in which Regulated Water, which is Delivered Water less losses deducted in accordance with Article 3 (Operational Losses), is credited upon delivery to the Point of Delivery to Kern Delta and is debited upon delivery to the Point of Delivery to Valley.

1.2 **"Account Balance"** means the difference between the credits and debits in the Account.

1.3 **"Agreement"** means, as of any particular time, this Agreement for a Water Management Program, as amended or supplemented by the Parties through that time.

1.4 **"Arvin-Edison Intake Canal"** means the Arvin-Edison Intake Canal owned and operated by the Arvin-Edison Water Storage District to the full extent of the capacity rights provided for in the Arvin-Edison MOU.

1.5 **"Arvin-Edison MOU"** means the agreement among Kern Delta with Arvin-Edison Water Storage District to use all or a portion of Arvin-Edison Transportation Facilities.

1.6 **"Arvin-Edison Transportation Facilities"** means Arvin-Edison Intake Canal, Forest Frick Pumping Plant, and all appurtenant facilities and structures as specified in the Arvin-Edison MOU.

1.7 **"Cross Valley Canal"** means the Cross Valley Canal owned and operated by the Kern County Water Agency to the full extent of Kern Delta's designated capacity (i.e., not including unused capacity of other participants) in the enlarged Cross Valley Canal as provided in the Cross Valley Canal Participation Agreement.

1.8 **"Cross Valley Canal Participation Agreement"** has the meaning provided for in this agreement, Recitals Section D.

1.9 **"Delivered Water"** means water which Valley makes available to Kern Delta at the Point of Delivery to Kern Delta pursuant to this Agreement.

1.10 **"Delivery Canal"** means (i) the Cross Valley Canal; and (ii) all interconnecting facilities from the Cross Valley Canal used to transport water to Kern Delta's service areas.

1.11 **"DWR"** means the Department of Water Resources of the State of California.

1.12 **"Effective Date"** means the date set forth on the first line of this Agreement

1.13 **"Execution Date"** means the date set forth on the first line of this Agreement.

1.14 **"Financial Account"** means the Account provided for in Section 5.1 (Put Payments).

1.15 **"KCWA"** means the Kern County Water Agency.

1.16 **"Kern Delta Basin"** means that portion of the southern San Joaquin Valley groundwater basin underlying the lands within the boundaries of Kern Delta.

1.17 **"Kern Delta Facilities"** means Kern Delta Regulation Program Facilities.

1.18 **"Kern Delta Regulation Program Facilities"** means Kern Delta Regulation Program Facilities.

1.19 **"Normal and Customary Uses"** means (i) deliveries to meet historic demands, as existing prior to Execution Date, of water users within Kern Delta's surface water service areas as provided at Subsection 4.2.2 of Section 4.2 (Conditions On Return of Regulated Water), (ii) historic transfers (including exchanges) and transfers similar to the type historically existing prior to Execution Date, entered into by Kern Delta with other entities, and (iii) operational conditions and criteria which would exist and/or be employed with or without the Regulation Program (for example spreading programs, energy load management, aquatic pest control and the like).

1.20 **"Participation Payment"** means the amount of money paid by Valley to Kern Delta for Delivered Water as full compensation for regulation program implementation costs (i.e., design, construction, inspection, administration and right of way) which amount is $40.00 per acre foot.

1.21 "Point of Delivery to Kern Delta" means the California Aqueduct turnout to the Cross Valley Canal; or other turnout mutually agreed upon by the parties such as the Arvin-Edison Transportation Facilities.

1.22 "Point of Delivery to Valley" means the California Aqueduct at/or between Reaches 12E and 14A, or any other point of delivery mutually agreed upon by the parties.

1.23 "Put Payment" means the Participation Payment and operation, maintenance and replacement costs determined on a per acre-foot basis, and energy cost in accordance with Section 5.1 (Put Payments) hereof.

1.24 "Regulated Water" means Delivered Water less losses deducted in accordance with Article 3 (Operational Losses), credited pursuant to Section 2.5 (Regulation of Water).

1.25 "Regulation Program" means the water management program provided for in this Agreement.

1.26 "Take Payment" means the amount of money paid by Valley to Kern Delta for each acre foot of Regulated Water returned to Valley pursuant to this Agreement, which amount is specified in Section 5.2 (Take Payments) hereof.

1.27 "Year" means a calendar year commencing on January 1 and ending on December 31.

ARTICLE 2. REGULATION OF WATER

2.1 Source of Water. Valley shall provide Delivered Water at the Point of Delivery to Kern Delta for regulation under this Agreement. All such Delivered Water (exclusive of losses) shall be credited to Valley's Account as Regulated Water. Delivered Water shall be of at least as good water quality as otherwise available from the California Aqueduct or as Kern Delta

would otherwise be able to accept for its own use.

2.2 Program Level. If requested by Valley, Kern Delta shall accept from Valley at the Point of Delivery to Kern Delta such a quantity of Delivered Water as will result in crediting to the Account 26,700 acre-feet (after losses determined pursuant to Article 3) of Regulated Water.

2.3 Priorities and Schedule For Regulation.

2.3.1 Kern Delta shall have first priority to utilize Kern Delta Facilities for the purpose of meeting Normal and Customary Uses. Regulation for Valley shall be second priority to the first priority.

2.3.2 Regulation program operations shall not cause a net decrease in supplies available to Kern Delta for its own purposes.

2.4 Scheduling of Delivered Water. Valley shall submit a schedule to Kern Delta for delivery of Delivered Water. Kern Delta, in conformity with Valley's schedule, shall be responsible for scheduling delivery of Delivered Water with KCWA and shall coordinate with KCWA on its resulting request to DWR for scheduling of Delivered Water. Valley shall provide written notice to Kern Delta of its intent to provide water for regulation pursuant to Section 2.6 (Deliveries).

2.5 Regulation of Water.

2.5.1 Kern Delta shall take control and possession of Delivered Water at the Point of Delivery to Kern Delta and shall credit the Account in an amount equal to the water so delivered less the deduction for losses provided for in Article 3 (Operational Losses) with respect to such water.

2.5.2 At the time Kern Delta credits the Account, pursuant to Subsection 2.5.1

of this Section 2.5 (Regulation of Water), legal title to such water, together with the right to withdraw from the Kern Delta Basin an amount sufficient to return to Valley the Regulated Water, shall vest in Kern Delta. Upon crediting Valley's Account, Kern Delta shall convey and cause to be regulated the water so credited. Kern Delta shall thereafter hold and return the Regulated Water as provided in Article 4 (Return of Water) of this Agreement.

2.5.3 Kern Delta shall accurately maintain the Account and prepare and maintain adequate supporting records. All records shall be subject to audit, review and approval by Valley at Valley's exercise upon reasonable notification to Kern Delta.

2.5.4 Valley acknowledges that Regulated Water may be commingled with other water. At all times during the term of this Agreement, there shall be in the Kern Delta Basin an amount at least equal to the amount of the Account Balance, which shall be deemed to be Regulated Water. Kern Delta shall be deemed to remove Regulated Water from storage only as and when requested by Valley pursuant to the terms of this Agreement, and any other removal of water by Kern Delta from the Kern Delta Basin shall be deemed to be the removal of water that is not Regulated Water.

2.6 Deliveries. Valley shall not be obligated to provide Delivered Water; but shall nevertheless use reasonable efforts to provide quantities of Delivered Water which, after losses pursuant to Article 3 (Operational Losses), shall result in Kern Delta crediting the minimum amounts of Regulated Water specified in Section 5.1 (Put Payments).

ARTICLE 3. OPERATIONAL LOSSES

Transportation losses, evaporation, metering discrepancies and any other losses of water, for purposes of this Agreement are collectively fixed to be eleven percent (11%) of the amount

of Delivered Water provided for the Regulation Program as measured at the Point of Delivery to Kern Delta. These losses are subject to modification in the future with the concurrence of both Parties. Any modifications shall only apply to deliveries made after the date of the modification and Account Balance shall not be adjusted as to previous Delivered Water and Regulated Water.

ARTICLE 4. RETURN OF WATER

4.1 Methods of Return of Regulated Water.

4.1.1 Kern Delta shall only be obligated to return Regulated Water so long as the return does not cause the Account Balance to be less than zero.

4.1.2 Upon request by Valley, Kern Delta shall deliver Regulated Water to Valley at the Point of Delivery to Valley by any one or more of the following methods: (i) an exchange of Regulated Water for SWP water in the California Aqueduct; (ii) an exchange of Regulated Water for other surface supplies, or with Valley's consent, groundwater deliverable to and into the California Aqueduct; (iii) the recovery of Regulated Water and delivery thereof to and into the California Aqueduct via existing or new Kern Delta facilities; or (iv) any other means mutually acceptable to the Parties.

4.1.3 In utilizing the methods specified in Subsection 4.1.2(ii) and (iv) of Section 4.1 (Methods of Return of Regulated Water), Kern Delta may propose to exchange Valley's Regulated Water for an equal amount of water from other sources which Kern Delta elects to make available in the California Aqueduct. Kern Delta will be deemed to have affected such an exchange by delivering such water to Valley at the Point of Delivery to Valley.

4.1.4 Kern Delta, upon request of Valley, and subject to the conditions at Sections 4.2 (Conditions On Return of Regulated Water) through 4.4 (Water Quality), shall

return up to 5,000 acre-feet of Regulated Water per year, subject to Section 4.2.3.

4.2 Conditions on Return of Regulated Water. The return of Regulated Water by Kern Delta to Valley shall be subject to the following terms and conditions:

4.2.1 Except as otherwise provided for in Section 8.1 (Regulation Program), for each acre-foot of Regulated Water held by Kern Delta for Valley, Kern Delta shall ultimately return one acre-foot of water to Valley.

4.2.2 Return of Regulated Water by Kern Delta shall not interfere with Normal and Customary Uses by Kern Delta of its available water supplies. Kern Delta may modify from time to time its service area. Any such modifications shall not interfere with Kern Delta's ability to deliver Regulated Water to Valley unless consented to in writing by Valley.

4.2.3 Notwithstanding any other provision of this Agreement, Kern Delta may temporarily reduce or terminate groundwater pumping for the purpose of returning Regulated Water to Valley to (i) ensure that the groundwater basin underlying Kern Delta is protected (to the maximum extent practicable), (ii) ensure that Valley's Account Balance does not become negative, (iii) ensure that the project facilities are physically capable of returning banked water either through exchange or directly, to the California Aqueduct, and (iv) protect Kern Delta's groundwater basin in regards to an extended drought. However, such reduction or termination shall only be temporary and Kern Delta shall, with Valley's approval, adjust the scheduling of groundwater pumping to mitigate reductions in return of Regulated Water and to the extent practical, in a manner that does not cause additional unreimbursed costs to Kern Delta, Kern Delta shall take measures to change the timing and location of pumping to avoid reduction in or termination of the return of Regulated Water or return other available supplies.

4.2.4 The Regulation Program shall not adversely affect Kern Delta's existing

exchanges with other parties.

4.3 Annual Scheduling of Regulated Water. Valley shall notify Kern Delta of its intent to take delivery of Regulated Water at a Point of Delivery to Valley as early in the Year as possible, but no later than March 15 of the same Year. If such notification is provided after March 15 Kern Delta shall, in good faith, endeavor to comply with the notice to the maximum extent feasible. Kern Delta shall be responsible for all necessary approvals to return the Regulated Water to the Point of Delivery to Valley. Valley shall be responsible for any necessary approvals and costs once the Regulated Water has been returned to the Point of Delivery to Valley, provided that Kern Delta shall cooperate in obtaining such approvals.

4.4 Water Quality.

4.4.1 Based on available data, the parties have concluded that Kern Delta currently can supply Regulated Water at the California Aqueduct which meets existing Safe Drinking Water Act primary and secondary standards. (The foregoing is only a reference to an existing standard and shall not be interpreted as causing Kern Delta to become subject to the Safe Drinking Water Act.) Subject only to Kern Delta obligations under contracts or agreements existing as of Execution Date, Kern Delta shall take no direct action that would knowingly cause the quality of recovered groundwater returned as Regulated Water to not meet the existing or reasonably predictable future Safe Drinking Water primary and secondary standards. Should Kern Delta knowingly take such impermissible direct action which causes the quality of Regulated Water delivered into the California Aqueduct to not meet existing or reasonably predictable future Safe Drinking Water Act primary and secondary standards, Kern Delta shall be responsible for taking additional steps, at Kern Delta's expense, to ensure that such water meets such standards. The preceding sentence shall not apply to delivery of water under Kern

Delta's Normal and Customary Uses or water quality degraded as a result of operating under this Program. In the event that future water quality standards change, or the quality of groundwater from Kern Delta wells or surface water is such that Kern Delta cannot meet acceptable standards for direct pumpback of Regulated Water into the California Aqueduct, Regulated Water shall be returned to Valley by alternative methods satisfactory to Valley. Such alternative methods may include, but are not necessarily limited to: purchases, exchanges with others, and/or by improving Regulated Water quality to acceptable standards for direct pumpback, with the additional costs of any such methods being paid by Valley. Kern Delta's operations and financial situation shall not be adversely impacted as a result of these alternative methods.

4.4.2 Without limiting the foregoing, Kern Delta shall rotate pumping if and to the extent necessary to maximize Regulated Water quality and to use the best quality wells available, to the greatest extent practicable, for Regulated Water return purposes.

ARTICLE 5. COMPENSATION

5.1 Put Payments. Valley shall pay Kern Delta for each acre foot of Delivered Water a Put Payment which shall consist of; (i) a Participation Payment, plus (ii) an amount equal to actual costs per acre foot of operation, maintenance and replacement of Kern Delta Facilities used to regulate Delivered Water determined in accordance with Section 5.5 (OM&R Fees); plus (iii) an amount sufficient to pay all energy costs associated with the delivery, distribution, and recharge of each acre foot of Delivered Water determined in accordance with Section 5.4 (Power & Energy Costs).

5.2 Take Payments. For each acre foot of Regulated Water returned by Kern Delta to Valley, whether by recovery from the Kern Delta Basin or by exchange, Valley shall pay to

Kern Delta a Take Payment equal to the sum of the following components: (i) $47.00 adjusted pursuant to Subsection 5.3 (Adjustment of Rates) from the Effective Date; plus (ii) an amount equal to actual costs per acre foot of operation, maintenance, repair and replacement of Kern Delta Facilities used to provide Regulated Water to Valley calculated as set forth in Section 5.5 (OM&R Fees) below; plus (iii) an amount sufficient to pay all energy costs associated with the delivery of each acre foot of Regulated Water to Valley calculated as set forth in Section 5.4 (Power & Energy Costs) below.

5.3 Adjustment of Rates. The amount payable for a calendar year under Section 5.1 and Section 5.2 shall be adjusted commencing December 1 of each year commencing 2011 for the following year by the fraction of the numerator of which is the Consumer Price Index, All Urban Consumers, All Items Index, Western Cities with populations of 50,000 to 330,000 (the "CPI") for December of the Year immediately preceding the Year with respect to which the adjusted amount is being determined and the denominator of which shall be the CPI for 2010 (based on the 1982-84 index).

5.4 Power & Energy Costs.

5.4.1 The Put Payment component as specified in Section 5.1 to convey Delivered Water from Kern Delta's Point of Delivery to Spreading Facilities or in lieu delivery points shall be an amount sufficient to pay all energy costs associated with the delivery, distribution, and recharge of each acre foot of Delivered Water. Take Payment component specified in Subsection 5.2 shall be determined by calculating the average unit power and energy costs to pump Regulated Water from the Kern Delta Basin for either direct delivery to the California Aqueduct or for entitlement exchange, and to convey Regulated Water through the distribution system and to deliver such water into the California Aqueduct. Said power costs

shall be computed based on the amount of energy consumed to pump, withdraw, transport, and when applicable to convey to the California Aqueduct Valley's Regulated Water in a given Year multiplied by Kern Delta's average actual unit power cost for that period.

5.4.2 The initial calculation of energy costs shall be consistent with the calculation shown in the table included in Exhibit "B-1," (Methodology for Determining Energy Requirements) and incorporated herein by this reference. The Table 2 (Energy Analysis Results) in Exhibit B-1 may be revised from time to time by written consent of the Parties, which consent shall not be unreasonably withheld. The intent of Exhibit B-1 is to provide Kern Delta with sufficient revenue to recover the power costs incurred by Kern Delta for transportation, regulation and withdrawal of Delivered and Regulated Water and to allow Kern Delta flexibility to change the calculation based on experience and the changing electric utility industry and possible changes in its power supply and transmission contracts.

5.5 OM&R Fees. For each acre-foot of Delivered Water or Regulated Water, whether conveyed directly by Kern Delta or by exchange, Valley shall pay to Kern Delta the applicable operation, maintenance and replacement fee ("OM&R fee") based on the following rates which are to approximate Kern Delta's actual OM&R and administrative costs to perform the functions listed. The methodology for determining such costs is included in Exhibit "B-2" (Methodology for Determining O&M Costs and Replacement Cost) attached hereto and incorporated herein by this reference.

5.5.1 Spreading (Either direct recharge or in-lieu or exchange) OM&R Fee of $3.52 per acre-foot of Delivered Water regulated for Valley.

5.5.2 Extraction (Either direct pumping or in-lieu or exchange) OM&R Fee of $8.20 per acre-foot of Regulated Water delivered to Valley upon return of Regulated Water.

5.5.3 Conveyance (Either directly conveyed or exchange) OM&R Fee of $19.88 per acre-foot of Delivered Water (upon delivery into storage), and $12.88 per acre-foot of Regulated Water (upon return of Regulated Water).

5.5.4 Commencing December of the first full year following Execution Date, each OM&R Fee provided for in this Section 5.5 (OM&R Fees) shall be adjusted for the following year by the fraction of the numerator of which is the Consumer Price Index, All Urban Consumers, All Items Index, Western Cities with populations of 50,000 to 330,000 (the "CPI") for December of the Year immediately preceding the Year with respect to which the adjusted amount is being determined and the denominator of which shall be the CPI for 2010 (based on the 1982-84 index). In lieu of the aforesaid adjustment for each of the sixth and subsequent fifth full years ("Methodology Adjustment Years") following Execution Date, each OM&R Fee provided for in this Section 5.5 (OM&R Fees) shall be subject to the Methodology Adjustment, which shall utilize the applicable methodology provided for in Exhibit B-2 (Methodology for Determining O&M Costs and Replacement Costs). For purposes of calculating adjustments in years between Methodology Adjustment Years, the OM&R Fee determined for the previous Methodology Adjustment Year shall be utilized for adjustments until the next succeeding Methodology Adjustment Year.

5.6 State Project Costs. For all Regulated Water returned by Kern Delta pursuant to Subsection 4.1.2 of Section 4.1 (Methods of Return of Regulated Water), Valley shall pay applicable State Water Project costs beyond the Point of Delivery to Valley.

5.7 Payment Schedule. For payment obligations incurred pursuant to Participation Payments; Sections 5.1 (Put Payments); 5.2 (Take Payments); 5.4 (Power & Energy Costs); and 5.5 (OM&R Fees), Kern Delta may only bill Valley for water previously credited or debited to

Account pursuant to this Agreement. In all events, Kern Delta may only bill Valley, no more frequently than monthly for payments under this Agreement which payments shall be due Kern Delta and shall become delinquent thirty (30) days after Valley receives the invoice under the terms of this Agreement. Data supporting the amounts invoiced shall be provided upon the request of Valley. Kern Delta shall correct any erroneous billing promptly upon discovery of the error. If Valley has been underbilled, payment of the underbilled amount, together with interest thereon at the average investment yield of Valley's investments as reported monthly by Valley's Treasurer, shall be due and become delinquent thirty (30) days after Valley receives the corrective invoice and data justifying the change. Correction of overpayments by Valley shall become delinquent unless refunded by Kern Delta to Valley within forty-five days of discovery by either Valley or Kern Delta, together with interest thereon computed from the date the overpayment was made at the average investment yield of Valley's investments as reported monthly by Valley's Treasurer.

5.8 Delinquencies. In addition to other amounts payable, delinquencies shall bear interest at the rate of one percent (1%) per month.

ARTICLE 6. DIVISION OF RISK RESPONSIBILITIES

Kern Delta and Valley agree to cooperate, in reducing, to the greatest extent practicable, the risk from claims arising against any of the Parties from implementation of this Agreement. In the event of claims by third parties relating to this Agreement, the responsibilities of Kern Delta, and Valley shall be divided as follows:

6.1 Kern Delta Responsibilities. Kern Delta shall defend, indemnify and hold harmless Valley and its directors, officers, agents, employees and volunteers against any and all

losses, claims, demands and causes of action (herein collectively referred to as "claims") and shall assume responsibility for payment of any settlements, judgments, costs and attorneys' fees arising from claims concerning the following:

(a) Control, carriage, transportation, handling, use, disposal, or distribution of Delivered, Regulated or Transported Water from the Point of Delivery to Kern Delta and to the Point of Delivery to Valley;

(b) Any contest or dispute by any landowner or water user within the service area of, or otherwise served by, Kern Delta concerning the allocation of benefits among or the assessment of charges to Kern Delta landowners or water users;

(c) Construction, repair, modification, or replacement of any Regulation Program Facilities;

(d) Operation of the Regulation Program or Kern Delta Facilities or the actions of Kern Delta's officers, employees or agents; and

(e) Any other activities under the exclusive control of Kern Delta. If Valley is named in any such action, it may submit its defense to Kern Delta, which shall bear the full cost of defense, except to the extent that Valley utilizes its own counsel for such defense. Notwithstanding the foregoing, the responsibility for any claims challenging the validity, underlying authority or enforceability of the Regulation Program under this Agreement shall be as provided at Section 6.3 (Other Claims). Valley shall not be entitled to any indemnification from Kern Delta except as set forth in this Section 6.1 (Kern Delta Responsibilities).

6.2 Valley Responsibilities. Valley shall defend, indemnify and hold harmless Kern Delta and its respective directors, officers, agents, employees and volunteers, against any and all claims and shall assume responsibility for payment of any settlements, judgments, costs or

attorneys' fees arising from claims concerning the following:

(a) Control, transportation, handling, use, disposal or distribution of Delivered Water to the Point of Delivery to Kern Delta and Regulated Water from the Point of Delivery to Valley;

(b) Any claim by a landowner, resident, public agency or other entity within the service area of, or otherwise served by, Valley challenging the Regulation Program or this Agreement directly or indirectly;

(c) Construction, repair, modification or replacement of any of the facilities of Valley, or the State Water Project;

(d) Operation of the facilities of or the actions of the officers, employees or agents of Valley; and

(e) Any other activities under the exclusive control of Valley.

If Kern Delta is named in any such action, it may submit its defense to Valley involved, in which event Valley shall bear the full cost of defense, except to the extent Kern Delta utilizes its own counsel for such defense. Notwithstanding the foregoing, the responsibility for any claims challenging the validity, underlying authority or enforceability of the Program under this Agreement shall be as provided at Section 6.3 (Other Claims). Kern Delta shall not be entitled to any indemnification from Valley except as set forth in this Section 6.2 (Valley Responsibilities).

6.3 Other Claims. As for any claims by a third party with respect to the Regulation Program which are not otherwise provided for at Sections 6.1 (Kern Delta Responsibilities) or 6.2 (Valley Responsibilities), including any claims challenging the underlying authority for or the validity or enforceability of the Regulation Program under this Agreement, Valley shall be responsible for payment of any settlements it has approved or any judgments with respect to such claims. If Kern Delta is named in any action with respect to such a claim, it may submit its

defense to Valley and Valley shall bear the full cost of defense, except to the extent Kern Delta utilizes its own counsel for such defense. At the request of Valley, Kern Delta shall join in the defense of any claim which is not adverse to Kern Delta's water supply or financial interests, in which case Valley shall reimburse Kern Delta for all of its costs of defense. However, with respect to claims in which one or more of the plaintiffs resides or does business in Kern County challenging the recovery of groundwater under this Agreement, Valley may demand that Kern Delta join in the defense of claims. In such case, Kern Delta must comply with any such demand, the Parties shall jointly manage the litigation, and Kern Delta and Valley shall each pay one-half of the defense costs. In other such cases, Valley shall reimburse Kern Delta for all of its costs of defense.

6.4 Multiple Claims. In the event that payments are made in settlement of a claim, in satisfaction of a judgment or for defense costs where the claim arises from issues applying to both Kern Delta and Valley, payments shall be divided in proportion to the relative liability of each arising from the common claim. If the Parties cannot agree on the proportion, then the share to be paid by each of Kern Delta and Valley shall be submitted to arbitration as provided at Article 7 hereof.

ARTICLE 7. DISPUTE RESOLUTION

7.1 Informal Mediation. In the event of a dispute regarding the interpretation or implementation of this Agreement, or if the parties are unable to agree upon a matter as to which their agreement is provided for hereunder, the Parties will endeavor to resolve the dispute by using the services of a mutually acceptable consultant. The fees and expenses of the consultant shall be shared equally by the Parties.

7.2 Arbitration.

7.2.1 If a consultant cannot be agreed upon, or if the consultant's recommendations are not acceptable to the Parties, and unless the Parties otherwise agree, the matter shall be resolved by arbitration as provided in this Article 7 and in the California Arbitration Act (Part 3 [commencing with § 1280], Tit. 9, Calif. Code Civ. Proc.), including Section 1283.05. The Parties agree to be bound by the majority decision of a three-member panel to be selected as follows: (i) one member shall be selected by Valley; (ii) one member shall be selected by Kern Delta; and (iii) the third member shall be selected by the other two (2) members. If the two (2) members selected by Valley and Kern Delta are unable to agree on the selection of a third member, either Party may petition a court to appoint the third member pursuant to Code of Civil Procedure Section 1281.6. Each Party shall be responsible for any fees and expenses of the member of the panel appointed by that Party, and the fees and expenses of the third member of the panel shall be shared fifty percent (50%) by Kern Delta and fifty percent (50%) by Valley.

7.2.2 If a Party asserts that another Party has breached obligations under this Agreement, it may request that the arbitration panel order the other Party to comply with this Agreement. Upon the panel finding that a Party has in fact breached this Agreement, the panel shall order compliance. The panel may order any other equitable relief permitted by California law, including declaratory or injunctive relief, applicable to the matter before the panel for resolution. If termination is sought by a party pursuant to the terms hereof, the panel may determine the issues of whether a default has occurred or other condition precedent to the termination alleged has been satisfied and, if so, may issue orders implementing that termination. The orders of the panel shall be judicially enforceable. The panel may order that the effective

date of its order be the date of the breach, if appropriate. If Valley has suspended payments as provided in Subsection 9.1.2 of Section 9.1 (Remedies in the Event of Kern Delta's Willful Failure to Perform), it shall reimburse Kern Delta for any monies withheld and then due to Kern Delta as soon as Kern Delta again fully complies with this Agreement unless otherwise ordered by the panel. The panel may not order any damages (including consequential or punitive damages) beyond those provided for or permitted under this Agreement.

ARTICLE 8 TERM OF AGREEMENT

8.1 Regulation Program. Unless the Regulation Program provisions of this Agreement are earlier terminated pursuant to Subsection 9.1.3 of Section 9.1 (Remedies in the Event of Kern Delta's Willful Failure to Perform), Section 9.2 (Remedies in the Event of Valley's Voluntary Failure to Perform), Section 9.3 (Remedies in Event of Failure of Certain Other Remedies), or Section 10.2 (Involuntary Termination), Valley's right to provide Delivered Water pursuant to Section 2.1 (Source of Water) and to receive Regulated Water pursuant to Article 4 (Return of Water) shall terminate at the end of 2035. At the end of 2035, the entire Account Balance shall be debited and the remaining Regulated Water, if any, shall be available for Kern Delta to utilize for its own purposes.

8.2 Agreement Termination. This Agreement shall terminate at the time of termination of both the Regulation Program unless extended pursuant to Section 8.3 (Pending and Late Arising Claims).

8.3 Pending and Late Arising Claims. If a claim arising under or with respect to one or more terms of this Agreement has not been resolved when such term terminates, or if such a claim is brought after this Agreement has terminated but within the period of time for bringing

such a claim under California law ("Late Arising Claim"), the provisions of this Agreement shall continue in full force and effect for such additional period of time as is necessary to resolve such claims and to satisfy the rights and obligations of the Parties hereto with respect thereto.

8.4 Renewals of Agreement. This Agreement may be renewed by mutual agreement of the Parties, which renewal shall, unless otherwise agreed, effect a continuation of both parties' rights and duties under this Agreement.

ARTICLE 9. REMEDIES

9.1 Remedies in the Event of Kern Delta's Willful Failure to Perform.

9.1.1 If Valley alleges that Kern Delta has not substantially performed according to the terms of this Agreement or has willfully failed to perform this Agreement by causing (or, if within Kern Delta's jurisdiction, permitting) other entities or persons to interfere with Regulation Program operation, or by failing to accept or return water as and when required by this Agreement, or if Kern Delta has otherwise breached its obligations under this Agreement and notice has been provided to Kern Delta pursuant to Section 11.4 (Waiver/Cure of Defaults) and Kern Delta has failed to cure the alleged breach within the time provided in Section 11.4 (Waiver/Cure of Defaults), Valley may, at any time thereafter while the default is continuing, advise Kern Delta of the remedy or remedies provided in Article 7 (Dispute Resolution), and Subsections 9.1.2 and 9.1.3 below which Valley intends to pursue with respect to such default. Kern Delta may challenge at any time, through Article 7 (Dispute Resolution), whether in fact there has been a breach of or default under this Agreement by Kern Delta.

9.1.2 In the event of an alleged breach as to which Valley has given notice to Kern Delta pursuant to Section 9.1.1, Valley may elect to suspend any payment obligations it

may have under Article 5 (Compensation) of this Agreement until Kern Delta complies with the terms of this Agreement and cures such breach or default, or is determined, pursuant to Article 7 (Dispute Resolution), not to have violated the Agreement. Notwithstanding such suspension of Valley's payment obligations, this Agreement shall remain in effect unless and until Valley elects to terminate the Agreement under Section 9.1.3 in which case termination shall occur in accordance with and as provided in such provision. Notwithstanding an election by Valley under this Section 9.1.2 to suspend payment obligations, Valley or Kern Delta may thereafter also seek relief under Article 7 (Dispute Resolution).

9.1.3 If Kern Delta willfully fails to recharge or return water for or to Valley under circumstances where such performance or nonperformance is not excused by the terms of this Agreement and Valley elects to terminate this Agreement, Kern Delta shall purchase the amount of Valley's Regulated Water in its Account Balance for an amount equal to Valley's previous payments with respect to such Regulated Water, all adjusted as provided in Section 5.5.2, all payable within one (1) year of said election by Valley to terminate. Once such payment has been fully made, this Agreement shall be fully terminated except for Preamble; Recitals; Articles 1 (Definitions); 7 (Dispute Resolution); 8 (Term of Agreement); 9 (Remedies); and 11 (Miscellaneous Provisions). Upon payment in full by Kern Delta as provided above, Valley's beneficial interest in the amount of Regulated Water in Valley's Account Balance shall vest in Kern Delta free of obligations and Kern Delta shall be entitled to produce and use such water for its own account.

9.2 Remedies in the Event of Valley's Voluntary Failure to Perform. If Valley has not substantially performed according to the terms of this Agreement, and notice has been provided to Valley pursuant to Section 11.4 (Waiver/Cure of Defaults) and Valley has failed to

cure the alleged breach within the time provided in Section 11.4 (Waiver/Cure of Defaults), Kern Delta may at its election, at any time thereafter while the default is continuing, either (i) suspend further performance and thereafter seek relief under Article 7 (Dispute Resolution), recommencing performance once Valley complies with the Agreement, or (ii) terminate this Agreement. If Kern Delta elects to terminate this Agreement, any Regulated Water remaining in Valley's Account shall be transferred to Kern Delta at no cost to Kern Delta. In such event, Kern Delta shall have no further responsibility for repayment of funds advanced by Valley under Article 5 (Compensation). Valley may challenge at any time, through Article 8 (Dispute Resolution), whether in fact there has been a breach of this Agreement by Valley.

9.3 Remedies in Event of Failure of Certain Other Remedies. If: (i) Kern Delta has breached or defaulted in the performance of its obligations under this Agreement, and (ii) Valley has given notice of the breach or default pursuant to Subsection 9.1.1 of Section 9.1 (Remedies in the Event of Kern Delta's Willful Failure to Perform), and (iii) Kern Delta has failed to cure that breach or default within thirty (30) days as required by Section 11.4 (Waiver/Cure of Defaults), and (iv) Valley has elected a remedy for that breach or default pursuant to Subsection 9.1.1 of Section 9.1 (Remedies in the Event of Kern Delta's Willful Failure to Perform), and (v) Kern Delta has agreed to such remedy or, if Kern Delta has not so agreed, Valley has obtained a judgment or court order against Kern Delta (whether based on an order of an arbitration panel under Article 7 (Dispute Resolution) or otherwise) which judgment or court order Kern Delta has failed or refused to perform, *then* Valley may notify Kern Delta that Valley is entitled to and intends to exercise its right to appointment of a successor in place of Kern Delta and, thereafter, Valley may apply to a court of competent jurisdiction for such appointment of a successor who shall be charged with performing the duties pursuant to the

terms of this Agreement. The successor, when appointed, shall be entitled to exercise any and all rights theretofore held by Kern Delta for Valley. Upon the later of (i) receipt by Valley at the California Aqueduct of water in an amount equal to Valley's Account Balance pursuant to the exercise by such successor of its rights, or (ii) expiration of the term specified in Section 8 (Term of Agreement), this Agreement shall be fully terminated unless extended pursuant to Section 8.4 (Pending and Late Arising Claims).

ARTICLE 10. EARLY TERMINATION

10.1 Resignation of Kern Delta. Kern Delta may not resign its duties and obligations under this Agreement for the term of this Agreement except as permitted by Sections 9.2 (Remedies in the Event of Valley's Voluntary Failure to Perform) and 10.2 (Involuntary Termination), and any other attempt by Kern Delta to resign shall be deemed to be a breach of its obligations hereunder.

10.2 Involuntary Termination. Notwithstanding Article 9 (Remedies), in the event that Kern Delta is unable to perform its obligations under this Agreement for reasons beyond its control, the following shall apply ("reasons beyond its control" as used in this sentence shall not include any reasons caused by Kern Delta's breach of its obligations under this Agreement or other failure to comply with any of its legal obligations).

10.2.1 If such inability to perform relates to the Regulation Program, and that inability to perform includes the inability of Kern Delta to return Regulated Water which remains in the Valley Account Balance, Kern Delta shall purchase the Regulated Water which Kern Delta is unable to return for an amount equal to the costs which Kern Delta would have incurred to purchase such water under its contract with the KCWA in the Year such Regulated Water was

delivered to storage. Such payment by Kern Delta to Valley upon involuntary termination under this Section 9.2 (Remedies in the Event of Valley's Voluntary Failure to Perform) shall be financed over time upon terms mutually agreeable to Valley and Kern Delta. If Valley and Kern Delta are unable to agree on such terms in a reasonable period of time, they shall resolve their disagreement pursuant to Article 7 (Dispute Resolution). Once such payments have been fully made, this Agreement shall be fully terminated. If payment is made as provided above, the beneficial interest in the amount of Valley's Regulated Water in Valley's Account Balance which Kern Delta is unable to return shall vest in Kern Delta.

ARTICLE 11. MISCELLANEOUS PROVISIONS

11.1 Successors and Assigns. This Agreement shall bind and inure to the benefit of the successors and assigns of the Parties; provided, however, neither Party shall assign any of their rights or obligations under this Agreement without the prior written consent of the other. Nothing in this Agreement is intended to confer any right or remedy under this Agreement on any person other than the parties to this Agreement and their respective successors and permitted assigns, or to relieve or discharge any obligation or liability of any person to any party to this Agreement, or to give any person any right of subrogation or action over or against any party to this Agreement.

11.2 No Precedent. Kern Delta entering into this Agreement shall not create in Valley any rights beyond those expressly provided by this Agreement, nor shall it establish any precedent for extension or renewal of this Agreement beyond its term. Furthermore, Valley shall not make any claim to continued use of water provided under this Agreement, beyond that expressly provided under this Agreement, including, but not limited to, asserting any right

against Kern Delta to use of water beyond the term of this Agreement under the doctrine of intervening public use.

11.3 No Modification of Existing Contracts. This Agreement shall not be interpreted to modify the terms or conditions of either the water supply contracts between DWR and Valley or the water supply and related agreements between Kern Delta and other parties.

11.4 Waiver/Cure of Defaults. The failure of any Party to enforce against the other a provision of this Agreement shall not constitute a waiver of that Party's right to enforce such a provision at a later time. No Party shall be deemed to be in default of any provision of this Agreement unless the other Party has given written notice specifically stating the alleged default and the Party in default fails to cure the default within thirty (30) days of receipt of such written notice.

11.5 Construction of Agreement. The language in all parts of this Agreement shall be in all cases construed simply according to its fair meaning and not strictly for or against any of the parties hereto and Section 1654 of the Civil Code has no application to interpretation of this Agreement. Headings at the beginning of Sections, paragraphs and subparagraphs of this Agreement are solely for the convenience of the Parties, are not a part of this Agreement and shall not be used in construing it. The preamble, recitals and all exhibits and schedules to this Agreement are part of this Agreement and are incorporated herein by this reference. When required by the context: whenever the singular number is used in this Agreement, the same shall include the plural, and the plural shall include the singular; and the masculine gender shall include the feminine and neuter genders and vice versa. Unless otherwise required by the context (or otherwise provided herein): the words "herein," "hereof" and "hereunder" and similar words shall refer to the Agreement generally and not merely to the provision in which such term

is used; the word "person" shall include individual, partnership, corporation, limited liability company, business trust, joint stock company, trust, unincorporated association, joint venture, governmental authority and other entity of whatever nature; each of the words "Valley" and "Kern Delta" shall include the respective representatives, successors and permitted assigns, if any, of such person; the words "including," "include" or "includes" shall be interpreted in a non-exclusive manner as though the words "but [is] not limited to" or "but without limiting the generality of the foregoing" immediately followed the same; the word "month" shall mean calendar month; and the term "business day" shall mean any day other than a Saturday, Sunday or legal holiday. If the day on which performance of any act or the occurrence of any event hereunder is due is not a business day, the time when such performance or occurrence shall be due shall be the first business day occurring after the day on which performance or occurrence would otherwise be due hereunder. All times provided in this Agreement for the performance of any act will be strictly construed, time being of the essence of this Agreement.

11.6 Entire Agreement. This Agreement and other documents expressly referenced herein constitute the entire agreement between the Parties pertaining to the matters provided for herein and, except as herein provided, supersedes all prior and/or contemporaneous agreements and understanding, whether written or oral, pertaining between the Parties relating to the matters provided for herein. In the event of inconsistency between and among (i) other documents, (ii) Exhibits to this Agreement, and (iii) the remaining provisions of this Agreement, the remaining provisions of this Agreement shall control.

11.7 Severability. In the event that a court of competent jurisdiction or an arbitration panel as provided at Article 7 (Dispute Resolution) determines that a provision included in this Agreement is legally invalid or unenforceable and such decision becomes final, the Parties to this

Agreement shall use their best efforts to (i) within thirty (30) days of the date of such final decision identify by mutual agreement the provisions of this Agreement which must be revised, and (ii) within three (3) months thereafter promptly agree on the appropriate revision(s). The time periods specified above may be extended by mutual agreement of the Parties. Pending the completion of the actions designated above, to the extent it is reasonably practical and can be done without violating any applicable provisions of law, the provisions of this Agreement which were not found to be legally invalid or unenforceable in the final decision shall continue in effect. If the Parties cannot agree on appropriate revisions, this Agreement shall be involuntarily terminated in accordance with Section 9.2 (Remedies in the Event of Valley's Voluntary Failure to Perform).

11.8 Force Majeure. All obligations of the Parties other than monetary or payment obligations shall be suspended for so long as and to the extent the performance thereof is prevented, directly or indirectly, not to exceed one year, by earthquakes, fires, tornadoes, facility failures, floods, strikes, other casualties, acts of God, orders of court or governmental agencies having competent jurisdiction, or other events or causes beyond the control of the Parties. In no event shall any liability accrue against a Party, to its officers, agents or employees, for any damage arising out of or connected with a suspension of performance pursuant to this Section 11.8. All time limits to perform and the term of the Agreement shall be extended by period equivalent to the length of suspension. In event of such an occurrence of duration in excess of one year, Section 10.2 (Involuntary Termination) shall control, unless the Parties otherwise agree.

11.9 Notices. All notices, requests and demands hereunder ("Notices") shall be in writing and shall be deemed to have been duly given when delivered (or, if mailed, postage

prepaid, on the third business day after mailing, if that date is earlier than actual delivery). Notices shall be sent to a Party at the address of that Party set forth below or, if such Party has furnished notice of a change of that address as herein provided, to the address of that Party most recently so furnished. Notices for Kern Delta shall be sent to the Engineer Manager of Kern Delta at 501 Taft Highway, Bakersfield, CA 93307-6247. Notices for Valley shall be sent to the General Manager of Valley at 380 East Vanderbilt Way, San Bernardino 92408. Each Party hereto (a "Recipient") who receives from another Party hereto (a "Sender") by electronic facsimile transmission (telecopier) any writing which appears to be signed by that Sender is authorized to rely and act upon that writing in the same manner as if the original signed writing was in the possession of the Recipient upon oral confirmation of that Sender to the Recipient that the writing was signed by that Sender and is intended by that Sender to be relied upon by the Recipient. Each Party transmitting any writing to any other Party by electronic facsimile transmission agrees to forward immediately to that Recipient, by expedited means (for next day delivery, if possible), or by first class mail if the Recipient so agrees, the signed hard copy of that writing, unless the Recipient expressly agrees to some other disposition of the original by the Sender.

11.10 Regulatory Changes. It is recognized that changes in Kern Delta's actual costs of operating the Regulation Program or changes in other conditions affecting the Regulation Program may occur on or after the date this Agreement is executed as a result of enactments, amendments, changes in implementation or interpretation, or repeal of any federal or state law, rule, regulation or ordinance or changes in contract terms (each, a "Regulatory Change"). If either Party determines that a Regulatory Change has occurred that would result in a material change (upward or downward) in Kern Delta's costs or other conditions relating to regulating,

recovering or transporting water pursuant to the terms of this Agreement, which change is not reflected in the adjustments in the payments due from Valley to Kern Delta pursuant to Article 5 (Compensation) or other provision of this Agreement, such Party shall promptly inform the other Party of the nature and extent of such alleged Regulatory Change and of the reason why that party believes an adjustment pursuant to this Section 11.10 is warranted in the payments due from Valley to Kern Delta or in other terms or conditions. The Parties will thereupon attempt to reach an appropriate amendment of this Agreement in light of the Regulatory Change. If such agreement cannot be reached within forty-five (45) days after either Party has provided the required notice and information, the matter shall be resolved pursuant to Article 7 (Dispute Resolution), the qualified third party or arbitration panel being charged with determining (i) whether a Regulatory Change has occurred (if that is in dispute), (ii) the amount of change, if any, in Kern Delta's costs resulting from the Regulatory Change, and (iii) the manner in which the payments due from Valley to Kern Delta or other terms or conditions which should be modified are to be adjusted to fairly and equitably reflect that change in Kern Delta's costs or other terms and conditions (it being the intent of the Parties that no windfall or unwarranted compensation or benefit should result to any Party as a result of any adjustment made pursuant to this Section 11.10). Any adjustment to the payments due from Valley to Kern Delta or other terms and conditions made pursuant to this Section 11.10 shall be effective as of the first day such Regulatory Change affects Kern Delta operations hereunder unless the Parties otherwise agree and may be reconsidered thereafter at any time, at the request of any Party, if the adjustment is unjustly under-compensating or over-compensating any Party.

11.11 Further Assurances. Each Party hereto, upon the request of the other, agrees to perform such further acts and to execute and deliver such other documents as are reasonably necessary to carry out the provisions of this instrument.

11.12 Counterparts. This Agreement, and any document or instrument entered into, given or made pursuant to this Agreement or authorized hereby, and any amendment or supplement thereto may be executed in two or more counterparts, and by each party on a separate counterpart, each of which, when executed and delivered, shall be an original and all of which together shall constitute one instrument, with the same force and effect as though all signatures appeared on a single document. Any signature page of this Agreement or of such an amendment, supplement, document or instrument may be detached from any counterpart without impairing the legal effect of any signatures thereon, and may be attached to another counterpart identical in form thereto but having attached to it one or more additional signature pages. In proving this Agreement or any such amendment, supplement, document or instrument, it shall not be necessary to produce or account for more than one counterpart thereof signed by the party against whom enforcement is sought.

Executed the day and year first hereinabove written.

THE SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: _____
President

APPROVED AS TO FORM:

By: _____

General Counsel

KERN DELTA WATER DISTRICT

By:_____
President

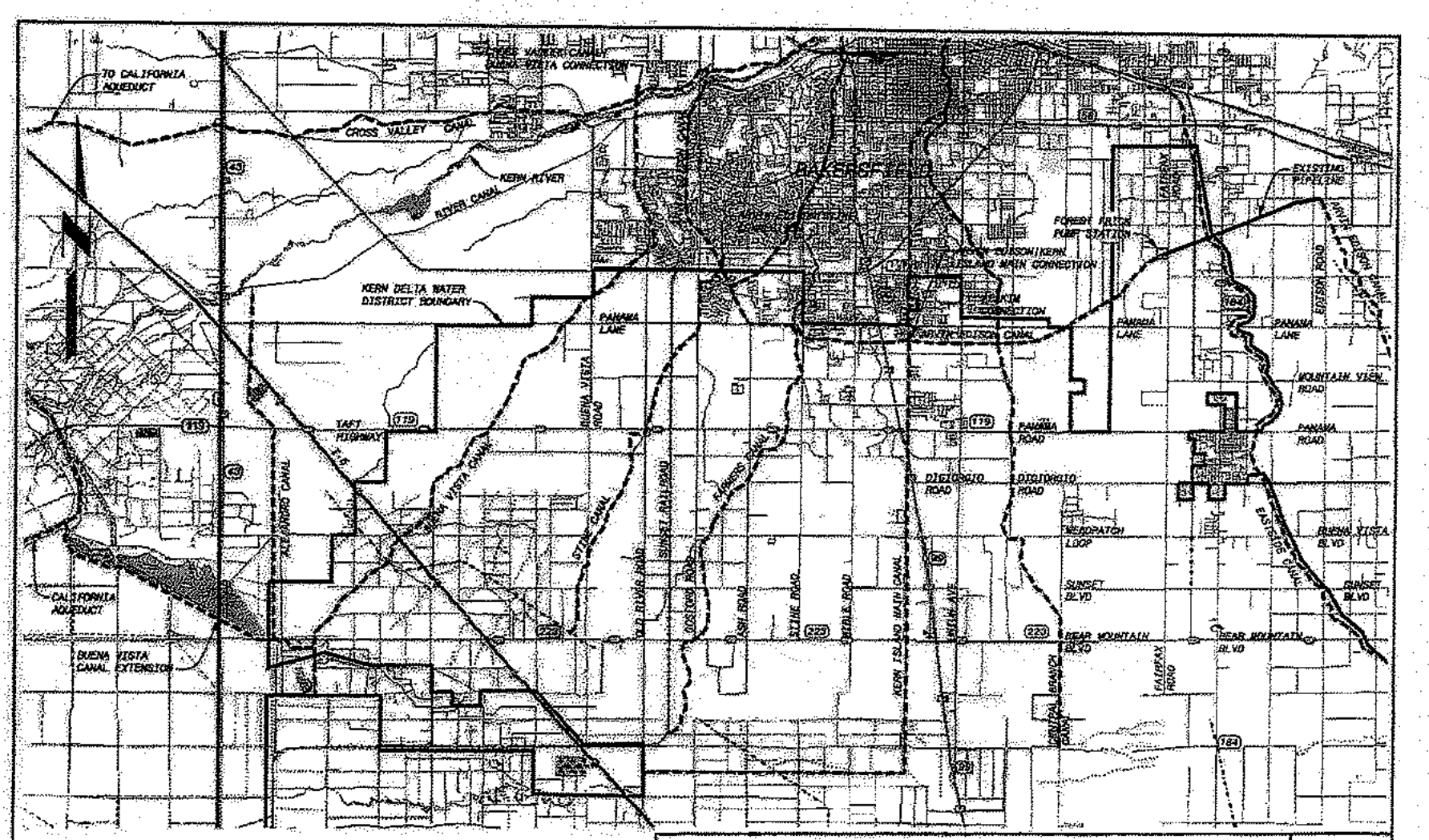
By:_____
Secretary

APPROVED AS TO FORM:

By:_____
General Counsel

Exhibits

A. Map Depicting Kern-Delta Boundaries and Program Facilities
B-1. Methodology for Determining Energy Requirements
B-2. Methodology for Determining O&M Costs and Replacement Cost
C. Certification That Conditions Precedent Have Been Satisfied or Waived
D. Map Depicting Kern Delta Boundaries and Program Facilities



KERN DELTA WATER DISTRICT/METROPOLITAN WATER DISTRICT
WATER MANAGEMENT PROGRAM

KERN DELTA BOUNDARIES AND PROGRAM FACILITIES

EXHIBIT A

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EXHIBIT B-1

BLACK & VEATCH Corporation

METHODOLOGY FOR DETERMINING ENERGY REQUIREMENTS

Kern Delta Water District Water Banking Program
Water Banking Program

B&V Project 99241
B&V File D.2
January 11, 2002

To: L. Mark Mulkay
Project Manager

From: Steven N. Foellmi, P.E.
Technical Manager

Prepared By: Klint Reedy, P.E.
Victor Tsai

EXECUTIVE SUMMARY

PURPOSE

The purpose of this memorandum is to evaluate the energy requirements associated with the facilities required for the Kern Delta Water District Water (KDWD) Banking Program (Kern Delta Project). The estimated energy requirements associated with these facilities are based on Black & Veatch experience and record data from the operation of similar facilities by other local agencies. In addition to estimating the power requirements, a preliminary assessment of the existing local electrical distribution facilities ability to meet potential future operating demands are investigated.

BACKGROUND

As part of the Water Banking Program, five new pump stations (Kern Delta pump stations No.1 through 5) would be built along the new Kern Delta Canal to allow for conveyance of water between the Kern Water Bank Authority (KWBA) Canal and the Arvin-Edison Canal. The pumping plants would take water from a lower canal segment and lift it to the adjacent canal segment. During wet years, the proposed

Kern Delta canal system would allow for the diversion of water from the California Aqueduct to the Kern Delta agricultural canals and spreading basins.

An existing pump within the existing Arvin-Edison Forrest Frick Pump Station would also be used to meet irrigation demands in the eastern section of the Kern Delta service area through the in-lieu (pipeline) facilities. These facilities will allow the use of State Water Project (SWP) water.

The project would also include thirty-two groundwater wells to recover previously stored water in the groundwater basin. The extraction wells would be located near existing water conveyance facilities.

ENERGY ANALYSIS

The facilities requiring energy to operate the water-banking project include of five pumping stations along the proposed canal conveyance facility, thirty-two new groundwater wells which will be utilized to withdraw stored water supplies, and the existing Arvin-Edison Forrest Frick Pump Station will be used to provide SWP supplies to meet irrigation demands in lieu of current groundwater extraction operations. The canal pumping stations and groundwater extraction wells are planned as motor-operated pumps with electricity to be provided from the existing Pacific Gas and Electric Company (PG&E) facilities.

Energy Rate Schedules and Metering Requirements

Energy rate schedules have been obtained from PG&E for evaluation of the power and metering requirements relevant to the operation of the pumping stations and groundwater extraction wells. PG&E recommends using schedule AG-5B, "Large Time-of-Use Agricultural Power for the Water Banking facilities. Schedule AG-5B is used for customers with high annual operation (generally over 1,200 hours) who run 24 hours per day or can minimize electric use on sum weekdays between noon and 6 p.m.

Energy rates for this schedule vary by the summer or winter season and the time of day the energy is consumed. A seasonal demand charge and a maximum-peak-period demand charge, based on peak kW usage, is also exercised. In addition to these base charges, PG&E also has a flat surcharge rate of $0.02953/kWh in

accordance with the "Energy Procurement Surcharge Schedule (EPS)". This surcharge is applied after all other calculations are made and is applicable to all kW-hours consumed. Lastly, the customer's bill includes a customer charge, a meter charge, and a one-time installation and processing charge per meter.

A summary of the AG-5B / EPS rate schedule is provided in Table 1.

TABLE 1

PG&E "AG-5B/ EPS" RATE SCHEDULE

Charges	Summer Season (May – October)	Winter Season (November – April)
Energy Charge (per kWh per month)		
Peak (12 noon–6:00 p.m.) Mon.-Fri.*	$0.14294	-
Partial Peak (8:30 a.m.-12:00 p.m.) & (6:00 p.m.-9:30 p.m.) Mon.-Fri.*	-	$0.04661
Off-Peak	$0.04088	$0.03706
Demand Charges (per kW)		
Seasonal billing demand	$6.55	$4.40
Peak Period Demand	$2.70	-
Surcharges (per kWh)		
EPS Rate for AG-5B Schedule	$0.02953	$0.02953
Monthly Base Service Charges		
Customer Charge per meter	$16.00	$16.00
Meter Charge per month	$6.00	$6.00

* Except Holidays.

Energy Analysis Model Development and Methodology

A preliminary version of the energy model has been created in Microsoft Excel using a single workbook that incorporates several worksheets. The model estimates power requirements of the proposed Water Banking facilities based on user defined operating scenarios. The following input is required by the user to perform a simulation:

1. Number of pumps operating at the five existing canal pumping stations (1 or 2 pumps @ 100 cfs each).
2. Desired flowrate for the "in lieu" element of the program (typically 25 to 30 cfs).
3. Number of groundwater wells operating during withdraw operation in dry years (between 0 to 32 groundwater wells).

4. Define seasonal operating conditions for "storage" and "withdrawal" facilities (daily hours of operation).

The total dynamic lift of each groundwater well is estimated and assumed to be consistent for each well. Electrical horsepower is calculated from the total dynamic lift, flowrate, and the overall efficiency (pump and motor). Currently the overall efficiency is estimated and a single typical value is used. However, it is anticipated that record flow rates and power data will be available and the program will utilize specific efficiencies based on the record data.

The model estimates power requirements for each of the pumping facilities along the proposed canal conveyance facility. The output tabulates the daily, monthly, and yearly facility power requirements.

Model Assumptions

Currently, the following assumptions have been made for the pumping plant facilities:

1. Combined pump and motor efficiency is 75 percent for all pumps at all plants under all conditions.
2. Arvin-Edison Forrest Frick Pumping Station has an assumed 67 percent combined pump and motor efficiency.
3. Proposed canal pumping plants will deliver 100 cfs or 200 cfs. The model currently assumes that when a pump from a pumping station is taken off-line to accommodate decreased flows, a single pump is operating at all the other pumping stations.

The following assumptions have been made for the groundwater extraction wells:

1. Combined pump and motor efficiency is 75 percent for all groundwater pumps.
2. Since the design of the wells is at conceptual levels, the power supply requirements are calculated assuming a "typical" well, and then multiplied by the number of wells.
3. Due to the lack of specific detailed design, the length of well discharge pipeline is estimated in order to calculate losses for the "typical well".
4. Each of the wells will extract groundwater at a rate of 6.25 cfs.

5. Assume negligible groundwater level drop due to extraction.

Some of these assumptions will be modified or quantified after additional data is received.

Energy Analysis Results

Preliminary analysis has been completed assuming the facilities operate at 200 cfs, 24 hours per day, until 55,500 ac-ft is stored into the groundwater basin. The initial results are presented in the following table.

TABLE 2
ENERGY ANALYSIS RESULTS

	Storage Mode [1][2] 1 cycle = 64,750 Ac-Ft [3]	Withdrawal Mode [4] 1 cycle = 55,500 Ac-Ft
Summer Costs		
$/month	$108,000	$615,000
$/cycle	$648,000	$3,690,000
$/ac-ft	$7	$49
Winter Costs		
$/month	$82,500	$445,000
$/cycle	$495,000	$2,660,000
$ /ac-ft	$5	$35

(1) Assumes canal facilities operate 24 hours per day, 7 days per week for 20 weeks, totaling 55,500 Ac-Ft.
(2) Assumes In-Lieu facilities operate during off-peak hours, totaling 9,250 Ac-Ft.
(3) 50,000 Ac-Ft storage + 9,250 Ft In-Lieu
(4) Assumes groundwater facilities operate 24 hours per day, 7 days per week.

The initial analysis estimated the electrical costs associated with operating the water banking program facilities 24 hours per day, 7 days per week. As presented in Table 1, significant savings maybe realized if the facilities were operated in a manner that minimizes peak demand charges.

CONCEPTUAL ELECTRICAL ARRANGEMENT

Based on the electrical demands estimated in the energy evaluation, conceptual one-line diagrams have been prepared for the canal pumping facilities and the groundwater pumping facilities and are attached for reference. An order of magnitude cost estimate was prepared for the new electrical equipment required between the existing PG&E 12 kV distribution power line and the pumping equipment, totaling $80,000 per site. This cost is generally accurate for both the groundwater wells and the canal pumping stations.

Typically, PG&E will install and maintain this equipment and will recover the costs in the monthly billings. Alternatively, the KDWD can install and maintain the facilities between the main distribution power line and the pumping facilities and be eligible for a "voltage discount" within their rate. Upon preliminary investigation, it is recommended that KDWD have PG&E provide, install, and maintain these facilities.

CONCLUSION

A customized spreadsheet has been developed to estimate power requirements for the Kern Delta facilities. Currently, it is assumed that all facilities operate 24 hours per day seven days per week. However, significant savings may be realized if the facilities are operated to avoid peak demand periods. It is recommended that the model presented herein be used to evaluate the potential savings associated with minimizing peak demand charges.

EXHIBIT B-2

BLACK & VEATCH Corporation

METHODOLGY FOR DETERMINING O&M COSTS & REPLACEMENT COST

Kern Delta Water District
Water Banking Program

B&V Project 99241
B&V File D.2
January 9, 2002

To: L. Mark Mulkay
Project Manager

From: Steven N. Foellmi, P.E.
Technical Manager

Prepared By: Klint Reedy, P.E.
Victor Tsai

EXECUTIVE SUMMARY

PURPOSE

The purpose of this memorandum is to evaluate the operations and maintenance (O&M) requirements associated with the Kern Delta Water District Water Banking Program components (Kern Delta Project). The recommended manufacturer O&M requirements and estimated replacement costs associated with operation of the major equipment components have been identified and tabulated. Actual maintenance history from similar facilities, and engineer's experience on similar projects were also utilized to define the O&M schedule for the facilities in the preferred project.

BACKGROUND

As part of the Water Banking Program, five new pump stations (Kern Delta pump stations No.1 through 5) would be built along the new Kern Delta Canal allowing conveyance of water between the Kern Water bank Authority (KWBA) Canal and the Arvin-Edison Canal. The pumping plants would take water from a lower canal segment and lift it to the adjacent canal segment. During wet years, the proposed Kern Delta

canal system would allow for the diversion of water from the California Aqueduct to the Kern Delta agricultural canals and spreading basins.
An existing pump within the existing Arvin-Edison Forrest Frick Pump Station would also be used to meet irrigation demands in the eastern section of the Kern Delta service area through the in-lieu (pipeline) facilities. These facilities will allow the use of SWP water "in-lieu" of local groundwater.

Lastly, the project includes 32 new groundwater wells to recover previously stored water in the groundwater basin. The extraction wells would be located near existing water conveyance facilities.

OPERATION AND MAINTENANCE INVESTIGATION

The water-banking project facilities that require O&M include the five pumping stations along a proposed canal conveyance facility, 32 new groundwater wells to withdraw stored supplies, and the existing pump within the Arvin-Edison Forrest Frick Pump Station.

A maintenance schedule for the preferred project components and a preliminary estimate for the corresponding O&M costs has been included. The schedule includes recommended procedures for operating the canal pump stations, groundwater pumps and motors, and the equipment within the Arvin-Edison Forrest Frick Pump Station. The procedures include placing the equipment in service and operating it under both normal and abnormal conditions.

Operation & Maintenance Schedule

The attached example O&M schedule is based on information and recommendations obtained from the equipment manufacturers, maintenance history from other agencies with similar equipment, and the engineer's experience on similar projects. The attached example schedule is intended to provide a general idea of the O&M procedures required for each of the major equipment components of the Water Banking Project. Prior to startup of these facilities, a more detailed O&M schedule should be developed based on specific manufacturer's manuals and shop drawing information.

Estimated O&M Costs

A preliminary estimate of the O&M costs associated with the recommended maintenance procedures for the proposed Water Banking equipment is summarized in

Table 1.

Table 1
Annual Operation & Maintenance Costs
(2002 Dollars)

Description	Cost
STORAGE MODE	
Annual Power Costs	$1,143,000
Labor (Personnel)	$435,000
Annual Maintenance Costs[1]	$54,000
Total Annual O&M Cost	**$1,632,000**
5 YR Minor overhaul of canal pumps	$25,000
20 YR Major overhaul of canal pumps	$57,000
50 YR Major canal / spreading basin equipment replacement	$2,400,000
Present Worth of Maintenance Costs [4]	**$716,817**
Cost per AC-FT of Stored Water	**$14**
WITHDRAWAL MODE	
Annual Power Costs	$6,350,000
Labor (Personnel)	$492,000
Annual Maintenance Costs[2]	$67,000
Total Annual O&M Cost	**$6,909,000**
5 YR Minor Overhaul of GW Pumps	$55,000
20 YR Major Overhaul of GW Pumps	$124,000
50 YR Major groundwater pump equipment replacement	$2,200,000
Present Worth of Maintenance Costs [3]	**$842,741**
Cost per AC-FT of Recovered Water	**$53**

[1] Maintenance costs for storage mode include idle maintenance costs for the groundwater facilities.
[2] Maintenance costs for withdrawal mode include idle maintenance costs for the canal pumps.
[3] Assumes 3% inflation & 6% discount factor.

The power costs presented in Table 1 are based on the results presented in the KDWD Water Banking Program "Energy Requirements" Technical Memorandum. Personnel costs associated with operating and maintaining the Water Banking facilities are based on 5 additional staff positions during the storage model and 6 positions during the withdrawal mode. It may be possible to utilize existing staff to assist with the operation of these facilities and minimize the total number of additional staff required. The estimated annual maintenance and overhaul costs are based on typical maintenance costs for similar facilities. Table 2 summarizes O&M costs by component.

Table 2
Operation & Maintenance Cost Summary By Component
(2002 Dollars)

Description	Annual Cost	
	In-Service	Idle
Canal Pumping Facilities		
Labor (Personnel) Costs	$210,496	$103,904
Routine Maintenance Costs	$21,000	$4,000
Annualized Major Equipment Overhaul & Replacement Costs	$57,345	-
Total O&M Costs ($ / AC-FT)	**$4**	
Energy Costs per AC-FT [1] [2]	$5	
Total Energy + O&M Costs per AC-FT	**$9**	
Spreading Basins		
Labor (Personnel)	$170,880	$33,600
Routine Maintenance Costs	$9,000	$2,000
Annualized Major Equipment Overhaul & Replacement Costs	$0	-
Total O&M Costs ($ / AC-FT)	**$3**	-
Energy Costs per AC-FT	-	
Total Energy + O&M Costs per AC-FT	**$3**	
In-lieu Facilities		
Labor (Personnel)	$5,824	$1,400
Routine Maintenance Costs	$8,000	$2,000
Annualized Major Equipment Overhaul & Replacement Costs	$5,735	-
Total O&M Costs per AC-FT	**$2.1**	-
Energy Costs per AC-FT [1] [3]	$6	
Total Energy + O&M Costs per AC-FT	**$8**	
Well Field Facilities		
Labor (Personnel)	$342,400	$40,960
Routine Maintenance Costs	$46,000	$9,000
Annualized Major Equipment Overhaul & Replacement Costs	$93,774	-
Total O&M Costs per AC-FT	**$7**	-
Energy Costs per AC-FT [1] [4]	$35	
Total Energy + O&M Costs per AC-FT	**$42**	
Canal / Pipeline Facilities		
Labor (Personnel) Costs	$23,720	$4,016
Routine Maintenance Costs	$18,000	$3,000
Annualized Major Equipment Overhaul & Replacement Costs	$7,335	-
Total O&M Costs ($ / AC-FT)	**$6.3**	

(1) Reference Kern Delta Water Banking Project Energy Requirements Memorandum, dated February 27, 2002.
(2) Assumes winter demand charges, if operated in summer months additional $5/AC-FT will be realized.
(3) Assumes winter demand charges, if operated in summer months additional $6/AC-FT will be realized.
(4) Assumes winter demand charges, if operated in summer months additional $35/AC-FT will be realized.

Exhibit C

CERTIFICATION THAT CONDITIONS PRECEDENT HAVE BEEN SATISFIED OR WAIVED

Kern Delta Water District and The San Bernardino Valley Municipal Water District hereby jointly certify that:

1) All conditions precedent set forth in Sections 8.1 of the Agreement titled _____, dated _____, have been satisfied or waived.
2) No Event of Default exists under the Agreement.

Capitalized terms used herein and not otherwise defined are as defined in the Agreement

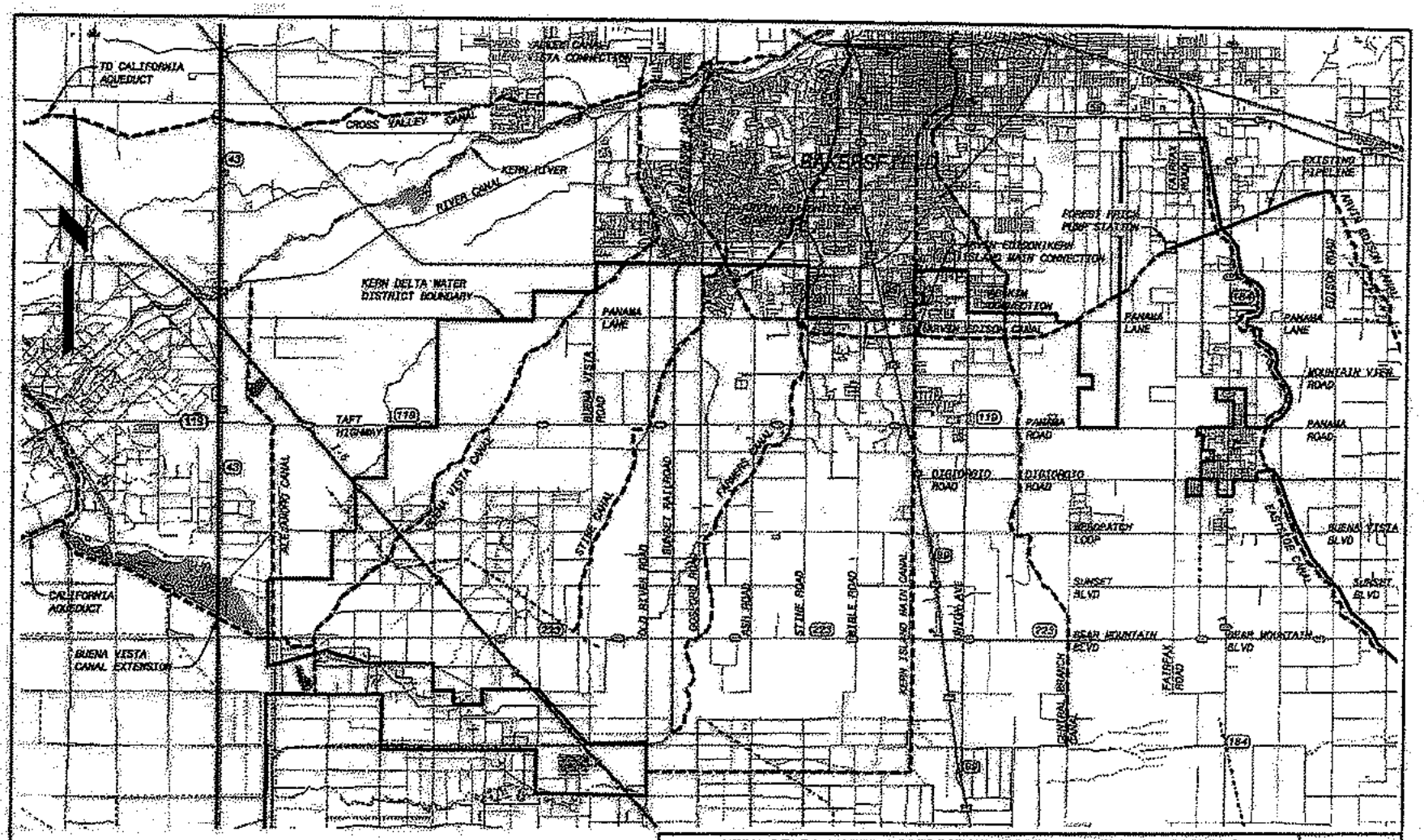
Dated: _____, 2011

Kern Delta Water District

_____

The San Bernardino Valley Municipal Water District

_____



KERN DELTA WATER DISTRICT/METROPOLITAN WATER DISTRICT
WATER MANAGEMENT PROGRAM

KERN DELTA BOUNDARIES AND PROGRAM FACILITIES

EXHIBIT D

N:\ACAD\Kern Delta\Exhibit F.dwg 11/23/2004 13:22:07

Kern Delta Water Storage Program

Invoice Review

INVOICED COSTS:

Cost	Agreement	June 18, 2012 Invoice
Participation Payment	$40/acre-ft	$40/acre-ft
Energy costs	Pay all energy costs	CVC Power (pass through)
Operational losses	11%	11%
OM&R Fee (spreading)	$3.52/acre-ft	$3.51/acre-ft
OM&R Fee (conveyance)	$19.88/acre-ft	$19.88/acre-ft
Exchange Cost (Rosedale)	§ 4.1.2, 5.4.1	Pass through
Exchange Cost (BVWSD)	§ 4.1.2, 5.4.1	Pass through

INVOICE AMOUNT:

	Staff Estimate	June 18, 2012
Put Cost	$2,400,000	$2,329,862.77

17,800 af

@ 130.89/af

RMT, 7/2/2012

Kern Delta Water District

501 TAFT HIGHWAY
BAKERSFIELD, CALIFORNIA 93307-6247
TELEPHONE (661) 834-4656
FAX (661) 836-1705

BOARD OF DIRECTORS

Rodney Palla, *President*
David L. Kaiser, *Vice President*
David C. Cosyns, *Secretary*
Kevin Antongiovanni, *Treasurer*
Donald Collins
Howard Frick
Fred Garone
Richard Tillema
Philip J. Cerro

OFFICERS & STAFF

L. Mark Mulkay
General Manager

Dirk W. Reed
Deputy General Manager

Bryan C. Duncan
Controller

McMurtrey, Hartsock & Worth
Attorneys-at-Law

June 18, 2012

Doug Headrick
General Manager
San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
San Bernardino, Ca 92408

Re: Invoice for 2011 Storage of Regulated Water (**Invoice # WBP2012-04**)

Dear Mr. Headrick,

Pursuant to the *Agreement Between Kern Delta Water District and The San Bernardino Valley Municipal Water District for a Water Management Program,* dated October 26, 2011; please accept this letter as an invoice.

Agreement Section	Title	Rate ($/af)	Delivered Water (af)	Cost ($)
1.20	Participation Payment	40.00	30,000	$1,200,000.00
5.5.1	OM&R Spreading	3.51	30,000	$105,300.00
5.5.3	OM&R Delivery Canal	19.88	30,000	$596,400.00
5.4.1	CVC Power (variable)*	Pass Through		$232,976.36
5.4.1	Exchange Cost (Rosedale)*	Pass Through		$66,227.92
5.4.1	Exchange Cost (BVWSD)*	Pass Through		$128,967.48
			Total Due	**$2,329,862.77**

* See attachment 1 for detailed cost breakdown

APPROVE FOR PAYMENT
Initials DDH
Date 6/12/12
Project Name _____
Project Number _____
Invoice to be billed to other Entity ☐
Entity Name _____
% split or EBX Reach # _____

After this invoice, the summary of Regulated Water is as follows:

Deliveries	Regulated Water	Returned Water	Remaining Water
30,000 af	26,700 af	0 af	26,700 af

Please remit payment to:

Kern Delta Water District
501 Taft Highway
Bakersfield, Ca 93307

Thank you for your help in this matter. If you have any questions please call me at (661) 834-4656.

Sincerely,

L. Mark Mulkay
General Manager
Kern Delta Water District

Enclosure(s)

Melded CVC cost (acft)	Total 2011 CVC Cost	MWD Portion of CVC Cost	Valley District Portion of CVC Cost
Acre-feet	90,139	60,139	30,000
KCWA CVC Cost	$699,981.50	$467,014.14	$232,967.36
Rosedale/ID4	$198,990.63	$132,762.71	$66,227.92
BVWSD Exchange Cost	$387,500.00	$258,532.52	$128,967.48

KCWA -- CVC Conveyance Cost		
Invoice Number	acft	dollars
24249	1632	$22,039.25
24291	1503	$6,581.25
24487 &24466	4887	$109,370.25
24810 & 24805	3959	$93,655.75
24924 & 24969	1552	$26,491.00
25021 & 25023	3998	$45,822.00
25088 & 25085	3858	$59,841.75
25191 & 25193	12530	$202,161.00
25328 & 25331	6536	$109,299.75
25429&25445	2868	$24,719.50
	43323	$699,981.50

ID#4 Exchange Cost	
acft	dollars
926	$19,298.00
817	$15,874.00
803	$7,395.75
1681	$22,263.75
4227	$64,831.50

Rosedale Exchange Cost		
Invoice Number	acft	dollars
1003	763	$4,959.50
1013	542	$6,168.00
1014	2541	$17,205.50
1015/1016	6801	$38,300.13
1017/1018	9308	$67,526.00
	19955	$134,159.13

Kern Delta Water District's Use of Improvement District No. 4's CVC Capacity

September 2011 through February 2012

	Kern Delta Wheeling through ID4 Capacity in CVC Pools 1-6*							
	Sep-11	Oct-11	Oct - 11**	Nov-11	Dec-11	Jan-12	Feb-12	Total
Pump Plant 1	926	394	423	803	1,681	-	-	4,227
Pump Plant 2	926	394	423	803	1,681	-	-	4,227
Pump Plant 3	926	258	423	447	1,410	-	-	3,464
Pump Plant 4	926	258	423	447	1,410	-	-	3,464
Pump Plant 5	926	258	423	447	1,410	-	-	3,464

	KDWD Wheeling Amount through CVC Extension***							
	Sep-11	Oct-11	Oct - 11**	Nov-11	Dec-11	Jan-12	Feb-12	Total
Pump Plant 6	526	128	423	340	1,306	4,858	6,386	13,967
AEWSD TO	*392*	*24*		*74*	*513*	-	*4,776*	*5,779*
KDWD to CVC Extension	**134**	**104**	**423**	**266**	**793**	**4,858**	**1,610**	**8,188**
Unlined Losses	*10*	*16*	*34*	*29*	*67*		*337*	*493*
RTO3	*124*	*88*	*388*	*237*	-		-	*837*
Pump Plant 7	-	-	-	-	726	4,858	1,273	6,857
Unlined Losses					*66*	*766*	*307*	*832*
RTO4	-	-		-	*660*	*4,092*	*966*	*5,718*
KCWA Power Invoice No.	24839	24991	pending	25125	25126	NA	NA	
Power Amount Billed	$19,298.00	$6,168.00	$9,706.00	$7,395.75	$22,263.75	$0.00	$0.00	

*Pursuant to the Letter Agreement between Improvement District No. 4 and Kern Delta Water District dated September 21, 2011.

**Pending invoice correction from CVC.

***Pursuant to the Agreement between Improvement District No. w and Kern Delta Water District dated February 25, 2004.

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE D
12/14/2011	1/13/2012

INVOICE NO. 24839

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

0034-1310
450B-5131

INVOICE

IMPROVEMENT DISTRICT NO. 4

Estimated Power Costs for Kern Delta Water District's Use of
Improvement District No. 4's Cross Valley Canal Capacity
Pursuant to the Letter Agreement between Improvement District No. 4 and Kern Delta Water District dated September 21, 2011.

Canal Reach	Pumping Plant	Delivered *af*	Rate *$/af*	Total Charges
1	1	926	$3.25	$3,009.50
1	2	926	$3.25	$3,009.50
2	3	926	$3.25	$3,009.50
2	4	926	$3.25	$3,009.50
2	5	926	$5.00	$4,630.00
3	6	526	$5.00	$2,630.00
		3,704		$19,298.00

TOTAL AMOUNT DUE **$19,298.00**

CRS

Requested By | Prepared By | Approved By | Approved By

☐ ORIGINAL ☐ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE D
1/11/2012	2/10/2012

INVOICE NO. 24991

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

0034-1310
450B-5131

INVOICE

IMPROVEMENT DISTRICT NO. 4

Estimated Power Costs for Kern Delta Water District's Use of
Improvement District No. 4's Cross Valley Canal Capacity
Pursuant to the Letter Agreement between Improvement District No. 4 and Kern Delta Water District dated September 21, 2011.

Canal Reach	Pumping Plant	Delivered *af*	Rate *$/af*	Total Charges
1	1	394	$3.25	$1,280.50
1	2	394	$3.25	$1,280.50
2	3	258	$3.25	$838.50
2	4	258	$3.25	$838.50
2	5	258	$5.00	$1,290.00
3	6	128	$5.00	$640.00
				$6,168.00

TOTAL AMOUNT DUE **$6,168.00**

D. SEMAR 1-11-12

Requested By | Prepared By | Approved By | Approved By

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KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE D
2/15/2012	3/16/2012

INVOICE NO. 25125

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

0034-1310
450B-4610

INVOICE

IMPROVEMENT DISTRICT NO. 4

Estimated Power Costs for Kern Delta Water District's Use of
Improvement District No. 4's Cross Valley Canal Capacity during November 2011
Pursuant to the Letter Agreement between Improvement District No. 4 and Kern Delta Water District dated September 21, 2011.

Canal Reach	Pumping Plant	Delivered *af*	Rate *$/af*	Total Charges
1	1	803	$2.25	$1,806.75
1	2	803	$2.25	$1,806.75
2	3	447	$2.25	$1,005.75
2	4	447	$2.25	$1,005.75
2	5	447	$2.25	$1,005.75
3	6	340	$2.25	$765.00
				$7,395.75

TOTAL AMOUNT DUE **$7,395.75**

D. SEMAR 2.15.12 | Requested By | Prepared By | Approved By | Approved By

☐ ORIGINAL ☒ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE D
2/15/2012	3/16/2012

INVOICE NO. 25126

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

0034-1310
450B-4610

INVOICE

IMPROVEMENT DISTRICT NO. 4

Estimated Power Costs for Kern Delta Water District's Use of
Improvement District No. 4's Cross Valley Canal Capacity during December 2011
Pursuant to the Letter Agreement between Improvement District No. 4 and Kern Delta Water District dated September 21, 2011.

Canal Reach	Pumping Plant	Delivered *af*	Rate *$/af*	Total Charges
1	1	1,681	$2.25	$3,782.25
1	2	1,681	$2.25	$3,782.25
2	3	1,681	$2.25	$3,782.25
2	4	1,410	$2.25	$3,172.50
2	5	1,410	$2.25	$3,172.50
3	6	1,306	$2.25	$2,938.50
Extension	7	726	$2.25	$1,633.50
				$22,263.75

TOTAL AMOUNT DUE **$22,263.75**

D. Sende 2.15.12 DRB

Requested By Prepared By Approved By Approved By

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KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE DA
09/22/2011	10/24/2011

INVOICE NO. 24291

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

0053-1330(PWR)
561B-4402

Cross Valley Canal
April 2011

Estimated power costs for deliveries of Kern Delta Water District Metropolitan Water District SWP supplies delivered to the N-2 Siphon as part of an operational exchange for deliveries of Kern County Water Agency Member Unit (KCWA M/U) Federal Section 215 deliveries to the Arvin-Edison Turnout on the CVC as well as deliveries to the P-11 Turnout as part of an operational exchange with KCWA M/U's for Federal Section 215 supplies delivered off the Friant-Kern Canal delivered to the Arvin-Edison Intake Canal; adjust for lined losses.

Canal Reach	Pumping Plant	SWP MWD Volume AF	Rate $/AF	Pumping Costs $
1	1	1,503	2.25	3,381.75
1	2	1,422	2.25	3,199.50
2	3	0	2.25	0.00
2	4	0	2.25	0.00
2	5	0	2.25	0.00
3	6	0	2.25	0.00
Extension	7	0	2.25	0.00

TOTAL AMOUNT DUE **$6,581.25**

Requested By | Prepared By | Approved By | Approved By

☐ ORIGINAL ☑ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE D
08/31/2011	09/30/2011

INVOICE NO. 24249

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

0053-1330(PWR)
WATER B.P.

VENDOR	K0241
INVOICE #	24249
P.O. #	DWR
DATE	8-31-
AMOUNT	22,039.25
ACCT. CODE	40540

859
10/12/11

Cross Valley Canal
March 2011

Estimated power costs for deliveries of Kern Delta Water District SWP Article 21 supplies, Metropolitan Water District SWP supplies delivered to the Arvin-Edison Turnout as well as an operational exchange of Article 21 deliveries to the North and South Strand Ranch Turnouts for a like amount of Federal supplies delivered to River Turnout No. 2; adjust for lined losses.

Canal Reach	Pumping Plant	SWP Article 21 Volume AF	SWP MWD Volume AF	Rate $/AF	Pumping Costs $
1	1	999	1,632	2.25	5,919.75
1	2	998	1,631	2.25	5,915.25
2	3	762	1,630	2.25	5,382.00
2	4	182	1,629	2.25	4,074.75
2	5	77	1,626	2.25	3,831.75
3	6	8	1,617	2.25	3,656.25
Extension	7	0	0	2.25	0.00

TOTAL AMOUNT DUE **$28,779.75**

OF THE $28,779.75 K.D.W.D. PAID $6,740.50
BANKING PAID $22,039.25

Requested By ☐ ORIGINAL ☑ REMITTANCE ☐ FILE

Prepared By

Approved By ☐ ACCOUNTING

Approved By ☐ NUMERICAL

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE DATE
11/22/2011	12/22/2011

INVOICE NO. 24487

RECEIVED
NOV 28 2011

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

0055-1100
580B-4430
020A-5103
0102-1100

Cross Valley Canal
August 2011

Early implementation conveyance fees in the Cross Valley Canal for delivery of Kern Delta Water District deliveries of Metropoitan WD State Water Project supplies to Arvin-Edison WSD and Rosedale Rio-Bravo WSD as well as an operational exchange of Kern County Water Agency Member Units' Lower River water supplies; adjusted for lined losses. Kern Delta Water District State Water Project Table A supplies were delivered to the Section 4 Turnout as part of an operational exchange with Semitropic WSD Lower River supplies of the Kern River Channel.

Reach	KDWD SWP Volume AF	MWD SWP Volume AF	Kern River Operational Exchange Volume AF	Total $/AF [1]	Conveyance Costs Total $
1	208	4,887	0	1.00	5,095.00
2	208	4,880	750	1.00	5,838.00
3	0	2,817		1.00	2,817.00

Total Amount Due 13,750.00

408%

VENDOR K0341
INVOICE # 24487
P.O. # DWR
DATE 11-22-11
AMOUNT 13,188.00
ACCT. CODE 40530

562.00 - 54600
13,188.00 - 40530

DWR

TOTAL AMOUNT DUE $ 13,750.00

[1] Conveyance Fee $1.00 per Reach.

12/14/11

WATER B.P.

Requested By | Prepared By | Approved By | Appro

☑ ORIGINAL ☐ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL CONTROL

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE D
12/12/2011	01/11/2012

INVOICE NO. 24810

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

0055-1100
580B-4430
020A-5103
0102-1100

Cross Valley Canal
September 2011

Early implementation conveyance fees in the Cross Valley Canal for delivery of Kern Delta Water District deliveries of Metropoitan WD State Water Project supplies to Arvin-Edison WSD and Rosedale Rio-Bravo WSD as well as an operational exchange of Kern County Water Agency Member Units' Lower River water supplies; adjusted for lined losses. Kern Delta Water District State Water Project Table A supplies were delivered to the Section 4 Turnout as part of an operational exchange with Semitropic WSD Lower River supplies of the Kern River Channel.

Reach	MWD SWP Volume AF	Total $/AF [1]	Conveyance Costs Total $
1	3,959	1.00	3,959.00
2	3,952	1.00	3,952.00
3	3,280	1.00	3,280.00
	Total Amount Due		11,191.00

TOTAL AMOUNT DUE $ 11,191.00

[1] Conveyance Fee $1.00 per Reach.

Requested By | Prepared By | Approved By | Approved By

☐ ORIGINAL ☑ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL

RECEIVED
DEC 14 2011

Directors:

Ted R. Page
Division 1

Terry Rogers
Vice President
Division 2

Randell Parker
Division 3

Michael Radon
President
Division 4

Adrienne J. Mathews
Division 5

William W. Van Skike
Division 6

Gene A. Lundquist
Division 7

James M. Beck
General Manager

Amelia T. Minaberrigarai
General Counsel

December 12, 2011

Mr. Mark Mulkay
Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

Re: Estimated power and conveyance invoices for September 2011; Cross Valley Canal Water Balance Summaries for September 2011

Dear Mr. Mulkay:

Enclosed are the above referenced documents for your records and remittance. If you have any questions or require further information, please call me at (661) 634-1491.

Sincerely,

Trent Taylor
Water Resources Planner
Kern County Water Agency

Enclosures

(661) 634-1400

Mailing Address
P.O. Box 58
Bakersfield, CA 93302-0058

Street Address
3200 Rio Mirada Dr.
Bakersfield, CA 93308

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE DATE
11/22/2011	12/22/2011

INVOICE NO. 24466

RECEIVED
NOV 28 2011

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

0053-1330(PWR)
561B-4402

Cross Valley Canal
August 2011

Estimated power costs for deliveries of Kern Delta Water District Metropolitan Water District SWP supplies delivered to Rosedale Rio-Bravo WSD and Arvin-Edison WSD as well as an operational exchange delivery with Kern County Water Agency Member Units' (750 af) delivered to the Section 4 Turnout; adjust for lined losses. Kern Delta WD also delivered their own SWP Table A supplies (303 af) to River Turnout No. 1 as part of an operational exchange with Semitropic WSD for Semitropic WSD Lower River supplies delivered to Kern Delta WD off the Kern River Channel.

Canal Reach	Pumping Plant	MWD SWP Volume AF	KDWD SWP Volume AF	Rate $/AF	Pumping Costs $
			5091		
1	1	4,883	208	3.25	16,545.75
1	2	4,880	208	3.25	16,536.00
2	3	4,877	208	3.25	16,526.25
2	4	4,357	208	3.25	14,836.25
2	5	4,354	0	5.00	21,770.00
3	6	2,813	0	5.00	14,065.00
Extension	7	0	0	5.00	0.00

4 %

TOTAL AMOUNT DUE **$100,279.25**

DWR

4,097.00 — 54600
96,182.25 — 40540

WATER B.P.

VENDOR	K0841
INVOICE #	24466
P.O. #	DWR
DATE	11-22-11
AMOUNT	96,182.25
ACCT. CODE	

12/14/11

Requested By ☑ ORIGINAL ☐ REMITTANCE Prepared By ☐ FILE Approved By ☐ ACCOUNTING Approved By ☐ NUMERICAL CONTROL

Cross Valley Canal

August 2011 Deliveries - Gross AF

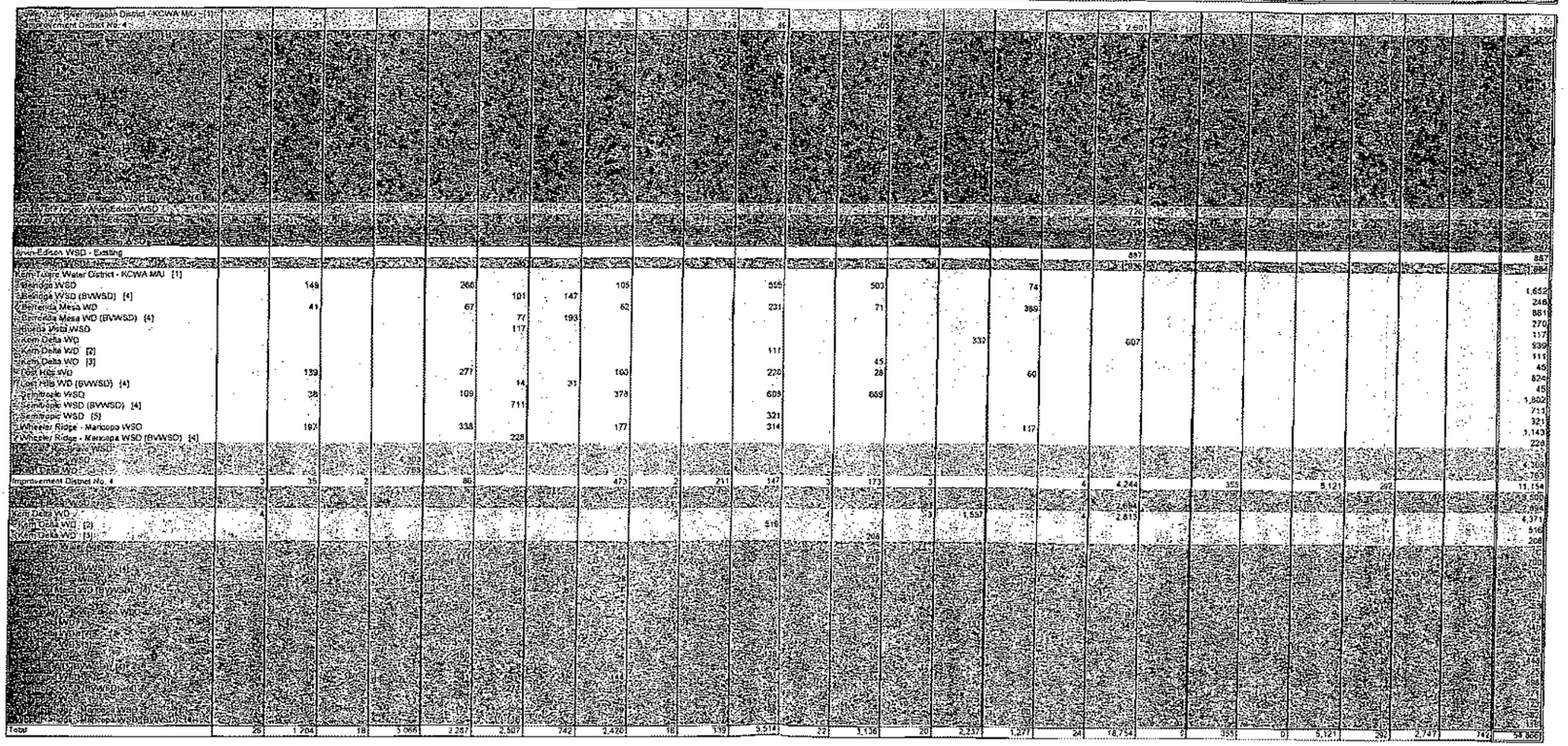
	Points of Entry				
	Tupman T/O SWP (AF)	CVC/Friant-Kern Intertie CVP (AF)	Pionner Inlet KR (AF)	KCWA Arnco Reverse SWP Exch. (AF)	CVC Total (AF)
Deliveries by Turnout:					
N-2 Siphon	1,204	-	-	-	1,204
Rosedale Rio Bravo Turnout No. 1	5,066	-	-	-	5,066
Strand Siphons	2,287	-	-	-	2,287
North Strand Ranch Turnout	2,507	-	-	-	2,507
South Strand Ranch Turnout	742	-	-	-	742
Kern Water Bank P-11 Turnout	2,420	-	-	-	2,420
Nord Siphons	339	-	-	-	339
Section 4 Turnout	5,514	-	-	-	5,514
River Turnout No. 1	3,136	-	-	-	3,136
Rosedale Rio Bravo Turnout No. 2	2,237	750	-	-	2,987
River Turnout No. 2	1,277	-	-	-	1,277
Arvin-Edison Turnout	18,754	-	-	-	18,754
Lined Losses - Pools 1-6	126	-	-	-	126
Unlined Losses - Pool 7	355	-	-	-	355
River Turnout No. 4 to River	5,121	-	-	-	5,121
Calloway Turnout	2,747	-	-	-	2,747
Henry C. Garnett Treatment Plant	-	-	-	3,959	3,959
Cawelo Pump Station 'A'	742	-	-	-	742
Unlined Losses - Pool 8	292	-	-	-	292
Total	54,866	750	-	3,959	59,575
Deliveries by Turnout/Owner:					
N-2 Siphon					
Improvement District No. 4	35	-	-	-	35
Kern County Water Agency	271	-	-	-	271
Kern-Tulare WD - KCWA M/U	564	-	-	-	564
Lower Tule River ID - KCWA M/U	21	-	-	-	21
Pixley ID - KCWA M/U	313	-	-	-	313
Rosedale-Rio Bravo Turnout No. 1					
Rosedale-Rio Bravo WSD - AEWSD	4,303	-	-	-	4,303
Rosedale-Rio Bravo WSD - KDWD	763	-	-	-	763
Strand Siphons					
Improvement District No. 4	86	-	-	-	86
Kern County Water Agency	503	-	-	-	503
Kern-Tulare WD - KCWA M/U	1,057	-	-	-	1,057
Lower Tule River ID - KCWA M/U	52	-	-	-	52
Pixley ID - KCWA M/U	589	-	-	-	589
North Strand Turnout					
Kern County Water Agency	531	-	-	-	531
Kern-Tulare WD - KCWA M/U	1,248	-	-	-	1,248
Pixley ID - KCWA M/U	728	-	-	-	728
South Strand Turnout					
Kern County Water Agency	165	-	-	-	165
Kern-Tulare WD - KCWA M/U	371	-	-	-	371
Pixley ID - KCWA M/U	206	-	-	-	206
Kern Water Bank P-11 Turnout					
Improvement District No. 4	473	-	-	-	473
Kern County Water Agency	359	-	-	-	359
Kern-Tulare WD - KCWA M/U	822	-	-	-	822
Lower Tule River ID - KCWA M/U	290	-	-	-	290
Pixley ID - KCWA M/U	476	-	-	-	476
Nord Siphons					
Improvement District No. 4	211	-	-	-	211
Lower Tule River ID - KCWA M/U	128	-	-	-	128
Section 4 Turnout					
Improvement District No. 4	147	-	-	-	147
Kern County Water Agency	1,031	-	-	-	1,031
Kern Delta Water District	516				516
Kern-Tulare WD - KCWA M/U	2,360	-	-	-	2,360
Lower Tule River ID - KCWA M/U	89	-	-	-	89
Pixley ID - KCWA M/U	1,371	-	-	-	1,371
River Turnout No. 1					
Improvement District No. 4	173	-	-	-	173
Kern County Water Agency	539	-	-	-	539
Kern Delta Water District	208	-	-	-	208
Kern-Tulare WD - KCWA M/U	1,316	-	-	-	1,316
Lower Tule River ID - KCWA M/U	105	-	-	-	105
Pixley ID - KCWA M/U	795	-	-	-	795
Rosedale Rio Bravo Turnout No. 2					
Kern County Water Agency	191	-	-	-	191
Kern Delta Water District	1,537	750	-	-	2,287
Kern-Tulare WD - KCWA M/U	332	-	-	-	332
Pixley ID - KCWA M/U	177	-	-	-	177
River Turnout No. 2					
Kern County Water Agency	299	-	-	-	299
Kern-Tulare WD - KCWA M/U	640	-	-	-	640
Pixley ID - KCWA M/U	338	-	-	-	338
Arvin-Edison Turnout					
Arvin-Edison WSD (Existing)	887	-	-	-	887
Arvin-Edison WSD (New)	1,936	-	-	-	1,936
Cawelo WD - AEWSD	2,694	-	-	-	2,694
County of Fresno - AEWSD	726	-	-	-	726
County of Tulare - AEWSD	726	-	-	-	726
Hills Valley ID - AEWSD	518	-	-	-	518
Improvement District No. 4	4,244	-	-	-	4,244
Kern County Water Agency	442	-	-	-	442
Kern Delta Water District	2,813	-	-	-	2,813
Kern-Tulare WD - KCWA M/U	607	-	-	-	607
Lower Tule River ID - KCWA M/U	2,601	-	-	-	2,601
Pixley ID - KCWA M/U	323	-	-	-	323
Tri-Valley WD - AEWSD	237	-	-	-	237
Lined Losses - Pools 1-6					
Arvin-Edison WSD (New)	48	-	-	-	48
Cawelo WD - AEWSD	11	-	-	-	11
Improvement District No. 4	17	-	-	-	17
Kern County Water Agency	29	-	-	-	29
Kern Delta Water District	21	-	-	-	21
Unlined Losses - Pools 7					
Improvement District No. 4	355	-	-	-	355
River Turnout No. 4					
Improvement District No. 4	5,121	-	-	-	5,121
Calloway Turnout					
Cawelo WD	2,747	-	-	-	2,747
Cawelo Pump Station 'A'					
Cawelo WD	742	-	-	-	742
Henry C. Garnett Treatment Plant:					
Improvement District No. 4	-	-	-	3,959	3,959
Unlined Losses - Pools 8					
Improvement District No. 4	292	-	-	-	292
Total	54,866	750	-	3,959	59,575
Existing Participant Deliveries	*19,890*	-	-	*3,959*	*14,693*
New Participant Deliveries	34,976	750	-	-	44,882
	54,866	750	-	3,959	59,575

Shading denotes forward flow deliveries based on each point of entry into the CVC: _/_ denotes pools / pump plants utilized (for forward flow).

Kern County Water Agency
Cross Valley Canal - Tupman Turnout Water Balance
State Water Project Deliveries
Month of August 2011
Subject to Adjustment

November 22, 2011
2:09 PM

	Reach 1				Reach 2											Reach 3							Extension			
	Pool 1	Pool 2			Pool 3						Pool 4		Pool 5			Pool 6		Pool 7					Stage 8			
Date	CVC Losses SWP	N-2 Siphon SWP	CVC Losses SWP	RRB 1 Turnout SWP	Strand Siphons SWP	North Strand Turnout SWP	South Strand Turnout SWP	KWB P-11 Turnout SWP	CVC Losses SWP	Nord Siphons SWP	Section 4 Pump SWP	CVC Losses SWP	RTO 1 Turnout SWP	CVC Losses SWP	RRB 2 Turnout SWP	RTO 2 Turnout SWP	CVC Losses SWP	AEWSD T.O SWP	KTWD Siphons SWP	Unlined Losses SWP	RTO 3 River SWP	RTO 4 Turnout SWP	Unlined Losses SWP	Calloway Turnout SWP	Cawelo PSA SWP	T/O Total SWP
1	1	0	0	30	25	58	21	25	0	0	90	1	226	0	100	0	6	62	0	7	0	100	6	115	0	651
2	0	0	1	31	0	60	21	0	0	0	90	0	224	0	105	0	1	109	0	7	0	99	6	121	0	664
3	1	0	0	30	0	55	19	0	1	0	90	0	230	1	103	0	0	109	0	7	0	93	5	125	25	695
4	0	0	0	60	0	46	17	0	0	0	90	1	197	0	48	0	0	207	0	6	0	73	5	126	25	803
5	1	0	1	87	0	49	18	0	0	0	90	0	122	0	0	0	1	283	0	6	0	57	5	123	25	865
6	0	0	0	90	0	48	19	0	0	0	90	0	121	1	0	0	0	287	0	6	0	55	5	126	25	873
7	1	0	0	90	0	55	18	0	1	0	90	1	105	0	0	0	0	299	0	6	0	55	5	126	25	878
8	0	0	0	90	0	57	20	0	0	0	90	0	105	0	0	0	0	297	0	6	0	55	5	125	25	878
9	0	0	1	90	0	58	19	0	0	0	90	0	109	1	0	0	1	296	0	6	0	55	5	122	25	873
10	1	0	0	90	0	55	20	0	0	0	90	1	103	0	0	0	0	301	0	6	0	54	5	121	25	872
11	0	0	0	90	0	58	20	0	1	0	90	0	45	0	7	0	0	307	0	6	0	54	5	119	25	827
12	1	0	1	90	0	52	18	63	0	0	90	0	0	1	20	0	1	357	0	6	0	85	5	45	22	853
13	0	31	0	90	46	52	18	71	0	0	90	1	0	0	21	0	0	345	0	6	0	100	5	0	22	898
14	1	50	0	90	60	56	20	71	0	0	90	0	0	0	10	0	1	326	0	6	0	102	5	0	22	910
15	0	51	0	86	60	54	20	43	1	0	90	0	0	1	0	0	0	379	0	6	0	101	5	0	22	918
16	1	49	1	77	61	55	20	38	0	0	90	1	0	0	7	0	0	400	0	6	0	99	5	0	22	971
17	0	49	0	78	61	58	20	32	0	0	89	0	0	0	12	0	1	400	0	6	0	79	5	0	22	902
18	0	48	0	86	61	58	17	30	0	0	90	0	0	1	15	0	0	395	0	6	0	71	5	0	9	892
19	1	49	1	90	60	58	19	30	1	0	90	1	0	0	24	0	0	405	0	6	0	69	5	0	0	905
20	0	14	0	90	61	70	19	29	0	0	89	0	0	0	48	0	1	397	0	6	0	70	5	0	0	890
21	0	0	0	90	62	26	8	40	0	0	89	0	0	1	55	37	0	376	0	6	0	100	4	0	0	886
22	1	0	0	90	61	0	0	52	0	0	89	1	0	0	55	62	1	399	0	5	0	110	4	0	0	930
23	0	0	0	91	61	0	0	52	1	0	89	0	0	0	55	61	0	386	0	5	0	88	4	0	0	894
24	1	0	0	91	61	0	0	52	0	0	89	0	0	1	56	62	0	375	0	5	0	95	4	0	0	893
25	0	0	0	91	60	10	0	65	0	5	89	1	0	0	55	61	1	347	0	5	0	116	4	0	0	905
26	0	32	1	91	60	18	0	56	0	14	90	0	0	0	53	61	0	327	0	5	0	115	4	0	0	930
27	1	51	0	90	59	18	0	63	1	31	90	0	0	1	56	59	0	291	0	5	0	94	4	0	0	914
28	0	49	0	90	58	19	0	101	0	31	89	1	0	0	55	58	1	255	0	5	0	89	4	0	0	903
29	0	48	0	91	59	18	0	105	0	31	89	0	0	0	55	60	0	237	0	5	0	88	4	0	0	886
30	1	46	1	90	58	18	0	101	0	31	89	0	0	1	56	62	1	258	0	5	0	90	4	0	0	912
31	0	45	0	90	58	17	0	102	1	33	89	1	0	0	55	61	0	338	0	5	0	90	4	0	0	899
CFS	13	807	9	2,554	1,153	1,284	374	1,220	8	373	2,780	11	1,583	10	1,128	644	12	9,455	0	178	0	2,582	147	1,386	374	27,061
AF	26	1,204	18	5,066	2,287	2,507	742	2,420	16	739	5,514	22	3,136	20	2,237	1,277	24	18,754	0	355	0	5,121	292	2,747	742	54,866



NOTES:
[1] Kern County Water Agency Member Units' made deliveries of Federal Section 215 supplies utilizing Lower-Tule River Irrigation District, Pixley Irrigation District and Kern-Tulare Water District capacities per long-term agreements which allow for KCWA MIU's to utilize unused capacities.
[2] Deliveries of Kern Delta WD Metropolitan SWP supplies (750 af) to the Section 4 Turnout were made to the Kern County Water Agency Member Units as part of an operational exchange of KCWA MIU Lower River supplies CVC Pool 5 through the Pioneer Inlet (which was then delivered by Kern Delta WD to Rosedale Turnout No. 2).
[3] Deliveries of Kern Delta WD SWP Table A supplies (303 af) to the River Turnout No. 1 were made to Semitropic WSD as part of an operational exchange of Semitropic WSD Lower River supplies delivered to Kern Delta WD off the Kern River Channel in August 2011.
[4] Deliveries of KCWA MIU water to Buena Vista WSD at the North and South Strand Ranch Turnout (3,015 af) were part of an operational exchange with Buena Vista WSD Kern River supplies delivered to the Bernerda Mesa and Pioneer Projects off the Kern River Channel.
[5] Deliveries by Semitropic WSD to the Section 4 Turnout (645 af) were part of an operational exchange with KCWA MIU Lower River water delivered off the Kern River Channel to the Pioneer Project (645 af).

	CVC Losses	N-2 Siphon	CVC Losses	RRB 1 Turnout	Strand Siphons	Strand Turnout	Strand Turnout	KWB P-11 Turnout	CVC Losses	Nord Siphons	Section 4 Pump	CVC Losses	RTO 1 Turnout	CVC Losses	RRB 2 Turnout	RTO 2 Turnout	CVC Losses	AEWSD T.O	KTWD Siphons	Unlined Losses	RTO 3 River	RTO 4 Turnout	Unlined Losses	Calloway Turnout	Cawelo PSA	T/O Total
Arvin-Edison WSD	6		8	4,363					5			8		9			12	7,617								12,160
Berridge WSD	3	390	2		536	210	296	212	2		1,317	2	1,612	1		146										3,842
Bernerda Mesa WD	1	82			132	151	381	123			455		140			766	1									2,232
Buena Vista WSD						234																				234
Cawelo WD	2		1						1			2		2			3						2,747	742		3,500
Improvement District No. 4	3	58	2		138			763	2	339	239	3	228	3			4	6,845	355		5,121	292				14,440
Kern Delta WD	4		3	763					3		750	4	303	3	2,237		4	4,092								8,166
Lost Hills WD		297			589	30	65	212			457		60			126										1,848
Semitropic WSD	4	76	3		218	1,427		758	2		1,864	2	1,343	2												5,699
Wheeler Ridge - Maricopa WSD	1	393	1		674	455		357	1		625	1				234										2,737
Total	26	1,204	18	5,066	2,287	2,507	742	2,420	16	339	5,514	22	3,136	20	2,237	1,277	24	18,754	0	355	0	5,121	292	2,747	742	54,866

Kern County Water Agency

Cross Valley Canal - Pioneer Canal Inlet Water Balance

Kern River Deliveries
Month of August 2011
Subject to Adjustment

November 22, 2011
9:06 AM

		Reach 1		Reach 2										Reach 3						
		Pool 1	Pool 2	Pool 3					Pool 4			Pool 5			Pool 6		Pool 7	Pool 8		
Date	California Aqueduct KR	CVC Losses	CVC Losses	RRB 1	Strand Siphons	North Strand Turnout	South Strand Turnout	KWB P-11 Turnout	CVC Losses	Section 4 Turnout	Nord Siphons	CVC Losses	CVC Losses	Pioneer Inlet	RRB 2	CVC Losses	AEWSD Turnout	Unlined Losses	Unlined Losses	Calloway Turnout	ID4 WTP	System Loss/ Storage
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	29	29	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	35	35	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	34	34	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	58	58	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	48	48	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	35	35	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CFS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	378	0	0	0	0	0	0	0
AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	750	0	0	0	0	0	0	0
KCWA DWR Delivery Capacity															750							
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	750	0	0	0	0	0	0	0

NOTES:
[1] Deliveries of Kern County Water Agency Lower River supplies in CVC Pool 5 to Kern Delta WD are part of an operational exchange of KCWA M/U Lower River supplies for Kern Delta WD SWP supplies delivered in forward flow to the Section 4 Turnout.

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE D
12/12/2011	01/11/2012

INVOICE NO. 24805

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

0053-1330(PWR)
561B-4402

Cross Valley Canal
September 2011

Estimated power costs for deliveries of Kern Delta Water District Metropolitan Water District SWP supplies delivered to River Turnout No. 2 and 3, Rosedale Rio-Bravo WSD and Arvin-Edison WSD; adjust for lined losses.

Canal Reach	Pumping Plant	MWD SWP Volume AF	Rate $/AF	Pumping Costs $
1	1	3,955	3.25	12,853.75
1	2	3,952	3.25	12,844.00
2	3	3,950	3.25	12,837.50
2	4	3,946	3.25	12,824.50
2	5	3,940	5.00	19,700.00
3	6	2,281	5.00	11,405.00
Extension	7	0	5.00	0.00

TOTAL AMOUNT DUE **$82,464.75**

Requested By | Prepared By | Approved By | Approved By

☐ ORIGINAL ☑ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL

Cross Valley Canal

September 2011 Deliveries - Gross AF

	Points of Entry				
	Tupman T/O SWP (AF)	CVC/Friant-Kern Intertie CVP (AF)	Pioneer Inlet KR (AF)	KCWA Arnco Reverse SWP Exch. (AF)	CVC Total (AF)
Deliveries by Turnout:					
N-2 Siphon	2,366	-	-	-	2,366
Rosedale Rio Bravo Turnout No. 1	5,109	-	-	-	5,109
Strand Siphons	3,142	-	-	-	3,142
North Strand Ranch Turnout	1,666	-	-	-	1,666
Kern Water Bank P-11 Turnout	3,759	-	-	-	3,759
Nord Siphons	1,825	-	-	-	1,825
Section 4 Turnout	5,100	-	-	-	5,100
River Turnout No. 1	8,257	-	-	-	8,257
Rosedale Rio Bravo Turnout No. 2	2,148	-	-	-	2,148
River Turnout No. 2	5,288	-	-	-	5,288
Arvin-Edison Turnout	10,332	-	-	-	10,332
Lined Losses - Pools 1-6	124	-	-	-	124
River Turnout No. 3 to River	1,212	-	-	-	1,212
Unlined Losses - Pool 7	121	-	-	-	121
Henry C. Garnett Treatment Plant	-	-	-	3,709	3,709
Total	50,449	-	-	3,709	54,158
Deliveries by Turnout/Owner:					
N-2 Siphon					
Cawelo WD	67	-	-	-	67
Improvement District No. 4	71	-	-	-	71
Kern County Water Agency	370	-	-	-	370
Kern-Tulare WD - KCWA M/U	917	-	-	-	917
Lower Tule River ID - KCWA M/U	439	-	-	-	439
Pixley ID - KCWA M/U	502	-	-	-	502
Rosedale-Rio Bravo Turnout No. 1					
Kern County Water Agency	34	-	-	-	34
Kern-Tulare WD - KCWA M/U	74	-	-	-	74
Lower Tule River ID - KCWA M/U	38	-	-	-	38
Pixley ID - KCWA M/U	22	-	-	-	22
Rosedale-Rio Bravo WSD	3,021	-	-	-	3,021
Rosedale-Rio Bravo WSD - AEWSD	1,608	-	-	-	1,608
Rosedale-Rio Bravo WSD - KDWD	312	-	-	-	312
Strand Siphons					
Improvement District No. 4	206	-	-	-	206
Kern County Water Agency	480	-	-	-	480
Kern-Tulare WD - KCWA M/U	1,182	-	-	-	1,182
Lower Tule River ID - KCWA M/U	628	-	-	-	628
Pixley ID - KCWA M/U	646	-	-	-	646
North Strand Turnout					
Kern County Water Agency	226	-	-	-	226
Kern-Tulare WD - KCWA M/U	629	-	-	-	629
Lower Tule River ID - KCWA M/U	320	-	-	-	320
Pixley ID - KCWA M/U	342	-	-	-	342
Rosedale-Rio Bravo WSD	149	-	-	-	149
Kern Water Bank P-11 Turnout					
Cawelo WD	69	-	-	-	69
Improvement District No. 4	759	-	-	-	759
Kern County Water Agency	372	-	-	-	372
Kern-Tulare WD - KCWA M/U	1,052	-	-	-	1,052
Lower Tule River ID - KCWA M/U	878	-	-	-	878
Pixley ID - KCWA M/U	629	-	-	-	629
Nord Siphons					
Improvement District No. 4	425	-	-	-	425
Kern County Water Agency	196	-	-	-	196
Kern-Tulare WD - KCWA M/U	494	-	-	-	494
Lower Tule River ID - KCWA M/U	438	-	-	-	438
Pixley ID - KCWA M/U	272	-	-	-	272
Section 4 Turnout					
Improvement District No. 4	131	-	-	-	131
Kern County Water Agency	679	-	-	-	679
Kern-Tulare WD - KCWA M/U	1,706	-	-	-	1,706
Lower Tule River ID - KCWA M/U	811	-	-	-	811
Pixley ID - KCWA M/U	936	-	-	-	936
Rosedale-Rio Bravo WSD	837	-	-	-	837
River Turnout No. 1					
Cawelo WD	3,477	-	-	-	3,477
Cawelo WD - AEWSD	856	-	-	-	856
Improvement District No. 4	637	-	-	-	637
Improvement District No. 4 - AEWSD	6	-	-	-	6
Kern County Water Agency	530	-	-	-	530
Kern-Tulare WD - KCWA M/U	1,216	-	-	-	1,216
Lower Tule River ID - KCWA M/U	870	-	-	-	870
Pixley ID - KCWA M/U	665	-	-	-	665
Rosedale Rio Bravo Turnout No. 2					
Cawelo WD - AEWSD	771	-	-	-	771
Improvement District No. 4 - AEWSD	6	-	-	-	6
Improvement District No. 4 - KDWSD	184	-	-	-	184
Kern County Water Agency	89	-	-	-	89
Kern Delta Water District	660	-	-	-	660
Kern-Tulare WD - KCWA M/U	136	-	-	-	136
Pixley ID - KCWA M/U	72	-	-	-	72
Rosedale-Rio Bravo WSD - KDWD	230	-	-	-	230
River Turnout No. 2					
Cawelo WD - AEWSD	174	-	-	-	174
Improvement District No. 4 - KDWSD	216	-	-	-	216
Kern County Water Agency	682	-	-	-	682
Kern Delta Water District	991	-	-	-	991
Kern-Tulare WD - KCWA M/U	1,682	-	-	-	1,682
Lower Tule River ID - KCWA M/U	620	-	-	-	620
Pixley ID - KCWA M/U	923	-	-	-	923
Arvin-Edison Turnout					
Arvin-Edison WSD (Existing)	887	-	-	-	887
Arvin-Edison WSD (New)	1,945	-	-	-	1,945
Cawelo WD - AEWSD	2,049	-	-	-	2,049
County of Fresno - AEWSD	726	-	-	-	726
County of Tulare - AEWSD	726	-	-	-	726
Hills Valley ID - AEWSD	518	-	-	-	518
Improvement District No. 4 - AEWSD	50	-	-	-	50
Improvement District No. 4 - KDWSD	392	-	-	-	392
Kern County Water Agency	463	-	-	-	463
Kern Delta Water District	1,895	-	-	-	1,895
Kern-Tulare WD - KCWA M/U	290	-	-	-	290
Pixley ID - KCWA M/U	154	-	-	-	154
Tri-Valley WD - AEWSD	237	-	-	-	237
Lined Losses - Pools 1-6					
Arvin-Edison WSD (New)	39	-	-	-	39
Cawelo WD - AEWSD	12	-	-	-	12
Improvement District No. 4	9	-	-	-	9
Kern County Water Agency	33	-	-	-	33
Kern Delta Water District	27	-	-	-	27
Rosedale-Rio Bravo WSD	4	-	-	-	4
Unlined Losses - Pools 7					
Improvement District No. 4	46	-	-	-	46
Kern Delta Water District	75	-	-	-	75
River Turnout No. 3					
Improvement District No. 4	627	-	-	-	627
Kern Delta Water District	585	-	-	-	585
Henry C. Garnett Treatment Plant:					
Improvement District No. 4	-	-	-	3,709	3,709
Total	50,449	-	-	3,709	54,158
Existing Participant Deliveries	*40,078*	-	-	*3,709*	*43,787*
New Participant Deliveries	10,371	-	-	-	10,371
	50,449	-	-	3,709	54,158

Shading denotes forward flow deliveries based on each point of entry into the CVC; _/_ denotes pools / pump plants utilized (for forward flow).

Cross Valley Canal - Tupman Turnout Water Balance

State Water Project Deliveries

Month of September 2011

Subject to Adjustment

11:16 AM

	Reach 1				Reach 2										Reach 3											
	Pool 1	Pool 2			Pool 3					Pool 4			Pool 5			Pool 6		Pool 7				Pool 8				
Date	CVC Losses SWP	N-2 Siphon SWP	CVC Losses SWP	RRB 1 Turnout SWP	Strand Siphons SWP	North Strand Turnout SWP	South Strand Turnout SWP	KWB P-11 Turnout SWP	CVC Losses SWP	Nord Siphons SWP	Section 4 Pump SWP	CVC Losses SWP	RTO 1 Turnout SWP	CVC Losses SWP	RRB 2 Turnout SWP	RTO 2 Turnout SWP	CVC Losses SWP	AEWSD T.O. SWP	KTWD Siphons SWP	Unlined Losses SWP	RTO 3 River SWP	RTO 4 Turnout SWP	Unlined Losses SWP	Calloway Turnout SWP	Cawelo PSA SWP	TJO Total SWP
1	1	46	1	90	59	18	0	92	0	33	89	0	0	1	55	39	1	253	0	5	33	0	0	0	0	819
2	0	47	0	90	58	18	0	92	0	33	88	0	0	0	55	60	0	334	0	5	62	0	0	0	0	865
3	1	46	0	90	58	17	0	82	1	33	66	1	0	0	55	98	0	240	0	5	82	0	0	0	0	675
4	0	46	1	89	58	18	0	92	0	34	88	0	0	1	55	66	1	345	0	5	82	0	0	0	0	878
5	1	45	0	89	58	17	0	92	0	33	86	0	94	0	31	96	0	291	0	3	37	0	0	0	0	885
6	0	47	0	90	58	18	0	88	0	34	88	1	128	0	0	89	1	225	0	0	0	0	0	0	0	867
7	1	47	0	90	59	18	0	93	1	34	88	0	134	1	0	106	0	216	0	0	0	0	0	0	0	878
8	0	48	1	89	59	18	0	93	0	33	88	0	150	0	0	106	1	211	0	0	0	0	0	0	0	885
9	0	47	0	90	59	18	0	82	0	34	85	1	150	0	0	110	0	210	0	0	0	0	0	0	0	887
10	1	46	0	87	24	17	0	77	0	33	80	0	150	1	0	114	0	210	0	0	0	0	0	0	0	790
11	0	45	1	89	0	23	0	0	1	32	83	0	145	0	0	118	1	211	0	0	0	0	0	0	0	750
12	1	46	0	89	32	26	0	37	0	32	88	1	141	1	0	115	0	208	0	0	0	0	0	0	0	818
13	0	45	0	90	61	25	0	83	0	32	87	0	142	0	0	111	1	209	0	0	0	0	0	0	0	862
14	1	46	0	90	60	27	0	83	0	31	89	0	148	0	0	110	0	205	0	0	0	0	0	0	0	890
15	0	46	1	90	60	29	0	83	1	31	90	1	154	1	0	109	0	207	0	0	0	0	0	0	0	902
16	1	46	0	91	60	29	0	83	0	31	90	0	191	0	0	110	1	181	0	0	0	0	0	0	0	896
17	0	47	0	91	61	35	0	85	0	31	89	0	216	0	0	114	0	143	0	0	0	0	0	0	0	892
18	0	48	1	91	60	40	0	55	0	31	90	1	218	1	0	115	0	147	0	0	0	0	0	0	0	894
19	1	47	0	91	61	41	0	56	1	31	90	0	223	0	0	113	1	148	0	0	0	0	0	0	0	904
20	0	47	0	91	60	42	0	56	0	31	90	0	223	0	0	112	0	148	0	0	0	0	0	0	0	905
21	0	47	0	91	61	40	0	56	0	31	90	1	216	1	0	108	1	148	0	0	0	0	0	0	0	891
22	1	50	1	92	60	41	0	55	0	31	90	0	221	0	0	109	0	128	0	0	0	0	0	0	0	876
23	0	33	0	38	23	16	0	18	1	16	59	0	140	1	42	61	0	84	0	0	0	0	0	0	0	559
24	1	37	0	15	35	20	0	15	0	17	51	1	73	0	95	60	1	88	0	0	0	0	0	0	0	509
25	0	57	1	91	77	45	0	56	0	39	88	0	139	1	95	60	0	122	0	0	0	0	0	0	0	869
26	0	20	0	90	59	32	0	54	0	31	84	0	185	0	95	59	0	332	0	13	30	0	0	0	0	870
27	1	0	0	91	58	32	0	53	1	32	84	1	185	0	98	60	1	118	0	7	86	0	0	0	0	906
28	0	0	0	90	59	33	0	52	0	32	85	0	172	1	95	59	0	116	0	6	59	0	0	0	0	861
29	0	0	1	91	58	36	0	51	0	32	81	0	150	0	111	59	1	100	0	6	59	0	0	0	0	846
30	1	34	0	90	22	49	0	60	0	13	85	1	77	0	203	60	0	120	0	6	61	0	0	0	0	892
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CFS	13	1,193	9	2,578	1,584	840	0	1,686	7	920	2,571	18	4,183	11	1,093	2,666	12	5,309	0	61	611	0	0	0	0	25,494
AF	26	2,368	18	5,109	3,142	1,666	0	3,799	14	1,825	5,100	20	8,257	22	2,148	5,288	24	10,332	0	121	1,212	0	0	0	0	50,449

Arvin-Edison WSD	16												104													685
Berrenda Mesa WD	44												77			398										616
Buena Vista WSD					319																					319
Improvement District No. 4	40			117			633		242	75		363								17	226					1,515
Lost Hills WD	115			105			69			151		99				67										684
Rosedale Rio-Bravo WSD			38		2					11																51
Semitropic WSD	34			73			232		196	135		161														831
Wheeler Ridge - Maricopa WSD	97			119			81			186		86				79										907
Kern-Tulare Water District - KCWA MU [1]																										
Belridge WSD	155				200		85			216		135				101										893
Berrenda Mesa WD	149									149		108				550										852
Buena Vista WSD						342																				342
Kern Delta WD [2]															172	102		154			32					364
Lost Hills WD	157			228			143			207		138				82										963
Rosedale Rio-Bravo WSD			23				15			16																38
Semitropic WSD	46			101			322		27	187		223				72										1,151
Wheeler Ridge - Maricopa WSD	96			111			278			162		150														1,595
County of Fresno - Arvin-Edison WSD																		726								726
County of Kern - Arvin-Edison WSD																		728								728
Improvement District No. 4																		318								318
Wheeler Ridge - Maricopa WSD																		237								237
Arvin-Edison WSD - Existing																		887								887
Arvin-Edison WSD - Exchange																		3,945								3,945
Kern-Tulare Water District - KCWA MU [1]																										
Belridge WSD		297			384			165			415		259			194										1,714
Berrenda Mesa WD		86									271		194			1,008										1,559
Buena Vista WSD						625																				625
Kern Delta WD [2]															136	182		290		14	64					686
Lost Hills WD		236			411			164			376		244			165										1,843
Rosedale Rio-Bravo WSD				74		4					20															98
Semitropic WSD		84			184			565		424	341		406													2,004
Wheeler Ridge - Maricopa WSD		168			220			138			284		113			193										1,037
Rosedale Rio-Bravo WSD																										
Arvin-Edison WSD				1,608																						1,608
Kern Delta WD [2]				312												230										542
Improvement District No. 4	2	71	2		206			759	2	425	131	1	637	1		6	1	50		29	399					2,886
Arvin-Edison WSD													6													62
Kern Delta WD [2]													184			218		362		10	124					926
Kern County Water Agency																										
Arvin-Edison WSD [3]													4,456			174		2,049								3,950
Cawelo WD - Belridge WSD [3]	2		1				24					4	3,477		8											3,510
Kern Delta WD [2]	4											4	680			994	8	1,896		44	342					3,058
Kern County Water Agency																										
Belridge WSD	1	116			149			84			181		107			175	1									672
Berrenda Mesa WD	1	34			6						164	2	70			400	2									631
Buena Vista WSD	1					224																				226
Cawelo WD - Arvin-Edison WSD [3]	1											1	43			36		350								430
Kern Delta WD [2]																69	74	113		3	23					266
Lost Hills WD	2	114			165			119			151	1	93			68	1									615
Rosedale Rio-Bravo WSD	1			34		2																				36
Semitropic WSD	9	34			78			231	2	198	138	2	162													844
Wheeler Ridge - Maricopa WSD	1	72			88			60			120		49			56										452
Total	26	2,368	18	5,109	3,142	1,666	0	3,799	14	1,825	5,100	20	8,257	22	2,148	5,288	24	10,332	0	121	1,212	0	0	0	0	50,449

NOTES:

[1] Kern County Water Agency Member Units' made deliveries of Federal Section 215 supplies utilizing Lower-Tule River Irrigation District, Pixley Irrigation District and Kern-Tulare Water District capacities per long-term agreements which allow for KCWA MU's to utilize unused capacities.

[2] Deliveries of Arvin-Edison WSD and Kern Delta WD MWD SWP Table A supplies to River Turnout No. 1 and 2 were delivered to the City of Bakersfield in lieu of Rosedale Rio-Bravo WSD as part of an exchange to accommodate the City of Bakersfield Westside Parkway Project impacts to Rosedale Rio-Bravo WSD conveyance facilities. These deliveries will be paid back by the City to Rosedale Rio-Bravo WSD.

[3] Deliveries of Cawelo WD SWP Table A supplies delivered to the KWB were transferred to Belridge WSD as part of an exchange of 4,000 af of Belridge WSD Federal supplies delivered off the Friant-Kern Canal to Cawelo WD.

	CVC Losses	N-2 Siphon	CVC Losses	RRB 1 Turnout	Strand Siphons	Strand Turnout	Strand Turnout	KWB P-11 Turnout	CVC Losses	Nord Siphons	Section 4 Pump	CVC Losses	RTO 1 Turnout	CVC Losses	RRB 2 Turnout	RTO 2 Turnout	CVC Losses	AEWSD T.O.	KTWD Siphons	Unlined Losses	RTO 3 River	RTO 4 Turnout	Unlined Losses	Calloway Turnout	Cawelo PSA	TJO Total
Arvin-Edison WSD	16	0	4	1,608	0	0	0	0	3	0	0	5	905	8	813	183	11	7,488	0	0	0	0	0	0	0	11,036
Belridge WSD	2	297	1	0	868	0	0	0	0	0	1,556	0	1,124	0	588	448	0	0	0	0	0	0	0	0	0	3,984
Berrenda Mesa WD	1	202	1	0	5	0	0	0	1	0	834	2	454	0	0	2,356	2	0	0	0	0	0	0	0	0	3,858
Buena Vista WSD	1	0	0	0	0	1,539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,541
Cawelo WD	2	67	1	0	0	0	0	69	1	0	0	2	3,477	8	0	0	0	0	0	0	0	0	0	0	0	3,625
Improvement District No. 4	5	1,141	2	0	323	0	0	1,682	5	0	1,667	0	1,000	0	0	0	0	0	0	46	827	0	0	0	0	4,191
Kern Delta WD	4	0	3	312	0	0	0	0	2	0	0	4	0	8	1,335	1,585	8	2,844	0	75	585	0	0	0	0	8,743
Kern-Tulare Water District - KCWA MU [1]	2	584	1	0	970	0	0	0	1	0	1,584	0	1,124	0	588	677	0	390	0	0	0	0	0	0	0	5,921
Rosedale Rio-Bravo WSD	2	0	1	3,189	0	157	0	0	1	0	884	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,235
Semitropic WSD	5	168	0	0	431	0	0	1,372	2	1,156	2,786	0	862	0	0	0	0	0	0	0	0	0	0	0	0	4,734
Wheeler Ridge - Maricopa WSD	1	431	0	0	527	0	0	358	0	0	735	1	293	0	0	349	0	0	0	0	0	0	0	0	0	4,920
Total	26	2,368	18	5,109	3,142	1,666	0	3,799	14	1,825	5,100	20	8,257	22	2,148	5,288	24	10,332	0	121	1,212	0	0	0	0	50,449

KERN COUNTY WATER AGENCY
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BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE D
01/06/2012	02/06/2012

INVOICE NO. 24924

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

0053-1330(PWR)
561B-4402

Cross Valley Canal
October 2011

Estimated power costs for deliveries of Kern Delta Water District Metropolitan Water District SWP supplies delivered to River Turnout No. 2 and 3, Rosedale Rio-Bravo WSD and Arvin-Edison WSD; adjust for lined losses.

Canal Reach	Pumping Plant	MWD SWP Volume AF	Rate $/AF	Pumping Costs $
1	1	1,551	3.25	5,040.75
1	2	1,550	3.25	5,037.50
2	3	978	3.25	3,178.50
2	4	977	3.25	3,175.25
2	5	976	5.00	4,880.00
3	6	441	5.00	2,205.00
Extension	7	0	5.00	0.00

TOTAL AMOUNT DUE **$23,517.00**

Requested By	Prepared By	Approved By	Approved By

☐ ORIGINAL ☑ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE D/
01/06/2012	02/06/2012

INVOICE NO. 24969

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

0055-1100
580B-4430
020A-5103
0102-1100

Cross Valley Canal
October 2011

Early implementation conveyance fees in the Cross Valley Canal for delivery of Kern Delta Water District deliveries of Metropoitan WD State Water Project supplies to Arvin-Edison WSD and Rosedale Rio-Bravo WSD; adjusted for lined losses.

Reach	MWD SWP Volume AF	Total $/AF [1]	Conveyance Costs Total $
1	1,552	1.00	1,552.00
2	979	1.00	979.00
3	443	1.00	443.00
		Total Amount Due	2,974.00

TOTAL AMOUNT DUE **$ 2,974.00**

[1] Conveyance Fee $1.00 per Reach.

Requested By | Prepared By | Approved By | Approved By

☐ ORIGINAL ☑ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL

Cross Valley Canal

October 2011 Deliveries - Gross AF

	Points of Entry				
	Tupman T/O SWP (AF)	CVC Dewatering Deliveries (AF)	Pionner Inlet KR (AF)	KCWA Armco Reverse SWP Exch. (AF)	CVC Total (AF)
Deliveries by Turnout:					
N-2 Siphon	597	-	-	-	597
Rosedale Rio Bravo Turnout No. 1	2,918	232	-	-	3,150
North Strand Ranch Turnout	1,726	-	-	-	1,726
South Strand Ranch Turnout	276	-	-	-	276
Kern Water Bank P-11 Turnout	1,224	-	-	-	1,224
Section 4 Turnout	2,741	-	-	-	2,741
River Turnout No. 1	4,491	81	-	-	4,572
Rosedale Rio Bravo Turnout No. 2	7,053	-	-	-	7,053
River Turnout No. 2	1,252	52	-	-	1,304
Arvin-Edison Turnout	2,698	-	-	-	2,698
Refill	365	-	-	-	365
Lined Losses - Pools 1-6	80	-	-	-	80
River Turnout No. 3 to River	797	-	-	-	797
Unlined Losses - Pool 7	125	-	-	-	125
Henry C. Garnett Treatment Plant	-	-	-	3,709	3,709
Total	26,343	365	-	3,709	30,417
Deliveries by Turnout/Owner:					
N-2 Siphon					
Cawelo WD	597	-	-	-	597
Rosedale-Rio Bravo Turnout No. 1					
Cawelo WD - AEWSD	193	-	-	-	193
Improvement District No. 4 - KDWSD	136	-	-	-	136
Kern County Water Agency	89	-	-	-	89
Kern Delta Water District	571	-	-	-	571
Kern-Tulare WD - KCWA M/U	162	-	-	-	162
Lower Tule River ID - KCWA M/U	276	-	-	-	276
Pixley ID - KCWA M/U	276	-	-	-	276
Rosedale-Rio Bravo WSD	1,215	232	-	-	1,447
Nouth Strand Turnout					
Kern County Water Agency	153	-	-	-	153
Kern-Tulare WD - KCWA M/U	252	-	-	-	252
Rosedale-Rio Bravo WSD	1,321	-	-	-	1,321
South Strand Turnout					
Kern County Water Agency	12	-	-	-	12
Kern-Tulare WD - KCWA M/U	20	-	-	-	20
Rosedale-Rio Bravo WSD	244	-	-	-	244
Kern Water Bank P-11 Turnout					
Cawelo WD	808	-	-	-	808
Kern County Water Agency	298	-	-	-	298
Kern-Tulare WD - KCWA M/U	118	-	-	-	118
Section 4 Turnout					
Improvement District No. 4	46	-	-	-	46
Improvement District No. 4 - KCWA	565	-	-	-	565
Kern County Water Agency	653	-	-	-	653
Kern-Tulare WD - KCWA M/U	1,477	-	-	-	1,477
River Turnout No. 1					
Cawelo WD	775	14	-	-	789
Improvement District No. 4	19	-	-	-	19
Improvement District No. 4 - KCWA	1,935	35	-	-	1,970
Kern County Water Agency	557	32	-	-	589
Kern-Tulare WD - KCWA M/U	1,205	-	-	-	1,205
Rosedale Rio Bravo Turnout No. 2					
Cawelo WD - AEWSD	1,460	-	-	-	1,460
Improvement District No. 4	627	-	-	-	627
Improvement District No. 4 - KDWD	130	-	-	-	130
Kern County Water Agency	30	-	-	-	30
Kern Delta Water District	533	-	-	-	533
Kern-Tulare WD - KCWA M/U	59	-	-	-	59
Lower Tule River ID - KCWA M/U	2,107	-	-	-	2,107
Pixley ID - KCWA M/U	2,107	-	-	-	2,107
Rosedale-Rio Bravo WSD	-	52	-	-	52
River Turnout No. 2					
Kern County Water Agency	396	-	-	-	396
Kern-Tulare WD - KCWA M/U	856	-	-	-	856
Arvin-Edison Turnout					
Arvin-Edison WSD (Existing)	315	-	-	-	315
Arvin-Edison WSD (New)	975	-	-	-	975
Cawelo WD - AEWSD	266	-	-	-	266
County of Fresno - AEWSD	225	-	-	-	225
County of Tulare - AEWSD	225	-	-	-	225
Hills Valley ID - AEWSD	168	-	-	-	168
Improvement District No. 4 - AEWSD	189	-	-	-	189
Improvement District No. 4 - KDWD	24	-	-	-	24
Kern County Water Agency	117	-	-	-	117
Kern Delta Water District	99	-	-	-	99
Kern-Tulare WD - KCWA M/U	11	-	-	-	11
Tri-Valley WD - AEWSD	84	-	-	-	84
Lined Losses - Pools 1-6					
Arvin-Edison WSD (New)	35	-	-	-	35
Cawelo WD	10	-	-	-	10
Improvement District No. 4	6	-	-	-	6
Improvement District No. 4 - KCWA	12	-	-	-	12
Kern County Water Agency	4	-	-	-	4
Kern Delta Water District	7	-	-	-	7
Kern Tulare Water District	2	-	-	-	2
Rosedale-Rio Bravo WSD	4	-	-	-	4
Refill					
Cawelo WD	14	-	-	-	14
Improvement District No. 4 - KCWA	35	-	-	-	35
Kern County Water Agency	32	-	-	-	32
Rosedale-Rio Bravo WSD	284	-	-	-	284
Unlined Losses - Pools 7					
Improvement District No. 4	50	-	-	-	50
Kern County Water Agency	3	-	-	-	3
Kern Delta Water District	65	-	-	-	65
Kern Tulare Water District	7	-	-	-	7
River Turnout No. 3					
Improvement District No. 4	476	-	-	-	476
Kern County Water Agency	13	-	-	-	13
Kern Delta Water District	277	-	-	-	277
Kern Tulare Water District	31	-	-	-	31
Henry C. Garnett Treatment Plant:					
Improvement District No. 4	-	-	-	3,709	3,709
Total	26,343	365	-	3,709	30,417
Existing Participant Deliveries	*21,459*	*333*	-	*3,709*	*19,219*
New Participant Deliveries	4,884	32	-	-	11,198
	26,343	365	-	3,709	30,417

Shading denotes forward flow deliveries based on each point of entry into the CVC; _ / _ denotes pools / pump plants utilized (for forward flow).

Kern County Water Agency
Cross Valley Canal - Tupman Turnout Water Balance
State Water Project Deliveries
Month of October 2011
Subject to Adjustment

January 5, 2012
10:27 AM

	Reach 1											Reach 2								Reach 3								Extension			
	Pool 1	Pool 2			Pool 3							Pool 4				Pool 5				Pool 6				Pool 7				Pool 8			
Date	CVC Losses SWP	CVC Refill SWP	N-2 Siphon SWP	CVC Losses SWP	RRB 1 Turnout SWP	Strand Siphons SWP	North Strand Turnout SWP	South Strand Turnout SWP	KWB P-11 Turnout SWP	CVC Losses SWP	CVC Refill SWP	Nord Siphons SWP	Section 4 Pump SWP	CVC Losses SWP	CVC Refill SWP	RTO 1 Turnout SWP	CVC Losses SWP	CVC Refill SWP	RRB 2 Turnout SWP	RTO 2 Turnout SWP	CVC Losses SWP	CVC Refill SWP	AEWSD T.O. SWP	KTWD Siphons SWP	Unlined Losses SWP	RTO 3 River SWP	RTO 4 Turnout SWP	Unlined Losses SWP	Calloway Turnout SWP	Cawelo PSA SWP	T/O Total SWP
1	0	0	48	1	90	0	51	0	68	0	0	0	94	0	0	27	1	0	230	38	0	0	145	0	5	60	0	0	0	0	888
2	1	0	49	0	90	0	50	0	68	0	0	0	94	1	0	27	0	0	242	60	1	0	139	0	5	60	0	0	0	0	887
3	0	0	49	0	90	0	51	0	69	1	0	0	94	0	0	26	0	0	247	59	0	0	135	0	5	61	0	0	0	0	887
4	1	0	48	1	90	0	55	0	67	0	0	0	93	1	0	113	1	0	247	60	1	0	89	0	2	25	0	0	0	0	894
5	0	0	48	0	90	0	59	0	66	0	0	0	91	0	0	175	0	0	248	60	0	0	56	0	0	0	0	0	0	0	893
6	1	0	49	0	90	0	61	0	59	1	0	0	90	0	0	219	1	0	249	23	1	0	53	0	0	0	0	0	0	0	897
7	0	0	10	0	90	0	65	0	51	0	0	0	89	1	0	276	0	0	248	0	0	0	51	0	0	0	0	0	0	0	881
8	0	0	0	0	90	0	64	0	52	0	0	0	89	0	0	295	1	0	248	0	1	0	51	0	0	0	0	0	0	0	891
9	0	0	0	0	90	0	55	0	44	1	0	0	91	0	0	295	0	0	181	0	0	0	20	0	0	0	0	0	0	0	777
10	0	0	0	0	38	0	20	0	15	0	0	0	34	1	0	123	0	0	54	0	0	0	0	0	0	0	0	0	0	0	285
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	1	74	0	0	33	0	21	0	22	0	28	0	29	0	26	20	0	29	43	13	0	28	0	0	0	0	0	0	0	0	181
25	0	0	0	1	84	0	36	0	36	1	0	0	63	1	0	53	0	0	177	43	1	0	30	0	15	19	0	0	0	0	560
26	1	0	0	0	63	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
27	0	0	0	0	83	0	41	17	0	0	0	0	57	0	0	78	1	0	146	35	1	0	71	0	7	17	0	0	0	0	554
28	1	0	0	1	90	0	61	30	0	1	0	0	94	1	0	136	0	0	249	60	0	0	132	0	6	40	0	0	0	0	902
29	0	0	0	0	90	0	59	31	0	0	0	0	94	0	0	131	1	0	250	60	1	0	129	0	8	40	0	0	0	0	892
30	1	0	0	0	90	0	56	30	0	0	0	0	93	1	0	132	0	0	249	60	0	0	129	0	6	40	0	0	0	0	887
31	0	0	0	1	90	0	57	31	0	1	0	0	93	0	0	138	1	0	248	60	1	0	130	0	5	40	0	0	0	0	897
CFS	7	74	301	5	1,471	0	870	139	617	6	28	0	1,382	7	26	2,264	7	29	3,556	631	8	26	1,360	0	63	402	0	0	0	0	13,278
AF	14	147	597	10	2,918	0	1,726	276	1,224	12	56	0	2,741	14	52	4,491	14	58	7,053	1,252	16	52	2,698	0	125	797	0	0	0	0	26,343

Arvin-Edison WSD - Existing																															
Arvin-Edison WSD - Future																															
Buena Vista WSD																															
Cawelo WD																															
Improvement District No. 4	1			1					1			46	1		19	1		627		1				34	388					1,120
Arvin-Edison WSD																							189								189
Improvement District No. 4 / KCWA	3			2					2			565	3	8	1,935	2	27														2,547
Kern Delta WD					136													130					24		16	88					394
Lost Hills WD																															
Rosedale-Rio Bravo WSD																															
Total	14	147	597	10	2,918	0	1,726	276	1,224	12	56	0	2,741	14	52	4,491	14	58	7,053	1,252	16	52	2,698	0	125	797	0	0	0	0	26,343

NOTES:

[1] Arvin-Edison Water Storage District made deliveries of Metropolitan Water District State Water Project Table A supplies utilizing Lower-Tule River Irrigation District and Pixley Irrigation District capacities per a short-term agreement with North Kern WSD (per the Agreement for the Management of Conveyance Capacity in the Cross Valley Canal Capacity).

[2] Kern County Water Agency Member Units' made deliveries of State Water Project Table A supplies utilizing Lower-Tule River Irrigation District, Pixley Irrigation District and Kern-Tulare Water District capacities per long-term agreements which allow for KCWA M/U's to utilize unused capacities.

[3] Deliveries of Cross Valley Canal refill water by Rosedale Rio-Bravo WSD and the Kern County Water Agency M/U's with their 2011 State Water Project Table A supply were made persuant to the Refill/Dewatering Policy Guidelines. Rosedale Rio-Bravo and the KCWA Member Units' received dewatering supplies in October 2011 (see attached delivery summary) and were subsequently responsible for refilling the Cross Valley Canal based upon the total dewatered supplies received.

[4] In the month of October 2011, Arvin-Edison WSD delivered 632 af of Arvin-Edison WSD Federal supplies to the AEWSD Turnout as part of an operational exchange for 632 af of MWD State Water Project Table A supplies at Rosedale Rio-Bravo Turnout No. 2.

Kern County Water Agency
Cross Valley Canal
Dewatering for Maintenance Deliveries
Month of October 2011
Subject to Adjustment

January 10, 2012
2:09 PM

	Reach 1				Reach 2										Reach 3		Extension								
	Pool 1	Pool 2			Pool 3					Pool 4			Pool 5		Pool 6		Pool 7				Pool 8				
Date	CVC Losses SWP	N-2 Siphon SWP	CVC Losses SWP	RRB 1 Turnout SWP	Strand Siphons SWP	North Strand Turnout SWP	South Strand Turnout SWP	KWB P-11 Turnout SWP	CVC Losses SWP	Nord Siphons SWP	Section 4 Pump SWP	CVC Losses SWP	RTO 1 Turnout SWP	CVC Losses SWP	RRB 2 Turnout SWP	RTO 2 Turnout SWP	CVC Losses SWP	AEWSD T.O. SWP	KTWD Siphons SWP	Unlined Losses SWP	RTO 3 River SWP	RTO 4 Turnout SWP	Unlined Losses SWP	Calloway Turnout SWP	Cawelo PSA SWP	T/O Total
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	39	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0	53
11	0	0	0	31	0	0	0	0	0	0	0	0	9	0	12	0	0	0	0	0	0	0	0	0	0	52
12	0	0	0	26	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	33
13	0	0	0	21	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	26
14	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
15	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
16	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
17	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CFS	0	0	0	117	0	0	0	0	0	0	0	0	41	0	26	0	0	0	0	0	0	0	0	0	0	184
AF	0	0	0	232	0	0	0	0	0	0	0	0	81	0	52	0	0	0	0	0	0	0	0	0	0	365
Total	0	0	0	232	0	0	0	0	0	0	0	0	81	0	52	0	0	0	0	0	0	0	0	0	0	365

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE DATE
01/18/2012	02/17/2012

INVOICE NO. 25021

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

0053-F330(PWR)
561B-4402

Cross Valley Canal
November 2011

Estimated power costs for deliveries of Kern Delta Water District Metropolitan Water District SWP supplies delivered to River Turnout No. 1, 2 and 3, Rosedale Rio-Bravo WSD and Arvin-Edison WSD; adjust for lined losses.

Canal Reach	Pumping Plant	MWD SWP Volume AF	Rate $/AF	Pumping Costs $
1	1	3,995	2.25	8,988.75
1	2	3,993	2.25	8,984.25
2	3	2,256	2.25	5,076.00
2	4	2,254	2.25	5,071.50
2	5	2,252	2.25	5,067.00
3	6	1,730	2.25	3,892.50
Extension	7	0	2.25	0.00

TOTAL AMOUNT DUE **$37,080.00**

Requested By | Prepared By | Approved By | Approved By

☐ ORIGINAL ☐ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL CONTROL

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE DATE
01/18/2012	02/17/2012

INVOICE NO. 25023

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

0055-1100
580B-4430
020A-5103
0102-1100

Cross Valley Canal
November 2011

Early implementation conveyance fees in the Cross Valley Canal for delivery of Kern Delta Water District deliveries of Metropoitan WD State Water Project supplies to Arvin-Edison WSD and Rosedale Rio-Bravo WSD; adjusted for lined losses.

Reach	MWD SWP Volume AF	Total $/AF [1]	Conveyance Costs Total $
1	3,998	1.00	3,998.00
2	3,012	1.00	3,012.00
3	1,732	1.00	1,732.00
		Total Amount Due	8,742.00

TOTAL AMOUNT DUE $ 8,742.00

[1] Conveyance Fee $1.00 per Reach.

Requested By | Prepared By | Approved By | Approved By

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KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE DA
02/13/2012	03/14/2012

INVOICE NO. 25088

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

0055-1100
580B-4430
020A-5103
0102-1100

Cross Valley Canal
December 2011

Early implementation conveyance fees in the Cross Valley Canal for delivery of Kern Delta Water District deliveries of San Bernardino Valley MWD State Water Project supplies to Arvin-Edison WSD and Rosedale Rio-Bravo WSD; adjusted for lined losses.

Reach	MWD SWP Volume AF	Total $/AF [1]	Conveyance Costs Total $
1	3,858	1.00	3,858.00
2	3,395	1.00	3,395.00
3	3,010	1.00	3,010.00
		Total Amount Due	10,263.00

TOTAL AMOUNT DUE **$ 10,263.00**

[1] Conveyance Fee $1.00 per Reach.

Requested By | Prepared By | Approved By | Approved By

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Cross Valley Canal

December 2011 Deliveries - Gross AF

	Points of Entry				
	Tupman T/O SWP (AF)	Tupman T/O FK Recirculation (AF)	Pionner Inlet KR (AF)	KCWA Arnco Reverse SWP Exch. (AF)	CVC Total (AF)
Deliveries by Turnout:					
N-2 Siphon	302	-	-	-	302
Rosedale Rio Bravo Turnout No. 1	3,404	-	-	-	3,404
North Strand Ranch Turnout	3,090	-	-	-	3,090
South Strand Ranch Turnout	686	-	-	-	686
Kern Water Bank P-11 Turnout	292	-	-	-	292
Section 4 Turnout	905	141	-	-	1,046
River Turnout No. 1	8,287	2,196	-	-	10,483
Rosedale Rio Bravo Turnout No. 2	13,755	-	-	-	13,755
River Turnout No. 2	3,423	861	-	-	4,284
Arvin-Edison Turnout	7,357	-	-	-	7,357
Lined Losses - Pools 1-6	120	13	-	-	133
River Turnout No. 3 to River	127	-	-	-	127
Unlined Losses - Pool 7	737	-	-	-	737
River Turnout No. 4 to River	7,030	-	-	-	7,030
Henry C. Garnett Treatment Plant	-	-	-	3,247	3,247
Unlined Losses - Pool 8	716	-	-	-	716
Total	50,231	3,211	-	3,247	56,689
Deliveries by Turnout/Participant:					
N-2 Siphon					
Tehachapi-Cummings CWD	302	-	-	-	302
Rosedale-Rio Bravo Turnout No. 1					
Arvin-Edison WSD	643	-	-	-	643
Kern Delta Water District	2,761	-	-	-	2,761
Nouth Strand Turnout					
Buena Vista WSD	32	-	-	-	32
Kern Delta Water District	3,058	-	-	-	3,058
South Strand Turnout					
Kern Delta Water District	686	-	-	-	686
Kern Water Bank P-11 Turnout					
Tehachapi-Cummings CWD	292	-	-	-	292
Section 4 Turnout					
Belridge WSD	85	61	-	-	146
Berrenda Mesa WD	85	20	-	-	105
Improvement District No. 4	48	-	-	-	48
Lost Hills WD	74	60	-	-	134
Rosedale-Rio Bravo WSD	534	-	-	-	534
Semitropic WSD	71	-	-	-	71
Tejon Castaic WD	8	-	-	-	8
River Turnout No. 1					
Belridge WSD	978	941	-	-	1,919
Berrenda Mesa WD	495	315	-	-	810
Improvement District No. 4	1,338	-	-	-	1,338
Lost Hills WD	1,050	940	-	-	1,990
Rosedale-Rio Bravo WSD	1,018	-	-	-	1,018
Semitropic WSD	3,078	-	-	-	3,078
Tehachapi-Cummings CWD	301	-	-	-	301
Tejon Castaic WD	29	-	-	-	29
Rosedale Rio Bravo Turnout No. 2					
Arvin-Edison WSD	12,967	-	-	-	12,967
Improvement District No. 4	88	-	-	-	88
Kern Delta Water District	700	-	-	-	700
River Turnout No. 2					
Belridge WSD	703	335	-	-	1,038
Berrenda Mesa WD	1,720	216	-	-	1,936
Lost Hills WD	599	310	-	-	909
Rosedale-Rio Bravo WSD	373	-	-	-	373
Semitropic WSD	28	-	-	-	28
Arvin-Edison Turnout					
Arvin-Edison WSD	5,482	-	-	-	5,482
Kern Delta Water District	1,875	-	-	-	1,875
Lined Losses - Pools 1-6					
Arvin-Edison WSD	53	-	-	-	53
Belridge WSD	-	6	-	-	6
Berrenda Mesa WD	4	2	-	-	6
Improvement District No. 4	20	-	-	-	20
Kern Delta Water District	28	-	-	-	28
Lost Hills WD	-	5	-	-	5
Rosedale-Rio Bravo WSD	5	-	-	-	5
Semitropic WSD	10	-	-	-	10
River Turnout No. 3					
Improvement District No. 4	127	-	-	-	127
Unlined Losses - Pools 7					
Improvement District No. 4	492	-	-	-	492
Kern Delta Water District	245	-	-	-	245
River Turnout No. 4					
Improvement District No. 4	4,618	-	-	-	4,618
Kern Delta Water District	2,412	-	-	-	2,412
Henry C. Garnett Treatment Plant:					
Improvement District No. 4	-	-	-	3,247	3,247
Unlined Losses - Pools 8					
Improvement District No. 4	475	-	-	-	475
Kern Delta Water District	241	-	-	-	241
Total	50,231	3,211	-	3,247	56,689
Existing Participant Deliveries	*28,281*	-	-	*3,247*	*31,528*
New Participant Deliveries	21,950	3,211	-	-	25,161
	50,231	3,211	-	3,247	56,689

Shading denotes forward flow deliveries based on each point of entry into the CVC; _ / _ denotes pools / pump plants utilized (for forward flow).

Kern County Water Agency

Cross Valley Canal - Tupman Turnout Water Balance

State Water Project Deliveries

Month of December 2011

Subject to Adjustment

February 10, 2012
11:50 AM

	Reach 1				Reach 2										Reach 3				Extension						
	Pool 1	Pool 2			Pool 3					Pool 4		Pool 5			Pool 6				Pool 7			Pool 8			
Date	CVC Losses SWP	N-2 Siphon SWP	CVC Losses SWP	RRB 1 Turnout SWP	Strand Siphons SWP	North Strand Turnout SWP	South Strand Turnout SWP	KWB P-11 Turnout SWP	CVC Losses SWP	Nord Siphons SWP	Section 4 Pump SWP	CVC Losses SWP	RTO 1 Turnout SWP	CVC Losses SWP	RRB 2 Turnout SWP	RTO 2 Turnout SWP	CVC Losses SWP	AEWSD T.O. SWP	KTWD Siphons SWP	Unlined Losses SWP	RTO 3 River SWP	Unlined Losses SWP	RTO 4 Turnout SWP	Calloway Turnout SWP	Cawelo PSA SWP	T/O Total SWP
1	0	0	1	63	0	77	12	0	1	0	93	0	117	1	250	77	1	100	0	12	0	15	76	0	0	866
2	1	0	0	62	0	76	11	0	0	0	90	1	105	0	251	76	0	98	0	12	0	15	73	0	0	871
3	0	0	0	63	0	74	11	0	0	0	85	0	113	0	250	75	0	91	0	12	0	15	73	0	0	862
4	1	0	1	62	0	78	11	0	1	0	79	0	126	1	250	77	1	91	0	12	0	15	73	0	0	877
5	0	0	0	63	0	78	11	0	0	0	34	1	177	0	250	80	0	91	0	12	0	12	73	0	0	882
6	1	0	0	53	0	73	11	0	0	0	0	0	191	0	252	80	1	112	0	12	0	12	73	0	0	881
7	0	0	0	62	0	65	11	0	0	0	0	0	185	1	251	80	0	133	0	12	0	12	74	0	0	868
8	1	0	1	60	0	65	11	0	1	0	0	1	196	0	250	80	1	133	0	12	0	12	74	0	0	868
9	0	0	0	60	0	64	12	0	0	0	0	0	162	0	251	68	0	145	0	12	0	11	97	0	0	862
10	0	0	0	60	0	64	12	0	0	0	0	0	196	1	250	57	0	116	0	12	0	11	114	0	0	895
11	1	0	1	60	0	60	12	0	0	0	0	1	198	0	250	56	1	94	0	12	0	11	119	0	0	877
12	0	0	0	60	0	62	12	0	1	0	0	0	201	1	250	55	0	94	0	12	0	11	119	0	0	878
13	1	0	0	60	0	62	12	0	0	0	0	0	179	0	252	55	1	117	0	12	0	11	117	0	0	879
14	0	0	0	60	0	61	12	0	0	0	0	1	182	0	252	56	0	136	0	12	0	11	115	0	0	898
15	1	0	1	60	0	60	12	0	0	0	0	0	158	1	249	56	0	135	0	12	0	11	115	0	0	871
16	0	0	0	54	0	52	12	0	1	0	0	0	174	0	250	58	1	136	0	12	0	11	132	0	0	891
17	1	0	0	52	0	46	12	0	0	0	0	1	192	0	250	56	0	136	0	12	0	11	152	0	0	911
18	0	0	1	52	0	41	12	0	0	0	0	0	170	1	250	55	0	145	0	12	0	11	152	0	0	902
19	0	0	0	52	0	42	13	0	0	0	0	0	134	0	250	57	1	181	0	12	0	11	149	0	0	902
20	1	0	0	51	0	42	13	0	1	0	0	1	142	0	251	67	0	184	0	12	0	11	150	0	0	896
21	0	0	0	50	0	35	11	0	0	0	0	0	59	1	200	56	1	144	0	12	0	11	152	0	0	732
22	0	0	1	37	0	28	8	0	0	0	0	0	31	0	202	32	0	132	0	12	4	11	99	0	0	595
23	1	0	0	50	0	27	9	0	0	0	0	1	93	1	200	51	0	149	0	12	8	11	143	0	0	756
24	0	0	0	50	0	28	11	0	0	0	0	0	93	0	200	53	1	154	0	12	8	11	140	0	0	761
25	0	0	1	50	0	28	10	0	0	0	0	0	93	1	200	35	0	170	0	12	8	11	140	0	0	759
26	0	0	0	50	0	28	11	0	0	0	0	1	93	0	201	23	0	185	0	12	8	11	140	0	0	763
27	0	0	0	50	0	28	10	0	0	0	0	0	93	0	200	41	1	165	0	12	8	11	140	0	0	759
28	1	30	0	50	0	28	10	29	1	0	0	0	153	0	138	28	0	108	0	12	8	11	140	0	0	747
29	0	52	0	50	0	27	10	50	0	0	0	0	173	0	129	28	1	32	0	12	8	11	140	0	0	723
30	0	52	0	50	0	27	10	50	0	0	29	0	8	1	141	35	0	0	0	12	4	11	110	0	0	540
31	0	18	1	50	0	36	11	18	1	0	48	0	0	0	145	25	0	0	0	12	0	11	60	0	0	454
CFS	11	152	9	1,716	0	1,558	346	147	8	0	456	9	4,178	11	6,935	1,726	12	3,709	0	372	64	361	3,544	0	0	25,374
AF	22	302	18	3,404	0	3,090	686	292	16	0	905	18	8,287	22	13,755	3,423	24	7,357	0	737	127	716	7,030	0	0	50,231

Arvin-Edison WSD - Existing																		887								887
Arvin-Edison WSD - CVC/KWB Wheeling																										
Kern County Water Agency Member Units																										
Berrenda Mesa WD																										
Buena Vista WSD																										
Improvement District No. 4																										
Kern Delta WD																										
Lost Hills WD																										
Rosedale Rio Bravo WSD																										
Semitropic WSD																										
TeHachapi-Cummings CWD																										
Tejon Castaic WD																										
Total	22	302	18	3,404	0	3,090	686	292	16	0	905	18	8,287	22	13,755	3,423	24	7,357	0	737	127	716	7,030	0	0	50,231

NOTES:

[1] Arvin-Edison Water Storage District made deliveries of Metropolitan Water District State Water Project Table A supplies utilizing Lower-Tule River Irrigation District and Pixley Irrigation District capacities per a short-term agreement with North Kern WSD (per the Agreement for the Management of Conveyance Capacity in the Cross Valley Canal Capacity).

[2] Kern County Water Agency Member Units' made deliveries of State Water Project Table A supplies utilizing Kern-Tulare Water District capacities per long-term agreements which allow for KCWA MU's to utilize unused capacities.

[3] Arvin-Edison WSD delivered a total of 620 af of AEWSD/MWD SWP supplies at Rosedale Turnout No. 2 as part of an operational exchange for 620 af of Arvin-Edison WSD Friant-Kern supplies delivered to the Arvin-Edison intake Canal.

[4] Kern Delta Water District delivered a total of 205 af to Arvin-Edison WSD at Rosedale Turnout No. 2 as part of an operational exchange for 206 af of Arvin-Edison WSD Friant-Kern supplies at the Arvin-Edison intake Canal off the Friant-Kern Canal.

[5] Kern Delta Water District delivered a total of 3,840 af of Metropolitan WD SWP supplies in December 2011.

[6] Kern Delta Water District delivered a total of 8,066 af of San Bernardino Valley Municipal Water District SWP supplies in December 2011.

	CVC Losses	N-2 Siphon	CVC Losses	RRB 1 Turnout	Strand Siphons	Strand Turnout	Strand Turnout	KWB P-11 Turnout	CVC Losses	Nord Siphons	Section 4 Pump	CVC Losses	RTO 1 Turnout	CVC Losses	RRB 2 Turnout	RTO 2 Turnout	CVC Losses	AEWSD T.O.	KTWD Siphons	Unlined Losses	RTO 3 River	Unlined Losses	RTO 4 Turnout	Calloway Turnout	Cawelo PSA	T/O Total
Arvin Edison WSD	8	0	7	643	0	0	0	0	6	0	0	8	0	10	12,967	0	14	5,482	0	0	0	0	0	0	0	19,145
Berrenda WSD	0	0	0	0	0	0	0	0	0	0	85	0	978	0	0	703	0	0	0	0	0	0	0	0	0	1,766
Berrenda Mesa WD	1	0	0	0	0	0	0	0	0	0	85	1	495	1	0	1,720	1	0	0	0	0	0	0	0	0	2,304
Buena Vista WSD	0	0	0	0	0	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
Improvement District No. 4	0	0	2	0	0	0	0	0	2	0	45	3	1,338	4	88	0	5	0	0	492	127	475	4,818	0	0	7,296
Kern Delta WD	6	0	6	2,761	0	3,058	686	0	5	0	0	3	0	4	700	0	14	1,675	0	245	0	241	2,412	0	0	12,006
Lost Hills WD	0	0	0	0	0	0	0	0	0	0	74	0	1,050	0	0	589	0	0	0	0	0	0	0	0	0	1,723
Rosedale Rio Bravo WSD	1	0	1	0	0	0	0	0	1	0	534	1	1,018	2	0	373	0	0	0	0	0	0	0	0	0	1,930
Semitropic WSD	2	0	2	0	0	0	0	0	2	0	71	2	1,078	2	0	28	0	0	0	0	0	0	0	0	0	3,187
TeHachapi-Cummings CWD	0	302	0	0	0	0	0	292	0	0	0	0	301	0	0	0	0	0	0	0	0	0	0	0	0	895
Tejon Castaic WD	0	0	0	0	0	0	0	0	0	0	8	0	29	0	0	0	0	0	0	0	0	0	0	0	0	37
Total	22	302	18	3,404	0	3,090	686	292	16	0	905	18	8,287	22	13,755	3,423	24	7,357	0	737	127	716	7,030	0	0	50,231

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE D
02/13/2012	03/14/2012

INVOICE NO. 25085

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

0053-1330(PWR)
561B-4402

Cross Valley Canal
December 2011

Estimated power costs for deliveries of Kern Delta Water District San Bernardino Valley Municipal Water District SWP supplies delivered to River Turnout No. 1, 2 and 4, Rosedale Rio-Bravo WSD and Arvin-Edison WSD; adjust for lined losses.

Canal Reach	Pumping Plant	SBVMWD SWP Volume AF	Rate $/AF	Pumping Costs $
1	1	3,853	2.25	8,669.25
1	2	3,849	2.25	8,660.25
2	3	3,221	2.25	7,247.25
2	4	3,219	2.25	7,242.75
2	5	3,216	2.25	7,236.00
3	6	3,006	2.25	6,763.50
Extension	7	1,671	2.25	3,759.75
			TOTAL AMOUNT DUE	**$49,578.75**

Requested By	Prepared By	Approved By	Approved By

☐ ORIGINAL ☑ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE
03/08/2012	04/09/2012

INVOICE NO. 25191

RECEIVED
MAR 12 2012

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

0053-1330(PWR)
561B-4402

Cross Valley Canal
January 2012

Estimated power costs for deliveries of Kern Delta Water District San Bernardino Valley Municipal Water District SWP supplies delivered to River Turnout No. 1, 2 and 4, Rosedale Rio-Bravo WSD and Arvin-Edison WSD; adjust for lined losses.

Canal Reach	Pumping Plant	SBVMWD SWP Volume AF	Rate $/AF	Pumping Costs $
1	1	12,515	2.25	28,158.75
1	2	12,502	2.25	28,129.50
2	3	11,881	2.25	26,732.25
2	4	11,867	2.25	26,700.75
2	5	11,849	2.25	26,660.25
3	6	9,360	2.25	21,060.00
Extension	7	4,858	2.25	10,930.50

TOTAL AMOUNT DUE $168,372.00

VENDOR K0241
INVOICE # 25191
P.O. # DWR
DATE 3-8-12
AMOUNT 168372.00
ACCT. CODE 40540

PWR
40540
WATER B.P.

Requested By | Prepared By | Approved By | Approved By

☐ ORIGINAL ☐ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL CONTROL

Cross Valley Canal

January 2012 Deliveries - Gross AF

	Points of Entry				
	Tupman T/O SWP (AF)	Tupman T/O CVP (AF)	CVC / Friant-Kern Intertie KR (AF)	KCWA Armco Reverse SWP Exch. (AF)	CVC Total (AF)
Deliveries by Turnout:					
N-2 Siphon	-	-	-	-	-
Rosedale Rio Bravo Turnout No. 1	1,244	1,706	-	-	2,950
North Strand Ranch Turnout	282	-	-	-	282
South Strand Ranch Turnout	93	-	-	-	93
Kern Water Bank P-11 Turnout	-	-	-	-	-
Section 4 Turnout	121	659	-	-	780
River Turnout No. 1	-	1,759	-	-	1,759
Rosedale Rio Bravo Turnout No. 2	2,471	1,204	3,524	-	7,199
River Turnout No. 2	159	585	-	-	744
Arvin-Edison Turnout	3,612	55	-	-	3,667
Lined Losses - Pools 1-6	92	40	6	-	138
River Turnout No. 3 to River	-	-	-	-	-
Unlined Losses - Pool 7	890	-	-	-	890
River Turnout No. 4 to River	4,092	-	-	-	4,092
Henry C. Garnett Treatment Plant	-	-	-	3,374	3,374
Unlined Losses - Pool 8	766	-	-	-	766
Total	13,822	6,008	3,530	3,374	26,734
Deliveries by Turnout/Participant:					
Rosedale-Rio Bravo Turnout No. 1					
Arvin-Edison WSD	-	1,398	-	-	1,398
Kern Delta Water District	610	-	-	-	610
Kern-Tulare Water District	-	308	-	-	308
Rosedale-Rio Bravo WSD	634	-	-	-	634
North Strand Turnout					
Rosedale-Rio Bravo WSD	282	-	-	-	282
South Strand Turnout					
Rosedale-Rio Bravo WSD	93	-	-	-	93
Section 4 Turnout					
Belridge WSD	-	227	-	-	227
Berrenda Mesa WD	-	214	-	-	214
Lost Hills WD	-	218	-	-	218
Rosedale-Rio Bravo WSD	121	-	-	-	121
River Turnout No. 1					
Belridge WSD	-	608	-	-	608
Berrenda Mesa WD	-	568	-	-	568
Lost Hills WD	-	583	-	-	583
Rosedale Rio Bravo Turnout No. 2					
Arvin-Edison WSD	-	932	2,225	-	3,157
Kern Delta Water District	2,471	-	-	-	2,471
Kern-Tulare Water District	-	272	1,299	-	1,571
River Turnout No. 2					
Belridge WSD	159	204	-	-	363
Berrenda Mesa WD	-	190	-	-	190
Lost Hills WD	-	191	-	-	191
Arvin-Edison Turnout					
Arvin-Edison WSD	-	55	-	-	55
Kern Delta Water District	3,612	-	-	-	3,612
Lined Losses - Pools 1-6					
Arvin-Edison WSD	-	15	4	-	19
Belridge WSD	-	9	-	-	9
Berrenda Mesa WD	-	8	-	-	8
Kern Delta Water District	89	-	-	-	89
Kern-Tulare Water District	-	-	2	-	2
Lost Hills WD	-	8	-	-	8
Rosedale-Rio Bravo WSD	3	-	-	-	3
Unlined Losses - Pools 7					
Kern Delta Water District	890	-	-	-	890
River Turnout No. 4					
Kern Delta Water District	4,092	-	-	-	4,092
Henry C. Garnett Treatment Plant:					
Improvement District No. 4	-	-	-	3,374	3,374
Unlined Losses - Pools 8					
Kern Delta Water District	766	-	-	-	766
Total	13,822	6,008	3,530	3,374	26,734
Existing Participant Deliveries	*1,133*	*2,980*	*3,530*	*3,374*	*8,006*
New Participant Deliveries	12,689	3,028	-	-	18,728
	13,822	6,008	3,530	3,374	26,734

Shading denotes forward flow deliveries based on each point of entry into the CVC; _ / _ denotes pools / pump plants utilized (for forward flow).

Kern County Water Agency
Cross Valley Canal - Tupman Turnout Water Balance
State Water Project Deliveries
Month of January 2012
Subject to Adjustment

March 8, 2012
10:29 AM

	Reach 1				Reach 2											Reach 3				Extension					
	Pool 1	Pool 2			Pool 3					Pool 4			Pool 5			Pool 6				Pool 7			Pool 8		
Date	CVC Losses SWP	N-2 Siphon SWP	CVC Losses SWP	RRB 1 Turnout SWP	Strand Siphons SWP	North Strand Turnout SWP	South Strand Turnout SWP	KWB P-11 Turnout SWP	CVC Losses SWP	Nord Siphons SWP	Section 4 Pump SWP	CVC Losses SWP	RTO 1 Turnout SWP	CVC Losses SWP	RRB 2 Turnout SWP	RTO 2 Turnout SWP	CVC Losses SWP	AEWSD T.O. SWP	KTWD Siphons SWP	Unlined Losses SWP	RTO 3 River SWP	Unlined Losses SWP	RTO 4 Turnout SWP	Calloway Turnout SWP	Cawelo PSA SWP	T/O Total SWP
1	0	0	0	50	0	32	10	0	0	0	13	1	0	0	104	20	0	0	0	14	0	12	80	0	0	336
2	1	0	0	50	0	32	10	0	1	0	13	0	0	1	65	20	0	0	0	15	0	13	81	0	0	302
3	0	0	0	50	0	32	12	0	0	0	13	0	0	0	65	20	1	0	0	14	0	12	80	0	0	299
4	0	0	1	50	0	32	11	0	0	0	13	0	0	0	64	20	0	0	0	15	0	13	80	0	0	299
5	0	0	0	50	0	14	4	0	0	0	9	0	0	1	53	0	0	0	0	14	0	12	81	0	0	238
6	1	0	0	52	0	0	0	0	0	0	0	0	0	0	46	0	0	27	0	15	0	13	80	0	0	234
7	0	0	0	49	0	0	0	0	0	0	0	1	0	0	41	0	0	21	0	14	0	12	80	0	0	218
8	1	0	0	50	0	0	0	0	0	0	0	0	0	1	39	0	0	0	0	15	0	13	80	0	0	199
9	0	0	0	50	0	0	0	0	1	0	0	0	0	0	57	0	0	0	0	14	0	12	83	0	0	217
10	0	0	0	22	0	0	0	0	0	0	0	0	0	0	87	0	1	0	0	15	0	13	81	0	0	219
11	0	0	1	0	0	0	0	0	0	0	0	0	0	0	108	0	0	0	0	14	0	12	81	0	0	216
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	125	0	0	0	0	15	0	13	82	0	0	235
13	1	0	0	0	0	0	0	0	1	0	0	1	0	1	18	0	0	0	0	14	0	12	65	0	0	113
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	57	0	15	0	13	59	0	0	144
15	1	0	1	0	0	0	0	0	0	0	0	0	0	0	30	0	1	101	0	14	0	12	56	0	0	215
16	0	0	0	0	0	0	0	0	0	0	0	0	0	1	30	0	0	104	0	15	0	13	57	0	0	220
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	0	1	102	0	14	0	12	56	0	0	215
18	0	0	1	0	0	0	0	0	0	0	0	0	0	0	30	0	0	104	0	15	0	13	60	0	0	223
19	0	0	0	0	0	0	0	0	0	0	0	1	0	0	14	0	0	116	0	14	0	12	57	0	0	214
20	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	127	0	15	0	13	57	0	0	215
21	0	0	0	0	0	0	0	0	0	0	0	0	0	1	11	0	0	120	0	14	0	12	57	0	0	215
22	0	0	0	0	0	0	0	0	0	0	0	1	0	0	40	0	0	90	0	15	0	13	58	0	0	217
23	0	0	0	23	0	0	0	0	1	0	0	0	0	1	40	0	0	72	0	14	0	12	57	0	0	220
24	0	0	0	40	0	0	0	0	0	0	0	0	0	0	40	0	1	49	0	15	0	13	57	0	0	215
25	1	0	1	40	0	0	0	0	0	0	0	0	0	0	40	0	0	49	0	14	0	12	58	0	0	215
26	0	0	0	40	0	0	0	0	0	0	0	0	0	1	40	0	0	93	0	15	0	13	57	0	0	259
27	0	0	0	11	0	0	0	0	0	0	0	0	0	0	29	0	1	89	0	14	0	12	57	0	0	213
28	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	95	0	15	0	13	58	0	0	183
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	127	0	14	0	12	56	0	0	210
30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	135	0	15	0	12	56	0	0	219
31	1	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	1	143	0	14	0	12	56	0	0	230
CFS	8	0	7	627	0	142	47	0	6	0	61	7	0	9	1,246	80	9	1,821	0	449	0	386	2,063	0	0	6,968
AF	16	0	14	1,244	0	282	93	0	12	0	121	14	0	18	2,471	159	18	3,612	0	890	0	766	4,092	0	0	13,822

Total	16	0	14	1,244	0	282	93	0	12	0	121	14	0	18	2,471	159	18	3,612	0	890	0	766	4,092	0	0	13,822

NOTES:
[1] As part of an operational exchange, Kern Delta WD delivered San Bernardino Valley Municipal Water District SWP supplies to Arvin-Edison WSD at Rosedale Turnout No. 1 and 2 (total of 1,655 af) in exchange for Arvin-Edison WSD Friant-Kern supplies delivered to Kern Delta at the Arvin-Edison Intake Canal (1,655 af).
[2] As part of an operational exchange, Kern Delta WD delivered San Bernardino Valley Municipal Water District SWP supplies to Kern-Tulare WD at Rosedale Turnout No. 1 and 2 (total of 1,426 af) in exchange for Kern-Tulare WD Friant-Kern supplies delivered to Kern Delta at the Arvin-Edison Intake Canal (1,426 af).

	CVC Losses	N-2 Siphon	CVC Losses	RRB 1 Turnout	Strand Siphons	Strand Turnout	Strand Turnout	KWB P-11 Turnout	CVC Losses	Nord Siphons	Section 4 Pump	CVC Losses	RTO 1 Turnout	CVC Losses	RRB 2 Turnout	RTO 2 Turnout	CVC Losses	AEWSD T.O.	KTWD Siphons	Unlined Losses	RTO 3 River	Unlined Losses	RTO 4 Turnout	Calloway Turnout	Cawelo PSA	T/O Total
Berrenda Mesa WD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	159	0	0	0	0	0	0	0	0	0	159
Kern Delta WD	15	0	13	610	0	0	0	0	1	0	0	14	0	18	2,471	0	0	3,612	0	890	0	766	4,092	0	0	12,680
Rosedale Rio-Bravo WSD	1	0	1	634	0	282	93	0	1	0	121	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,133
Total	16	0	14	1,244	0	282	93	0	12	0	121	14	0	18	2,471	159	18	3,612	0	890	0	766	4,092	0	0	13,822

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE
03/08/2012	04/09/2012

INVOICE NO. 25193

RECEIVED
MAR 12 2012
0055-1100
580B-4430

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

Cross Valley Canal
January 2012

Early implementation conveyance fees in the Cross Valley Canal for delivery of Kern Delta Water District deliveries of San Bernardino Valley MWD State Water Project supplies to Arvin-Edison WSD and River Turnout No. 4 as well as operational exchange deliveries to Rosedale Turnout No. 1 and 2; adjusted for lined losses.

Reach	SBVMWD SWP Volume AF	Total $/AF [1]	Conveyance Costs Total $
1	12,530	1.00	12,530.00
2	11,881	1.00	11,881.00
3	9,378	1.00	9,378.00
		Total Amount Due	33,789.00

TOTAL AMOUNT DUE $ 33,789.00

[1] Conveyance Fee $1.00 per Reach.

POR 40540

Requested By	Prepared By	Approved By	Approved By
	U	C	

☐ ORIGINAL ☐ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE
05/01/2012	05/31/2012

INVOICE NO. 25328

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

0053-1310
561B-4402

Cross Valley Canal
February 2012

Estimated power costs for deliveries of Kern Delta Water District San Bernardino Valley Municipal Water District SWP supplies delivered to River Turnout No. 4 and Arvin-Edison WSD; adjust for lined losses.

Canal Reach	Pumping Plant	SBVMWD SWP Volume AF	Rate $/AF	Pumping Costs $
1	1	6,496	2.25	14,616.00
1	2	6,478	2.25	14,575.50
2	3	6,458	2.25	14,530.50
2	4	6,438	2.25	14,485.50
2	5	6,414	2.25	14,431.50
3	6	6,386	2.25	14,368.50
Extension	7	1,273	2.25	2,864.25

TOTAL AMOUNT DUE **$89,871.75**

Requested By | Prepared By | Approved By | Approved By

☐ ORIGINAL ☑ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE
05/01/2012	05/31/2012

INVOICE NO. 25331

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

0055-1100
580B-4430

Cross Valley Canal
February 2012

Early implementation conveyance fees in the Cross Valley Canal for delivery of Kern Delta Water District deliveries of San Bernardino Valley MWD State Water Project supplies to Arvin-Edison WSD and River Turnout No. 4; adjusted for lined and unlined losses.

Reach	SBVMWD SWP Volume AF	Total $/AF [1]	Conveyance Costs Total $
1	6,536	1.00	6,536.00
2	6,478	1.00	6,478.00
3	6,414	1.00	6,414.00
		Total Amount Due	19,428.00

TOTAL AMOUNT DUE **$ 19,428.00**

[1] Conveyance Fee $1.00 per Reach.

Requested By | Prepared By | Approved By | Approved By

☐ ORIGINAL ☑ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE D
05/29/2012	06/28/2012

INVOICE NO. 25429

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

0053-1310
561B-4402

Cross Valley Canal
March 2012

Estimated power costs for deliveries of Kern County Water District Member Units' groundwater via an operational exchange with Kern Delta Water District San Bernardino Valley Municipal Water District SWP supplies on the California Aqueduct, delivered to the Arvin-Edison WSD Turnout; adjust for lined losses.

Canal Reach	Pumping Plant	SBVMWD SWP Volume AF	Rate $/AF	Pumping Costs $
1	1	0	2.25	0.00
1	2	0	2.25	0.00
2	3	0	2.25	0.00
2	4	2,850	2.25	6,412.50
2	5	2,821	2.25	6,347.25
3	6	2,787	2.25	6,270.75
Extension	7	0	2.25	0.00

TOTAL AMOUNT DUE **$19,030.50**

Requested By | Prepared By | Approved By | Approved By

☐ ORIGINAL ☑ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL

Directors:

Ted R. Page
Division 1

Terry Rogers
President
Division 2

Randell Parker
Division 3

Michael Radon
Division 4

Adrienne J. Mathews
Division 5

William W. Van Skike
Vice President
Division 6

Gene A. Lundquist
Division 7

James M. Beck
General Manager

Amelia T. Minaberrigarai
General Counsel

May 29, 2012

Mr. Mark Mulkay
Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

Re: Estimated power and conveyance invoices for March 2012; Cross Valley Canal Water Balance Summaries for March 2012

Dear Mr. Mulkay:

Enclosed are the above referenced documents for your records and remittance. If you have any questions or require further information, please call me at (661) 634-1491.

Sincerely,

Trent Taylor
Water Resources Planner
Kern County Water Agency

Enclosures

(661) 634-1400

Mailing Address
P.O. Box 58
Bakersfield, CA 93302-0058

Street Address
3200 Rio Mirada Dr.
Bakersfield, CA 93308

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE D
05/29/2012	06/28/2012

INVOICE NO. 25445

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307

0055-1310
580B-4430

Cross Valley Canal
March 2012

Early implementation conveyance fees in the Cross Valley Canal for delivery of Kern Delta Water District deliveries of San Bernardino Valley MWD State Water Project supplies, delivered via an operational exchange with Kern County Water Agency Member Units' groundwater supplies, to the Arvin-Edison WSD Turnout; adjusted for lined.

Reach	SBVMWD SWP Volume AF	Total $/AF [1]	Conveyance Costs Total $
1		1.00	-
2	2,868	1.00	2,868.00
3	2,821	1.00	2,821.00
		Total Amount Due	5,689.00

TOTAL AMOUNT DUE **$ 5,689.00**

[1] Conveyance Fee $1.00 per Reach.

Requested By | Prepared By | Approved By | Approved By

☐ ORIGINAL ☑ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL CONTROL

Cross Valley Canal

March 2012 Deliveries - Gross AF

	Points of Entry				
	Tupman T/O Groundwater (AF)	Tupman T/O CVP (AF)	CVC / Friant-Kern Intertie KR (AF)	KCWA Arnco Reverse SWP Exch. (AF)	CVC Total (AF)
Deliveries by Turnout:					
Reverse - Calif. Aqueduct	7,085	-	-	-	7,085
Rosedale Rio Bravo Turnout No. 1	-	-	-	-	-
North Strand Ranch Turnout	-	-	-	-	-
South Strand Ranch Turnout	-	-	-	-	-
Kern Water Bank P-11 Turnout	-	-	-	-	-
Section 4 Turnout	-	-	-	-	-
River Turnout No. 1	-	-	-	-	-
Rosedale Rio Bravo Turnout No. 2	-	-	-	-	-
River Turnout No. 2	-	-	-	-	-
Arvin-Edison Turnout	3,027	-	-	-	3,027
CVC / FK Intertie	526	-	-	-	526
Lined Losses - Pools 1-6	275	-	-	-	275
River Turnout No. 3 to River	-	-	-	-	-
Unlined Losses - Pool 7	156	-	-	-	156
River Turnout No. 4 to River	-	-	-	-	-
Henry C. Garnett Treatment Plant	135	-	-	2,983	3,118
Unlined Losses - Pool 8	162	-	-	-	162
Total	11,366	-	-	2,983	14,349
Deliveries by Turnout/Participant:					
Reverse - Calif. Aqueduct					
Belridge WSD	791	-	-	-	791
Berrenda Mesa WD	1,096	-	-	-	1,096
Dudley Ridge WD	762	-	-	-	762
Lost Hills WD	985	-	-	-	985
Semitropic WSD	282	-	-	-	282
Westside Mutual WC	890	-	-	-	890
Wheeler Ridge Maricopa WSD	2,279	-	-	-	2,279
Arvin-Edison Turnout					
Kern Delta Water District	2,787	-	-	-	2,787
Kern Tulare WD / ID4 / AEWSD Exch.	240	-	-	-	240
CVC / FK Intertie					
Kern Tulare Water District	526	-	-	-	526
Lined Losses - Pools 1-6					
Belridge WSD	19	-	-	-	19
Berrenda Mesa WD	31	-	-	-	31
Dudley Ridge WD	7	-	-	-	7
Improvement District No. 4	18	-	-	-	18
Kern Delta Water District	81	-	-	-	81
Kern-Tulare Water District	35	-	-	-	35
Lost Hills WD	25	-	-	-	25
Semitropic WSD	3	-	-	-	3
Westside Mutual WC	9	-	-	-	9
Wheeler Ridge Maricopa WSD	47	-	-	-	47
Unlined Losses - Pools 7					
Improvement District No. 4	156	-	-	-	156
Henry C. Garnett Treatment Plant:					
Improvement District No. 4	135	-	-	2,983	3,118
Unlined Losses - Pools 8					
Improvement District No. 4	162	-	-	-	162
Total	11,366	-	-	2,983	14,349
Existing Participant Deliveries	*1,272*	-	-	*2,983*	*5,945*
New Participant Deliveries	10,094	-	-	-	8,404
	11,366	-	-	2,983	14,349

Shading denotes forward flow deliveries based on each point of entry into the CVC; _ / _ denotes pools / pump plants utilized (for forward flow).

Invoice

Rosedale-Rio Bravo Water
Storage District

PO Box 20820
Bakersfield, CA 93390-0820

Phone # 661-589-6045
Fax # 661-589-1867

Date	Invoice #
4/13/2012	1018

Bill To

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307-6247

Terms
Net 30

Description	Amount
Pioneer Wheeling Charges - December 2011	17,090.00

DWR
40130
4/20/12

Please remit to above address.

Total $17,090.00

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE
02/15/12	03/16/12

INVOICE NO. 25112

0102-1310	0
0075-1310	17,090
761B-4430	8,737
761B-4401	6,145
741A-4499	307
761B-4402	1,901
020A-4430	0

Rosedale-Rio Bravo WSD
PO Box 867
Bakersfield, CA 93302-0867

Pioneer Project
Estimated Billing
December 2011

December 2011:
SWP to Pioneer

Transportation via Section 4 Pump (RRB)	418 af	@	0.00 $/af	0
Transportation via Section 4 Pump (KCWA)	41 af	@	8.75 $/af	359
Transportation via Section 4 Pump (KT)	75 af	@	8.75 $/af	656
Transportation via Section 4 Pump (PG&E)	534 af	@	3.56 $/af	1,901
Transportation via RTO 1 (RRB):	796 af	@	0.00 $/af	0
Transportation via RTO 1 (Agency):	79 af	@	11.00 $/af	869
Transportation via RTO 1 (KT):	143 af	@	11.00 $/af	1,573
Transportation via RTO 2 (RRB):	292 af	@	0.00 $/af	0
Transportation via RTO 2 (Agency):	28 af	@	14.25 $/af	399
Transportation via RTO 2 (KT):	53 af	@	14.25 $/af	755
Transportation via River Channel	47 af	@	0.00 $/af	0
Transportation via 2800 Acres:	649 af	@	5.36 $/af	3,479
Transportation via Basins 1, 9 & 10:	695 af	@	0.93 $/af	646
O&M:	1,229 af	@	5.00 $/af	6,145
Facility Replacement:	1,229 af	@	0.25 $/af	307
Subtotal				$ 17,090

TOTAL AMOUNT DUE/(REFUNDED) **$17,090**

1,925 AF DELIVERED.

PASS THRU TO KDWD

Pd 3-13-12 ck# 7422

Requested By | Prepared By | Approved By | Approved By

☐ ORIGINAL ☐ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL

Invoice

Rosedale-Rio Bravo Water
Storage District

PO Box 20820
Bakersfield, CA 93390-0820

Phone # 661-589-6045
FAX # 661-589-1867

Date	Invoice #
4/13/2012	1016

Bill To

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307-6247

Terms
Net 30

Description	Amount
Pioneer Wheeling Charges - November 2011	11,198.88

DWR
40/30
4/20/12

Please remit to above address.

Total $11,198.88

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE
01/25/12	02/24/12

INVOICE NO. 25032

0102-1310	0
0075-1310	14,787
761B-4430	2,314
761B-4401	6,690
741A-4499	335
761B-4402	5,448
020A-4430	0

Rosedale-Rio Bravo WSD
PO Box 867
Bakersfield, CA 93302-0867

Pioneer Project
Estimated Billing
November 2011

November 2011:
SWP to Pioneer

Transportation via Section 4 Pump (RRB)	1,065 af	@	0.00 $/af	0
Transportation via Section 4 Pump (KCWA)	54 af	@	8.75 $/af	473
Transportation via Section 4 Pump (KT)	74 af	@	8.75 $/af	648
Transportation via Section 4 Pump (PG&E)	1,193 af	@	2.84 $/af	3,388
Transportation via RTO 1 (RRB):	252 af	@	0.00 $/af	0
Transportation via RTO 1 (Agency):	13 af	@	11.00 $/af	143
Transportation via RTO 1 (KT):	17 af	@	11.00 $/af	187
Transportation via River Channel	1 af	@	0.00 $/af	0
Transportation via 2800 Acres:	136 af	@	5.36 $/af	729
Transportation via Basins 1, 9 & 10:	145 af	@	0.93 $/af	135
O&M:	1,338 af	@	5.00 $/af	6,690
Facility Replacement:	1,338 af	@	0.25 $/af	335
Subtotal				$ 12,726

Additional Charges:

Transportation via Section 4 Pump (April 2011 - PG&E	1,392 af	@	1.48 $/af	$ 2,060

TOTAL AMOUNT DUE/(REFUNDED) **$14,787**

1,475 AF DELIVERED

AEWSD 12% = $1,527.12
~~KDWD 88% = $11,198.88~~

Pd 2/14/12
ck# 7370

Requested By | Prepared By | Approved By | Approved By

☐ ORIGINAL ☐ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL

Invoice

Rosedale-Rio Bravo Water
Storage District

PO Box 20820
Bakersfield, CA 93390-0820

Phone # 661-589-6045
Fax # 661-589-1867

Date	Invoice #
4/13/2012	1013

Bill To

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307-6247

Terms
Net 30

Description	Amount
Cross Valley Canal Pumping Costs - September 2011 Pumping Plant No. 1 - $1761.50 Pumping Plant No. 2 - $1761.50 Pumping Plant No. 3 - $747.50 Pumping Plant No. 4 - $747.50 Pumping Plant No. 5 - $1150.00	6,168.00

DWR
40540
4/20/12

Please remit to above address.

Total $6,168.00

ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT
CROSS VALLEY CANAL PUMPING COSTS
KERN DELTA WATER DISTRICT - SEPTEMBER 2011

Deliveries and Pumping Plant Usage			
Description	Volume (AF)	Rate ($/AF)	Pumping Cost ($)
Pumping Plant No. 1	542	3.25	1,761.50
Pumping Plant No. 2	542	3.25	1,761.50
Pumping Plant No. 3	230	3.25	747.50
Pumping Plant No. 4	230	3.25	747.50
Pumping Plant No. 5	230	5.00	1,150.00
		TOTAL >	**6,168.00**

Delivery Accounting	
Turnout	AF
Rosedale No. 1 (West)	312
Strand Ranch	0
Rosedale No. 2 (East)	230
CVC Losses	0
TOTAL >	**542**

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE
12/12/2011	01/11/2012

INVOICE NO. 24801

Rosedale-Rio Bravo WSD
PO Box 20820
Bakersfield, CA 93390-0820

0053-1330(PWR)
561B-4402

Cross Valley Canal
September 2011

Estimated power costs for deliveries of Rosedale Rio-Bravo WSD SWP Table A supplies as well as Arvin-Edison WSD and Kern Delta WD use of RRBWSD capacity to convey Metropolitan WD SWP supplies to Rosedale Turnout No. 1 and 2; adjusted for lined losses.

Canal Reach	Pumping Plant	RRBWSD SWP Volume AF	AEWSD SWP Volume AF	KDWD SWP Total AF	Rate $/AF	Pumping Costs $
1	1	4,009	1,608	542	3.25	20,016.75
1	2	4,008	1,608	542	3.25	20,013.50
2	3	837	0	230	3.25	3,467.75
2	4	0	0	230	3.25	747.50
2	5	0	0	230	5.00	1,150.00
3	6	0	0	0	5.00	0.00
Extension	7	0	0	0	5.00	0.00

TOTAL AMOUNT DUE **$45,395.50**

Requested By	Prepared By	Approved By	Approved By

☑ ORIGINAL ☐ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL C

Invoice

Rosedale-Rio Bravo Water
Storage District

PO Box 20820
Bakersfield, CA 93390-0820

Phone # 661-589-6045
Fax # 661-589-1867

Date	Invoice #
4/13/2012	1014

Bill To

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307-6247

Terms
Net 30

Description	Amount
Cross Valley Canal Pumping Costs - November 2011 Pumping Plant No. 1 - $8258.25 Pumping Plant No. 2 - $8255.00 Pumping Plant No. 3 - $263.25 Pumping Plant No. 4 - $169.00 Pumping Plant No. 5 - $260.00	17,205.50

DWR
40540
4/20/12

Please remit to above address.

Total $17,205.50

ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT
CROSS VALLEY CANAL PUMPING COSTS
KERN DELTA WATER DISTRICT - OCTOBER 2011

Deliveries and Pumping Plant Usage			
Description	Volume (AF)	Rate ($/AF)	Pumping Cost ($)
Pumping Plant No. 1	2,541	3.25	8,258.25
Pumping Plant No. 2	2,540	3.25	8,255.00
Pumping Plant No. 3	81	3.25	263.25
Pumping Plant No. 4	52	3.25	169.00
Pumping Plant No. 5	52	5.00	260.00
		TOTAL >	**17,205.50**

Delivery Accounting	
Turnout	AF
Rosedale No. 1 (West)	1,373
Strand Ranch	1,116
Rosedale No. 2 (East)	52
CVC Losses	0
TOTAL >	**2,541**

✓

AMOUNT OF WATER RECLASSIFIED AS KDWD.

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE
01/06/2012	02/06/2012

INVOICE NO. 24922

Rosedale-Rio Bravo WSD
PO Box 20820
Bakersfield, CA 93390-0820

0053-1330(PWR)
561B-4402

Cross Valley Canal
October 2011

Estimated power costs for deliveries of Rosedale Rio-Bravo WSD SWP Table A supplies to Rosedale Turnout No. 1 and 2 as well as refill deliveries per the Refill/Dewatering Policy Guidelines; adjusted for lined losses.

Canal Reach	Pumping Plant	RRBWSD SWP Volume AF	Rate $/AF	Pumping Costs $
1	1	2,919	3.25	9,486.75
1	2	2,918	3.25	9,483.50
2	3	81	3.25	263.25
2	4	52	3.25	169.00
2	5	52	5.00	260.00
3	6	0	5.00	0.00
Extension	7	0	5.00	0.00

TOTAL AMOUNT DUE **$19,662.50**

Requested By	Prepared By	Approved By	Approved By
☑ ORIGINAL ☐ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL			

Invoice

Rosedale-Rio Bravo Water
Storage District

PO Box 20820
Bakersfield, CA 93390-0820

Phone # 661-589-6045
Fax # 661-589-1867

Date	Invoice #
4/13/2012	1015

Bill To

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307-6247

Terms
Net 30

Description	Amount
Cross Valley Canal Power Costs - November 2011	27,101.25

DWR
40540
4/20/12

Please remit to above address.

Total $27,101.25

ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT
CROSS VALLEY CANAL PUMPING COSTS
KERN DELTA WATER DISTRICT - NOVEMBER 2011

Deliveries and Pumping Plant Usage			
Description	Volume (AF)	Rate ($/AF)	Pumping Cost ($)
Pumping Plant No. 1	5,326	2.25	11,983.50
Pumping Plant No. 2	5,324	2.25	11,979.00
Pumping Plant No. 3	0	2.25	0.00
Pumping Plant No. 4	0	2.25	0.00
Pumping Plant No. 5	0	2.25	0.00
		SUB-TOTAL >	**23,962.50**

Delivery Accounting	
Turnout	AF
Rosedale No. 1 (West)	1,845
Strand Ranch	3,481
Rosedale No. 2 (East)	0
CVC Losses	0
TOTAL >	**5,326**

✓

Pumping Plant Usage[1]			
Description	Volume (AF)	Rate ($/AF)	Pumping Cost ($)
Pumping Plant No. 1	0	2.25	0.00
Pumping Plant No. 2	0	2.25	0.00
Pumping Plant No. 3	1,230	2.25	2,767.50
Pumping Plant No. 4	165	2.25	371.25
Pumping Plant No. 5	0	2.25	0.00
		SUB-TOTAL >	**3,138.75**

TOTAL > **27,101.25**

[1] CVC Power cost to move RRB water to Pioneer. KDWD agreed to move this water to Pioneer to free capacity in RRB spreading areas.

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE
01/18/2012	02/17/2012

INVOICE NO. 25017

Rosedale-Rio Bravo WSD
PO Box 20820
Bakersfield, CA 93390-0820

0053-1330(PWR)
561B-4402

Cross Valley Canal
November 2011

Estimated power costs for deliveries of Rosedale Rio-Bravo WSD SWP Table A supplies to the Pioneer Project utilizing the Section 4 Turnout and River Turnout No. 1. Deliveries of Kern Delta WD at Rosedale Turnout No. 1 and 2 and the North and South Turnouts were made with Kern Delta WD MWD supplies; adjusted for lined losses.

Canal Reach	Pumping Plant	RRBWSD SWP Volume AF	KDWD SWP Volume AF	Rate $/AF	Pumping Costs $
1	1	1,318	5,326	2.25	14,949.00
1	2	1,318	5,324	2.25	14,944.50
2	3	1,318	0	2.25	2,965.50
2	4	252	0	2.25	567.00
2	5	0	0	2.25	0.00
3	6	0	0	2.25	0.00
Extension	7	0	0	2.25	0.00

TOTAL AMOUNT DUE **$33,426.00**

Requested By | Prepared By | Approved By | Approved By

☑ ORIGINAL ☐ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL C

Invoice

Rosedale-Rio Bravo Water Storage District

PO Box 20820
Bakersfield, CA 93390-0820

Phone # 661-589-6045
Fax # 661-589-1867

Date	Invoice #
4/13/2012	1017

Bill To

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307-6247

Terms
Net 30

Description	Amount
Cross Valley Canal Pumping Costs - December 2011	50,436.00

DWR
40540
4/20/12

Please remit to above address.

Total $50,436.00

ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT
CROSS VALLEY CANAL PUMPING COSTS
KERN DELTA WATER DISTRICT - DECEMBER 2011

Deliveries and Pumping Plant Usage			
Description	Volume (AF)	Rate ($/AF)	Pumping Cost ($)
Pumping Plant No. 1	5,873	2.25	13,214.25
Pumping Plant No. 2	5,872	2.25	13,212.00
Pumping Plant No. 3	4,056	2.25	9,126.00
Pumping Plant No. 4	354	2.25	796.50
Pumping Plant No. 5	353	2.25	794.25
		SUB-TOTAL >	**37,143.00**

Delivery Accounting	
Turnout	AF
Rosedale No. 1 (West)	2,761
Strand Ranch	2,759
Rosedale No. 2 (East)	353
CVC Losses	0
TOTAL >	**5,873**

Pumping Plant Usage[1]			
Description	Volume (AF)	Rate ($/AF)	Pumping Cost ($)
Pumping Plant No. 1	1,510	2.25	3,397.50
Pumping Plant No. 2	1,509	2.25	3,395.25
Pumping Plant No. 3	1,508	2.25	3,393.00
Pumping Plant No. 4	1,089	2.25	2,450.25
Pumping Plant No. 5	292	2.25	657.00
		SUB-TOTAL >	**13,293.00**

TOTAL > 50,436.00

[1] CVC Power cost to move RRB water to Pioneer. KDWD agreed to move this water to Pioneer to free capacity in RRB spreading areas.

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE DATE
02/13/2012	03/14/2012

INVOICE NO. 25082

Rosedale-Rio Bravo WSD
PO Box 20820
Bakersfield, CA 93390-0820

0053-1330(PWR)
561B-4402

Cross Valley Canal
December 2011

Estimated power costs for deliveries of Rosedale Rio-Bravo WSD SWP Table A supplies to the Pioneer Project utilizing the Section 4 Turnout and River Turnout No. 1. Deliveries of Kern Delta WD at Rosedale Turnout No. 1 and 2 and the North and South Turnouts were made with Kern Delta WD MWD and SBVMWD supplies; adjusted for lined losses.

Canal Reach	Pumping Plant	RRBWSD SWP Volume AF	KDWD MWD SWP Volume AF	KDWD SBVMWD SWP Volume AF	Rate $/AF	Pumping Costs $
1	1	1,510	3,940	1,933	2.25	16,611.75
1	2	1,509	3,939	1,933	2.25	16,607.25
2	3	1,508	3,937	119	2.25	12,519.00
2	4	1,089	236	118	2.25	3,246.75
2	5	292	236	117	2.25	1,451.25
3	6	0	0	0	2.25	0.00
Extension	7	0	0	0	2.25	0.00

TOTAL AMOUNT DUE **$50,436.00**

Requested By | Prepared By | Approved By | Approved By

☐ ORIGINAL ☑ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL C

Invoice

Rosedale-Rio Bravo Water Storage District
PO Box 20820
Bakersfield, CA 93390-0820

Phone # 661-589-6045
Fax # 661-589-1867

Date	Invoice #
12/5/2011	1009

RECEIVED
DEC - 6 2011

Bill To

Kern Delta Water District
501 Taft Highway
Bakersfield, CA 93307-6247

Terms
Net 30

Description	Amount
CVC Pumping Costs August 2011 see attached statement	4,959.50

PWR
405 40

VENDOR	Ro400
INVOICE #	1009
P.O. #	DWR
DATE	12-5-11
AMOUNT	4959.50
ACCT. CODE	40540

12/14/11

Please remit to above address.

Total $4,959.50

WATER R

ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT
CROSS VALLEY CANAL PUMPING COSTS
KERN DELTA WATER DISTRICT - AUGUST 2011

Deliveries and Pumping Plant Usage			
Description	Volume (AF)	Rate ($/AF)	Pumping Cost ($)
Pumping Plant No. 1	763	3.25	2,479.75
Pumping Plant No. 2	763	3.25	2,479.75
Pumping Plant No. 3	0	3.25	0.00
Pumping Plant No. 4	0	3.25	0.00
Pumping Plant No. 5	0	3.25	0.00
		TOTAL >	**4,959.50**

Delivery Accounting	
Turnout	AF
Rosedale No. 1 (West)	763
Strand Ranch	0
Rosedale No. 2 (East)	0
CVC Losses	0
TOTAL >	**763**

RECEIVED
DEC 19 2011

Invoice

Buena Vista Water Storage District
P.O. Box 756
Buttonwillow, CA 93206

Telephone: 661-324-1101

Invoice No.	2669
Customer No.	0780

Bill To	Ship To
Kern Delta Water District 501 Taft Highway Bakersfield, CA 93307 USA	Kern Delta Water District 501 Taft Highway Bakersfield, CA 93307 USA

Invoice Date	Order Date	SO Number	Ordered By	Customer PO Number	Payment Method
12/16/2011	12/1/2011				Net 30 Days

Warehouse	Ship Via	F.O.B.	Salesperson	Resale Number
MAIN				

Order Quantity	Ship Quantity	Tax	Item Number / Description	Unit Price	Extended Price
25,000.00	25,000.00	N	KDEX Kern Delta Exchange 2011 EXHANGE FEES PURSUANT TO MEMO OF UNDERSTANDING - THIS EXCHANGE IS IN ADDITION TO THE ANNUAL LONG-TERM WATER EXCHANGE AGREEMENT NO. 2 Exchange in place of cvc cost.	15.50	387,500.00

DWR
~~3110~~
30110

VENDOR Bo300
INVOICE # 26669
P.O. # DWR
DATE 12-16-11
AMOUNT 387,500.00
ACCT. CODE

1/9/12

MET

Print Date	12/16/11	**Total Paid**	0.00	**Subtotal**	387,500.00
Print Time	10:29:05 AM	**Balance Due**	387,500.00	**Freight**	0.00
Page No.	1	**Due Date**	01/15/12	**Invoice Total**	387,500.00

Printed By: Marinelle

1/4/12

RECORDING REQUESTED BY
AND WHEN RECORDED MAIL TO:

SAN BERNARDINO VALLEY WATER
CONSERVATION DISTRICT
1630 West Redlands Boulevard, Suite A
Redlands, CA 92373-8032
Attention: General Manager

SPACE ABOVE THIS LINE FOR RECORDER'S USE

EXEMPT GOVERNMENT AGENCY Per Government Code Sec. 6103

By_____
District Secretary, San Bernardino Valley Water Conservation District

AGREEMENT TO DEVELOP AND OPERATE ENHANCED RECHARGE FACILITIES

This Agreement to Develop and Operate Enhanced Recharge Facilities ("**Agreement**") is entered into and effective this 1st day of October, 2012 by and among the San Bernardino Valley Water Conservation District (the "**Conservation District**"), the San Bernardino Valley Municipal Water District ("**Valley District**") and Western Municipal Water District of Riverside County ("**Western**"). The Conservation District, Valley District and Western are each sometimes referred to as a "**Party**" and are collectively sometimes referred to as the "**Parties.**"

Recitals

A. General Purposes.

(1) The Parties each hold water rights to the waters of the Santa Ana River and each own and operate facilities that serve to divert and/or store the waters of the Santa Ana River. Furthermore, each Party possesses critical assets and unique skills that the other Parties do not possess.

SBVMWD LEGAL
DOCUME

(2) The Parties wish to collaboratively use all of their respective assets and skills, including but not limited to water rights and facilities necessary or useful for the diversion and storage of water, to improve the reliability of local water supplies for their respective constituents by establishing a collaborative partnership to coordinate the use of their separate resources for mutual advantage.

(3) The Parties specifically wish to collaborate by increasing opportunities to recharge local surface water supplies, as well as State Project Water, in the San Bernardino Basin Area (the "**SBBA**"); by reducing the time and cost required to permit and construct essential public infrastructure (such as spreading basins); and by working together to achieve an efficient division of labor in the operation and maintenance of water infrastructure.

(4.) The Parties acknowledge that their water resource management activities in the Santa Ana River wash area proceed in concert with other uses of the lands in that area, including the mining of sand and gravel mineral deposits pursuant to existing leases, and habitat conservation and management, pursuant to a series of multi-agency cooperative initiatives involving local, state, and federal resource management and control agencies. The Parties' goal is to harmonize their water resource activities with these other uses, for the optimization of coordinated use by all.

(5) The Parties wish to memorialize their joint understandings by means of this Agreement.

B. Findings.

(1) The Parties agree that they must increase groundwater storage in the SBBA in order to meet current and future demands for water among their constituents.

(2) In the past, reasonable disagreements among the Parties have added unintentional and undesirable costs and complexity to the planning and permitting of important water resources projects in the region.

(3) The Parties believe that it is in their best interests, and the best interest of the public they serve, to cooperate in increasing the available water supply by establishing a new and more productive working relationship.

(4) In certain years, wet weather conditions and increased availability of State Project Water can create a limited opportunity to improve the reliability of local water supplies by increasing recharge and storage to groundwater. These favorable conditions are temporary and perishable. Therefore, time is of the essence. New inter-agency operating agreements should be established immediately in order to make the most of this and future opportunities because they occur on an irregular and unpredictable basis.

(5) Because of the limited and sporadic opportunities to augment local water supplies, the Parties intend for this Agreement to continue for a long period, thereby allowing the utilization of such limited water supplies.

Agreements

1. *Term.* The term of this Agreement shall commence on the Effective Date first written above and shall continue for a term of twenty five (25) years ("Initial Term") , unless terminated earlier as provided in this Agreement. This Agreement may be extended by written agreement among all parties for up to five additional, consecutive five year terms ("Extension Terms"), on the same terms and conditions stated herein, provided that prior to the expiration of the term then in effect, all parties agree in writing to the applicable extension, by action of their legislative bodies, to extend the Agreement for another term.

2. *Duties of the Conservation District.*

a. *Lease of Facilities for the Purpose of Groundwater Recharge to Valley District and Western.* The Conservation District hereby leases to Valley District and Western, for the term of this Agreement and on the terms specified herein, the surface of the lands shown on Exhibit 1 during the term of this Agreement ("**Leased Property**"). Exhibit 1A provides the legal description for the lands owned in fee by the Conservation District and Exhibit 1B provides the legal description of lands made available under existing easements under ownership by the Bureau of Land Management. Exhibit 1 is attached hereto and incorporated herein by reference. Valley District and Western shall have the right to enter upon and use the Leased Property, and any reasonably necessary subsurface areas incident thereto. Such entry and use shall be only for the purpose of recharging, storing or conveying water from any source (collectively "**recharging of water**" herein) into or through the percolation basins and other facilities owned or controlled by the Conservation District, whether existing as of the effective date of this Agreement, or as may be constructed pursuant to the terms of this Agreement, as such existing and contemplated future facilities are depicted in Exhibit 2, which is attached hereto and incorporated herein by reference). The Conservation District reserves all rights in and to the Leased Property not expressly conveyed as a part of this lease. Specific terms of this lease are as follows:

(1) Valley District and Western may construct, operate, maintain, repair, reconstruct and rehabilitate diversion facilities, recharge basins, pumps and other ancillary facilities or equipment located within the Leased Property as Valley District and Western may reasonably deem necessary for the recharging of water on the Leased Property,

recognizing that the Parties intend that the Conservation District shall be responsible for the operation and maintenance of such facilities.

(2) Included within this lease are all rights of reasonable ingress and egress as may be useful or necessary, in Valley District and/or Western's sole discretion, for the purpose of the recharging of water on the Leased Property, provided that such activities shall not interfere with: (i) any conservation easements that may now exist, or may be established consistent with the Conservation District's Upper Santa Ana River Wash Land Management and Habitat Conservation Plan, on said lands, or (ii) other easements existing as of the effective date of this Agreement.

(3) The designs for any such facilities or other tenant improvements must be approved, in advance by the Conservation District, which approval shall not be unreasonably withheld or delayed, and are subject to any limitations on the Conservation's District's holding of the Leased Property. The Conservation District shall cooperate reasonably with Valley District and Western to obtain local, state, or federal permits that may be required to construct or operate such facilities approved by the Conservation District.

(4) The Conservation District will utilize its best efforts under all existing and future lease agreements and easements with other individuals, organizations or entities operating on the Leased Property to harmonize the objective of Valley District and Western making full use of the facilities on the Leased Property for the recharge of water, consistent with the hydrological design limitations of these facilities, with any competing uses of the properties on which such facilities are or may be located.

(5) The Parties recognize that the Conservation District has negotiated lease agreements with mining companies that allow the Conservation District to engage in recharge of water that may periodically interfere with or prevent mining, without liability on the part of the Conservation District, which agreements are attached hereto as Exhibits 3 and 4. The Conservation District represents and warrants that these are the only current agreements that authorize mining on the Leased Property, and represents and warrants that the copies of these agreements attached as Exhibits 3 and 4 are true and correct copies of those agreements. Based on those representations, the Parties believe that they can collaboratively manage the recharge of water to avoid liability arising from any incompatibility between the recharging of water and any

activities otherwise authorized under the mining leases. Toward this end, the Parties agree as follows:

(a) During the winter season (from October 1 to March 31), the Parties will consult with each other on a regular basis to determine the quantity of water that may be recharged without interfering with mining operations.

(b) In the event that the recharging of water threatens to substantially limit or interfere with mining operations, the Parties shall immediately confer to determine how to maximize the recharge without unduly interfering with mining activity. Towards this end, the parties acknowledge that the Conservation District has the right, from time to time and as it deems necessary in the exercise of its reasonable discretion, to utilize all or any portion of the areas subject to the mining leases for its water recharge, conservation, spreading, and other operations, provided such activities are undertaken utilizing best efforts to avoid storing water so as to require temporary use of the mining lease areas. In connection with the exercise of their activities on the Leased Property hereunder, Valley District and Western shall assist the Conservation District to make every effort to minimize the time of any interruption of the mining lessees' activities on the Leased Property, to permit sufficient time for the Conservation District to observe all requirements for notice to mining lessees required under the applicable leases in the event of conflicts, and to harmonize their recharge of water with the then-current and anticipated immediate future excavation and other activities of the mining lessees, with the overall goal that the mining activity and the water conservation activity can harmoniously exist, without interruption to either.

(c) Any decisions about the proper scope, location, or amount of recharging of water after such consultation with appropriate agencies shall be made solely by the Conservation District in the exercise of its reasonable discretion, consistent with paragraph 4(d)(2) below, and consistent with the principle of ensuring that the optimum quantity of water possible is replenished within the San Bernardino Basin Area.

In the event the Conservation District determines, in the exercise of its reasonable discretion, that portions of the Leased Property cannot be made available to Valley District and Western, and such determination is made at a time when water supplies are otherwise

immediately available to Valley District and Western for recharge into facilities on the leased land:, Conservation District will not object, directly or indirectly, to efforts by Valley District and/or Western to deliver water supplies that cannot be spread on the Leased Property to other locations, *provided that* in determining where to deliver such water supplies, Valley District and Western act consistent with the priority of first delivering water for direct delivery or spreading within the SBBA, then delivering water for direct delivery or spreading within the boundaries of Valley District, then delivering water for direct delivery, spreading or storage within Western, and then delivering water for direct delivery, spreading or storage outside of Western.

In such event, the parties shall meet and confer in good faith, under the auspices of the Joint Operations Committee provided for in paragraph 4(b) below, regarding whether some proportional refund to Valley District, Western, or both of a portion the gross lease fee paid for the given year in which the Leased Premises were unavailable for the recharge of water may be appropriate, and if so, in what amount.

b. *Operation and Maintenance of Spreading Basins.* The Conservation District shall operate and maintain all new and existing facilities, located on the areas depicted in Exhibit 2 hereto, in good working condition, to ensure that the recharge of water continues efficiently, in accordance with a mutually-agreed schedule of regular maintenance and any supplemental agreements governing special or emergency maintenance responsibilities. The Conservation District shall set aside a portion of the gross lease fee provided for in Paragraph 3(a) below received from Valley and Western, in accordance with the Conservation District's Reserve Policy, to ensure sufficient funds are available to meet the agreed maintenance obligations.

c. *Ownership of New Facilities* Upon expiration or other proper termination of this Agreement, however, improvements made on land owned or controlled by the Conservation District shall become Conservation District property, to be used by the Conservation District for water management and the recharge of water.

d. *Groundwater Charge*. All parties producing water in the Conservation District's jurisdictional boundaries shall be subject to all then-applicable groundwater charges, and this Agreement shall not exempt nor excuse any party, including Valley District and Western, from the levy or payment thereof. Notwithstanding, the parties recognize that they do not intend that groundwater charges would be required to be paid on production of water pursuant to measures taken for the emergency alleviation of high groundwater conditions, or the implementation of

other basin management objectives as may be approved by the Basin Technical Advisory Commission ("**BTAC**") or other similar organization including all of the parties hereto that may perform a substantially similar role under any Conjunctive Use Plan that may be implemented for the SBBA. The Conservation District agrees to consider implementing reasonable measures to reduce or eliminate groundwater charges for groundwater production devoted to such agreed purposes, whether by exemption, or refund of charges otherwise paid, as may be consistent with applicable law.

3. *Duties of Valley District and Western.*

a. *Gross Lease Fee.* Valley District and Western shall together pay to the Conservation District a gross lease fee of $350,000/year for the right to the recharge of water through the existing percolation basins and other facilities owned by the Conservation District, and the right to construct and have operated additional recharge and conveyance facilities on the Leased Property. The parties acknowledge and affirm that the gross lease fee is a lease payment for access to and use of the Leased Property, only, and for partial offset to the costs of operation and maintenance of facilities thereon same by the Conservation District. The gross lease fee does not include, and is not intended to replace or offset, any charges for the acquisition, conveyance, storage, or production of water, that may otherwise apply by or among the parties, or third parties, whether now or in the future.

b. Valley District and Western, or either of them, shall pay the gross lease fee, in advance, by October 1st of each year, which sum may be apportioned by the Conservation District to its Groundwater Enterprise and other funds.

(1) Valley District and Western shall annually adjust the gross lease fee to account for inflation using the U.S. Bureau of Labor Statistics Consumer Price Index (CPI-U) for the Los Angeles District. The base year for such payments will be 2012.

(2) In the event that Valley District and/or Western construct new percolation basins or other facilities useful or necessary for the recharge of water, the Parties shall adjust the gross lease fee proportionally to reflect the additional operation and maintenance costs that will be incurred by the Conservation District in operating and maintaining those new facilities, as may be agreeable to the Parties.

c. *Permitting for New or Augmented Spreading Basins.* Valley District and Western shall be responsible for obtaining all federal, state and local permits (including conducting environmental review under the California Environmental Quality Act or the National Environmental Policy Act) that may be required to construct

additional facilities for the recharge of water supplied by Valley and Western. If, after 10 years, Valley and Western have been unable to obtain the necessary permits, either or both may terminate this lease agreement subject to the provisions of paragraph 9.c. below. Valley District and Western shall bear all costs associated with protecting, repairing or replacing the material infrastructure improvements (including pipelines, gates, valves, weirs, fencing, gauges, etc.) installed by Valley District and Western on lands owed by the Conservation District.

d. *Resource Management.*

(1) Valley District and Western shall coordinate their operations to harmonize with mineral resource extractions, to avoid any potential liability under mineral leases, or other uses authorized by the Conservation District on the Leased Property.

(2) Valley District and Western shall negotiate supplemental payments to the Conservation District where unusual and unforeseen circumstances necessitate extraordinary maintenance expenses that are in excess of the budget prepared and approved by the Joint Operations Committee.

(3) Valley District and Western shall cooperate with the Conservation District in developing a long-term resource management plan to govern multiple-use activities in Reach 5 of the Santa Ana River wash (i.e., the Upper Santa Ana River Wash Land Management and Habitat Conservation Plan).

4. *Duties of All Parties*

a. *No Rights to Other Party(ies)' Water or Facilities.* Except as provided for in paragraph 2(c) above, the Conservation District will not assert any claim to own or control the new facilities constructed, or the additional water recharged by, Valley District and Western under the terms of this Agreement, provided that these activities occur in conformance with this Agreement. Valley District and Western will not assert any claim to own or control any water that is percolated in the new or existing recharge basins that is not supplied by Valley District or Western, nor make any attempt to acquire or control land or facilities owned by the Conservation District.. Valley District and Western acknowledge and represent to Conservation District that this Agreement provides for and constitutes "compatible use" of the Conservation District's property and facilities, as that term is utilized in California Code of Civil Procedure sections 1240.510 et seq., thereby eliminating any need for any exercise of eminent domain by any party to acquire any additional interest in the Leased Property from any other party.

b. *Establishment of Joint Operations Committee.* The Parties shall establish and participate in a Joint Operations Committee (the "**JOC**") to serve in an advisory capacity to the Conservation District, which shall assist the Conservation District to develop a schedule and budget for planned operation and maintenance activities relating to the recharge of water on the Leased Property, and perform other functions as otherwise specified herein, under such rules and procedures as it shall formulate and unanimously approve. The JOC shall meet at least twice a year to plan water recharge, review financial and water accounting matters implicated hereunder, and review performance.

c. *Joint Reporting.* The Parties shall jointly provide planning documents, monitoring reports, and other records that may be requested by authorized agencies to demonstrate compliance with federal, state or local laws and regulations. Specifically, the Parties shall continue to cooperate in the preparation and submission of annual reports to the California State Water Resources Control Board, which reports will follow the format used by the Parties in reporting the use of water for calendar year 2010. A copy of the report filed with the California State Water Resources Control Board is attached hereto as Exhibit 5 and incorporated herein by reference.

d. *Water Resources Management.*

(1) The Parties will continue to coordinate all recharge of water with one another to protect and enhance the safe yield in the SBBA. Specifically, the Parties will: (i) jointly develop the Regional Conjunctive Use Plan (or its equivalent) through the Basin Technical Advisory Committee, (ii) seek additional opportunities to increase safe yield in the SBBA by engaging in cooperative joint development of new water supply projects or conservation programs in the region, and (iii) cooperate with one another to document the water resource management benefits accrued by establishing and implementing this Agreement.

(2) The parties agree to dedicate and use the water made available pursuant to their respective water rights in and to the Santa Ana River to give priority to preserving the safe yield of the SBBA, as part of the reasonable and prudent management of their entire portfolio of water resources. All parties shall refrain from contesting any water rights claimed or held by one another at any time during the term of this Agreement, so long as such water rights are exercised in the manner consistent with this Agreement.

(3) The Parties will not export native water from the SBBA, or recharge water on behalf of agencies located outside the SBBA, except as

provided for by the 1969 *Western* Judgment and/or by the Regional Conjunctive Use Plan (or its equivalent).

5. *Amendments.* The Parties will negotiate amendments, including but not limited to areal expansion of the scope of activities, to this Agreement in good faith and not unreasonably withhold consent.

6. *Liberal Construction.* The Parties shall construe all terms and conditions in this Agreement in a manner which most favors increasing available water supplies by encouraging greater recharge of water in the area.

7. *Indemnification*

a. *Generally.* Each Party shall indemnify, defend and hold harmless the other Parties, their directors, officers, employees and agents from and against all damages, liabilities, claims, actions, demands, costs and expenses (including, but not limited to, costs of investigations, lawsuits and any other proceedings whether in law or in equity, settlement costs, attorneys' fees and costs), and penalties or violations of any kind, which arise out of, result from, or are related to a Party's performance of its obligations under this Agreement. In extending such indemnification, however, no party hereto waives any sovereign or governmental immunities, privileges, or rights that they may have or enjoy under any applicable law, including but not limited to California Government Code sections 810 et seq., and except as otherwise specifically provided for hereunder, and each party reserves all such immunities, privileges and rights , and any claims or other procedures applicable to same, that may presently exist or hereafter be created, to themselves, as against each of the other parties, and as against any third party.

b. *Indemnification Procedures.* Any Party that is an indemnified party (the "**Indemnified Party**") that has a claim for indemnification against the other Party (the "**Indemnifying Party**") under this Agreement, shall promptly notify the Indemnifying Party in writing, specifying the nature of the claim, the grounds upon which the Indemnified Party believes the Indemnifying Party is liable in whole or in part for the liability or other obligation asserted under the claim, and including any appropriate demand for defense or indemnification, or both. No delay on the part of the Indemnified Party in notifying the Indemnifying Party shall relieve the Indemnifying Party from any obligation unless (and then solely to the extent) the Indemnifying Party is prejudiced. Further, the Indemnified Party shall promptly notify the Indemnifying Party of the existence of any claim, demand, or other matter to which the indemnification obligations apply, and shall give the Indemnifying Party a reasonable opportunity to defend the same at its own expense and with counsel of its own selection, *provided* that the Indemnified Party shall at all times also have the right to fully participate in the disputed matter at its own expense. If the Indemnifying Party refuses to provide the

indemnity, or within a reasonable time after written notice from the Indemnified Party, fails to defend a claim, demand or other matter to which the indemnification obligations apply, the Indemnified Party shall have the right, but not the obligation, to undertake the defense of, and to compromise or settle (exercising reasonable business judgment), the claim or other matter, on behalf, or for the account, and at the risk, of the Indemnifying Party. If the claim is one that cannot by its nature be defended solely by the Indemnifying Party, then the Indemnified Party shall make available all information and assistance to the Indemnifying Party that the Indemnifying Party may reasonably request. In the event of any dispute between the Indemnified party and the Indemnifying Party as to whether the claim is one to which the indemnification obligations apply, the matter shall be resolved in the manner of resolution of disputes, as provided in paragraph 9 hereunder. Except as specifically provided otherwise in Paragraph 9(b) (4) below with respect to tolling of limitations periods, the notice provided for hereunder shall be in addition to, and not in place of, any other notice that may be provided for or otherwise required under law.

8. *Force Majeure.* In addition to any other specific provisions of this Agreement, a Party hereto shall not be deemed to be in default under this Agreement where failure or delay in performance of any of such Party's obligations under this Agreement is caused by floods, earthquakes, winds, other Acts of God, power outages, equipment failure, acts of vandalism, fires or other casualties, wars, riots or similar hostilities, strikes and other labor difficulties beyond the Party's control, (including the Party's employment force), enactment of new or conflicting, laws or regulations, including any new listing of endangered species or designation of critical habitat for endangered species, court actions (such as restraining orders or injunctions), judicial actions such as issuance of restraining orders and injunctions, or other causes beyond such Party's control. If any one or more of such events occur, the term of this Agreement and the time for performance by any Party of any of its obligations hereunder shall be extended by the period of time that such one or more events prevented or delayed such performance, provided that the term of this Agreement shall not be extended under any circumstances for more than five (5) years. In the event that said period of time must be extended by more than five years, this Agreement shall automatically terminate.

9. *Administration of Agreement*

a. *Books and Records.* Each Party shall have access to and the right to examine any of the other Party's pertinent books, documents, papers or other records (including, without limitation, records contained on electronic media) relating to the performance of that Party's obligations pursuant to this Agreement. Each Party shall retain all such books, documents, papers or other records to facilitate such review in accordance with that Party's record retention policy. Access to each Party's books and records shall be during normal business hours only.

Nothing in this paragraph shall be construed to operate as a waiver of any applicable privileges.

b. *Disputes*. The Parties recognize that there may be disputes regarding the obligations of the Parties or the interpretation of this Agreement. The Parties agree that they may attempt to resolve disputes as follows:

(1) *Statement Describing Alleged Violation of Agreement.* A Party or Parties alleging a violation of this Agreement (the "**Initiating Party(ies)**") shall provide a written statement describing all facts that it believes constitute a violation of this Agreement to the Party(ies) alleged to have violated the terms of this Agreement (the "**Responding Party(ies)**").

(2) *Response to Statement of Alleged Violation.* The Responding Party(ies) shall have sixty days from the date of the written statement to prepare a written response to the allegation of a violation of this Agreement and serve that response on the Initiating Party(ies) or to cure the alleged violation to the reasonable satisfaction of the Initiating Party(ies). The Initiating Party(ies) and the Responding Party(ies) shall then meet within thirty days of the date of the response to attempt to resolve the dispute amicably.

(3) *Mediation of Dispute.* If the Initiating Party(ies) and the Responding Party(ies) cannot resolve the dispute within ninety days of the date of the written response, they shall engage a mediator, experienced in water-related disputes, to attempt to resolve the dispute. Each Party shall ensure that it is represented at the mediation by a Director or Councilperson. These representatives of the Initiating Party(ies) and the Responding Party(ies) may consult with staff and/or technical consultants during the mediation and such staff and/or technical consultants may be present during the mediation. The costs of the mediator shall be divided evenly between the Initiating Party(ies) and the Responding Party(ies).

(4) *Prior to Claims Under California Tort Claims Act.* The Parties agree that the procedure described in this paragraph represents an effort to resolve disputes without the need for a formal claim under the California Tort Claims Act or other applicable law. The period of time for the presentation of a claim by one Party against another shall be tolled for the period from the date on which the Initiating Party(ies) file a written statement until the date upon which the mediator renders a decision.

(5) *Reservation of Rights.* Nothing in this paragraph shall require a Party to comply with a decision of the mediator and, after the completion of the mediation process described above, each Party shall retain and may exercise at any time all legal and equitable rights and remedies it may have to enforce the terms of this Agreement; provided, that prior to commencing litigation, a Party shall provide at least five calendar days' written notice of its intent to sue to all Parties.

c. *Termination of Agreement*

(1) *Failure to Obtain Permits.* The Parties recognize and acknowledge that the implementation of this Agreement may require one or more Parties to obtain permits or other regulatory approvals from one or more local, state or federal regulatory agencies, including but not limited to the Regional Water Quality Control Board, the California Department of Fish & Game and the U.S. Fish & Wildlife Service or the U.S. Army Corps of Engineers. Because of the significant regulatory uncertainties associated with obtaining these permits or regulatory approvals, the Parties agree that, if Valley District and Western have not received all regulatory permits or approvals required or useful for groundwater replenishment on the Leased Property within ten years from the effective date of this Agreement, Valley District and/or Western may terminate this Agreement at any time by providing the Conservation District with one-year's written notice of such termination. In the event that Valley District or Western, but not both wish to terminate this Agreement, the Party wishing to terminate this Agreement shall be allowed to terminate the Agreement as to itself and the remaining two Parties may continue the Agreement on such terms as they deem to be equitable.

(2) *Material Breach.* If one Party deems that another Party has materially breached one of the provisions of this Agreement, the Parties shall use the dispute resolution procedures set forth in paragraph 9. b. above in an effort to resolve the dispute amicably. If, the dispute resolution process described in paragraph 9. b. above is not successful in resolving the dispute, any Party may terminate this Agreement for material breach thereof, and may seek any remedy that it would otherwise be entitled to in a court of law.

d. *Recordation of Agreement.* All Parties agree that this Agreement constitutes a lease of certain lands by the Conservation District to Valley District and Western for the purpose of constructing, operating, maintaining, repairing and rehabilitating percolation basins and ancillary facilities on the Leased Property, and consequently, all Parties agree that this Agreement should be recorded in the

Official Records of the County of San Bernardino. Valley District shall, within ten days of the effective date of this Agreement, cause this agreement to be recorded in the Official Records of the County of San Bernardino and shall promptly provide the Conservation District and Western with recorded copies of this Agreement upon receipt of such copies from the County of San Bernardino.

10. *General Provisions.*

a. *Authority.* Each signatory of this Agreement represents that s/he is authorized to execute this Agreement on behalf of the Party for which s/he signs. Each Party represents that it has legal authority to enter into this Agreement and to perform all obligations under this Agreement.

b. *Amendment.* This Agreement may be amended or modified only by a written instrument executed by each of the Parties to this Agreement.

c. *Jurisdiction and Venue.* This Agreement shall be governed by and construed in accordance with the laws of the State of California, except for its conflicts of law rules. Any suit, action, or proceeding brought under the scope of this Agreement shall be brought and maintained to the extent allowed by law in the County of San Bernardino, California.

d. *Headings.* The paragraph headings used in this Agreement are intended for convenience only and shall not be used in interpreting this Agreement or in determining any of the rights or obligations of the Parties to this Agreement.

e. *Construction and Interpretation.* This Agreement has been arrived at through negotiations and each Party has had a full and fair opportunity to revise the terms of this Agreement. As a result, the normal rule of construction that any ambiguities are to be resolved against the drafting Party shall not apply in the construction or interpretation of this Agreement.

f. *Entire Agreement.* This Agreement constitutes the entire agreement of the Parties with respect to the subject matter of this Agreement and, save as expressly provided in this Agreement, supersedes any prior oral or written agreement, understanding, or representation relating to the subject matter of this Agreement.

g. *Partial Invalidity.* If, after the date of execution of this Agreement, any provision of this Agreement is held to be illegal, invalid, or unenforceable under present or future laws effective during the term of this Agreement, such provision shall be fully severable. However, in lieu thereof, there shall be added a provision as similar in terms to such illegal, invalid or unenforceable provision as may be possible and be legal, valid and enforceable.

h. *Successors and Assigns*. This Agreement shall be binding on and inure to the benefit of the successors and assigns of the respective Parties to this Agreement. No Party may assign its interests in or obligations under this Agreement without the written consent of the other Parties, which consent shall not be unreasonably withheld or delayed.

i. *Waivers*. Waiver of any breach or default hereunder shall not constitute a continuing waiver or a waiver of any subsequent breach either of the same or of another provision of this Agreement and forbearance to enforce one or more of the rights or remedies provided in this Agreement shall not be deemed to be a waiver of that right or remedy.

j. *Attorneys' Fees and Costs*. The prevailing Party in any litigation or other action to enforce or interpret this Agreement shall be entitled to reasonable attorneys' fees, expert witnesses' fees, costs of suit, and other and necessary disbursements in addition to any other relief deemed appropriate by a court of competent jurisdiction.

k. *Necessary Actions*. Each Party agrees to execute and deliver additional documents and instruments and to take any additional actions as may be reasonably required to carry out the purposes of this Agreement.

l. *Compliance with Law*. In performing their respective obligations under this Agreement, the Parties shall comply with and conform to all applicable laws, rules, regulations and ordinances.

m. *Third Party Beneficiaries*. This Agreement shall not create any right or interest in any non-Party or in any member of the public as a third party beneficiary.

n. *Counterparts*. This Agreement may be executed in one or more counterparts, each of which shall be deemed to be an original, but all of which together shall constitute but one and the same instrument.

o. *Notices*. All notices, requests, demands or other communications required or permitted under this Agreement shall be in writing unless provided otherwise in this Agreement and shall be deemed to have been duly given and received on: (i) the date of service if served personally or served by facsimile transmission on the Party to whom notice is to be given at the address(es) provided below, (ii) on the first day after mailing, if mailed by Federal Express, U.S. Express Mail, or other similar overnight courier service, postage prepaid, and addressed as provided below, or (iii) on the third day after mailing if mailed to the Party to whom notice is to be given by first class mail, registered or certified, postage prepaid

572 **Table of Exhibits**

573 Exhibit 1 Leased Property including Exhibit 1A and 1B

574 Exhibit 2 Existing and Future Facilities

575 Exhibit 3 CEMEX Lease

576 Exhibit 4 Robertson's Ready Mix Lease

577 Exhibit 5 2010 State Water Rights Filing

WESTERN MUNICIPAL WATER DISTRICT
"Western"

Donald D. Galleano
President
Board of Directors

Approved as to form only:

Jeff Ferre
Best, Best & Krieger

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
"Valley District"

C. Patrick Milligan
President
Board of Directors

Approved as to form only:

David R.E. Aladjem
Special District Counsel

SAN BERNARDINO VALLEY WATER CONSERVATION DISTRICT
"Conservation District"

Richard W. Corneille
President
Board of Directors

Approved as to form only:

David B. Cosgrove
General Counsel

1277620.2

State of California)
County of Riverside)

On Dec 19, 2012, before me, Teresa VAN Scyoc,
(insert name and title of the officer)
Notary Public, personally appeared Donald D. GALLEANO,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature Teresa Van Scyoc (Seal)

TERESA VAN SCYOC
Commission # 1883941
Notary Public - California
Riverside County
My Comm. Expires Apr 21, 2014

State of California)
County of San Bernardino)

On Dec. 12, 2012, before me, M. Galvez, Notary Public,
(insert name and title of the officer)
Notary Public, personally appeared Richard W. Corneille and no one else,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____ (Seal)

M. GALVEZ
COMM. # 1870870
NOTARY PUBLIC - CALIFORNIA
SAN BERNARDINO COUNTY
MY COMM. EXP DEC. 6, 2013

State of California)
County of San Bernardino)

On Dec. 12, 2012, before me, L. Jaramillo, Notary Public
(insert name and title of the officer)
Notary Public, personally appeared C. Patrick Milligan,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(~~s~~) is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(~~ies~~), and that by his/~~her/their~~ signature(~~s~~) on the instrument the person(~~s~~), or the entity upon behalf of which the person(~~s~~) acted, executed the instrument.

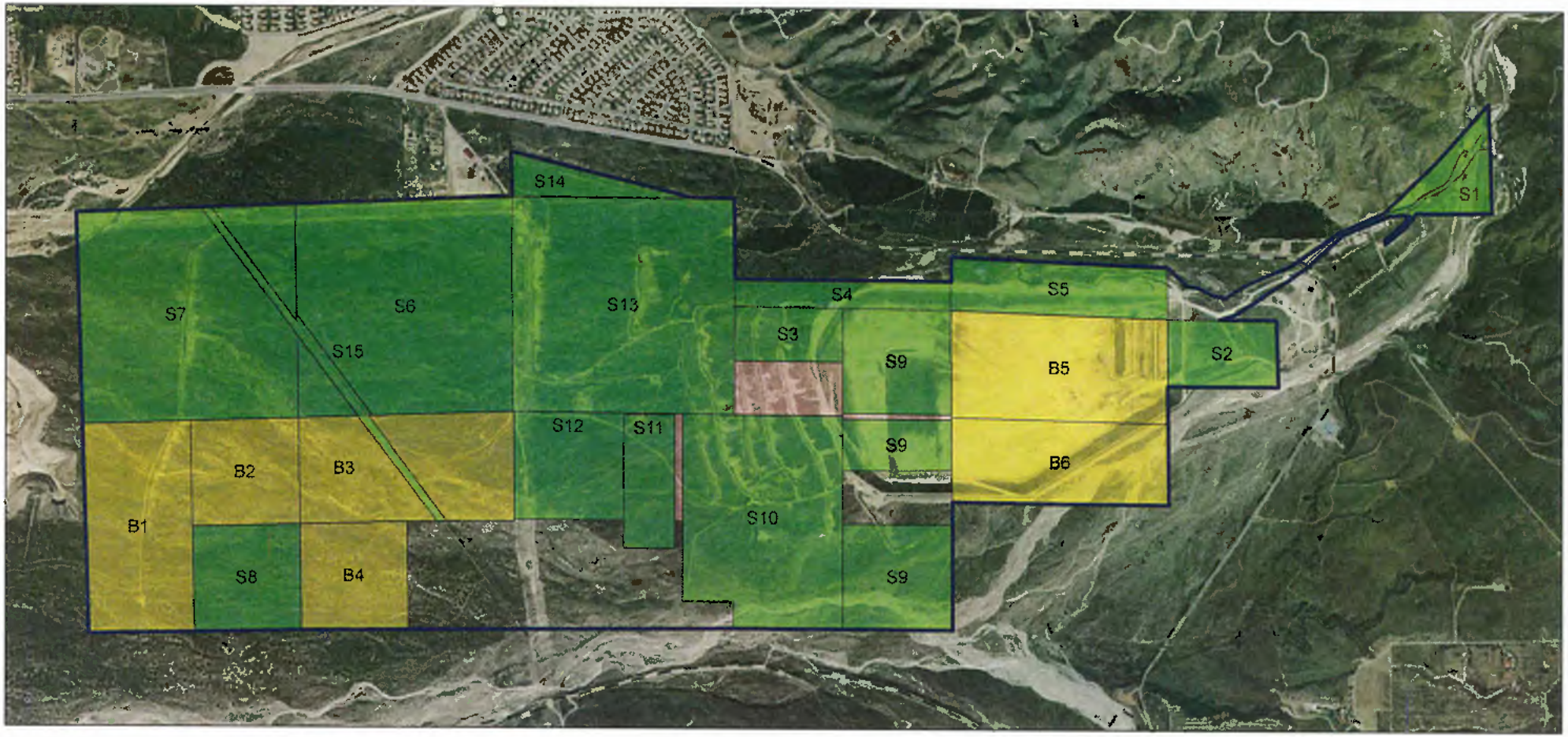
I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

L. JARAMILLO
Commission # 1974864
Notary Public - California
San Bernardino County
My Comm. Expires May 10, 2016

Signature L. Jaramillo (Seal)

EXHIBIT 1



- - - - Wash Plan Area Boundary
SAR Recharge Area (1485 Acres)
SBVWCD Lands (952 Acres)
BLM Property Access (513 Acres)
Other Ownership Limited Access

Exhibit 1

N
W E
S

0 950 1,900 3,800
Feet

C. Brudin
14 Sept 2012
M:\2011 Projects\Land Ownership District_Exhibit1_Edits.mxd

SBV WATER CONSERVATION DISTRICT
OUR NAME IS OUR MISSION

EXHIBIT 1A
LEGAL DESCRIPTION
SBVWCD LANDS

THOSE PORTIONS OF SECTIONS 4, 6, 7 AND 8, TOWNSHIP 1 SOUTH, RANGE 2 WEST, SAN BERNARDINO MERIDIAN AND THOSE PORTIONS OF SECTION 12, TOWNSHIP 1 SOUTH, RANGE 3 WEST, SAN BERNARDINO MERIDIAN, IN THE CITY OF HIGHLAND, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF, DESCRIBED AS FOLLOWS:

PARCEL S1: (A.P. NO. 0297-041-07)
THAT PORTION OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SAID SECTION 4, SAID PORTION LYING SOUTHEASTERLY OF THE FOLLOWING DESCRIBED LINE:

BEGINNING AT THE NORTHEAST CORNER OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER; THENCE SOUTHWESTERLY TO THE SOUTHWEST CORNER OF SAID SECTION 4.

PARCEL S2: (A.P. NO. 0297-061-01)
THE NORTH HALF OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER OF SAID SECTION 8.

PARCEL S3: (A.P. NO. 0297-051-06)
THE NORTH HALF OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER OF SAID SECTION 7, COMPRISING 20 ACRES, MORE OR LESS.

PARCEL S4: (A.P. NO. 0297-051-05)
THE SOUTH 20 ACRES OF THE NORTH OF THE NORTHEAST QUARTER OF SAID SECTION 7.

PARCEL S5: (A.P. NO. 0297-061-03)
THE SOUTH HALF OF THE NORTH HALF OF THE NORTHWEST QUARTER OF SAID SECTION 8, COMPRISING 40 ACRES, MORE OR LESS.

PARCEL S6: (A.P. NO. 0291-151-02)
THE NORTHEAST QUARTER OF SAID SECTION 12, EXCEPT RAILROAD RIGHT-OF-WAY AND EXCEPT STATION AT APLIN AND COMPRISING 157 ACRES, MORE OR LESS.

PARCEL S7: (A.P. NO. 0291-151-01)
THE NORTHWEST QUARTER OF SAID SECTION 12, EXCEPT RAILROAD RIGH-OF-WAY.

PARCEL S8: (A.P. NO. 0291-161-04)
THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SAID SECTION 12.

PARCEL S9: (A.P. NO. 0297-051-07, 0297-051-08, 0297-051-09, 0297-051-10, 0297-071-09, 0297-071-10, 0297-071-13, 0297-071-14, 0297-071-16, 0297-071-17)
LOTS 1 THROUGH 6 AND LOTS 9 THROUGH 12 OF VAN BUREN TRACT, AS SHOWN ON A MAP RECORDED IN BOOK 8, PAGE 69 OF MAP IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

PARCEL S10: (A.P. NO. 0297-071-08)
THE WEST HALF OF THE SOUTHEAST QUARTER OF SAID SECTION 7, COMPRISING 80 ACRES, MORE OR LESS.

LEGAL DESCRIPTION (Continued)

PARCEL S11: (A.P. NO. 0297-071-02, 0297-071-03, 0297-071-04)
LOTS 4 THROUGH 15 OF CHICAGO SUBDIVISION TO REDLANDS, AS SHOWN ON A MAP RECORDED IN BOOK 12, PAGE 52 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

PARCEL S12: (A.P. NO. 0168-311-06)
THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SAID SECTION 7.

PARCEL S13: (A.P. NO. 0297-051-01 AND 0297-051-02)
THE NORTHWEST QUARTER OF SAID SECTION 7.

PARCEL S14: (A.P. NO. 0297-011-07)
THAT PORTION OF THE SOUTHWEST QUARTER OF SAID SECTION 6, LYING SOUTH OF THE SOUTH LINE OF THE EXISTING METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA PIPELINE RIGHT OF WAY AS THE SAME NOW EXISTS. EXCEPT THAT PORTION THEREOF CONVEYED TO THE NORTHFORK WATER COMPANY BY DEED RECORDED MARCH 7, 1909 IN BOOK 388 OF DEEDS, PAGE 120, RECORDS OF SAID COUNTY.

PARCEL S15: (A.P. NO. 0291-151-05)
PARCEL 1 OF THAT CERTAIN DEED RECORDED JUNE 28, 1984 AS INSTRUMENT NO. 84-152554 OF OFFICIAL RECORDS, RECORDS OF SAID COUNTY.

SUBJECT TO ALL RESERVATIONS, RESTRICTIONS, EASEMENTS, OFFERS OF DEDICATIONS, RIGHTS AND RIGHT OF WAYS OF RECORD.

This legal description was prepared by me or under my direction.

By:_____
Edward J. Bonadiman, P.L.S.
Date: 09/17/2012 L. S. #:7529

EXHIBIT 1B
LEGAL DESCRIPTION
BLM PROPERTY ACCESS

THOSE PORTIONS OF SECTION 8, TOWNSHIP 1 SOUTH, RANGE 2 WEST, SAN BERNARDINO MERIDIAN AND THOSE PORTIONS OF SECTION 12, TOWNSHIP 1 SOUTH, RANGE 3 WEST, SAN BERNARDINO MERIDIAN, IN THE CITY OF HIGHLAND, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF, DESCRIBED AS FOLLOWS:

PARCEL B1: (A.P. NO. 0297-161-05)
THE WEST HALF THE SOUTHWEST QUARTER OF SAID SECTION 12.

PARCEL B2: (A.P. NO. 0297-161-06)
THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SAID SECTION 12.

PARCEL B3: (A.P. NO. 0297-161-01)
THE NORTH HALF OF THE SOUTHEAST QUARTER OF SAID SECTION 12.

PARCEL B4: (A.P. NO. 0297-161-03)
THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 12.

PARCEL B5: (A.P. NO. 0297-061-02)
THE SOUTH HALF OF THE NORTHWEST QUARTER OF SAID SECTION 8.

PARCEL B6: (A.P. NO. 0297-061-02)
THE NORTH HALF OF THE SOUTHWEST QUARTER OF SAID SECTION 8.

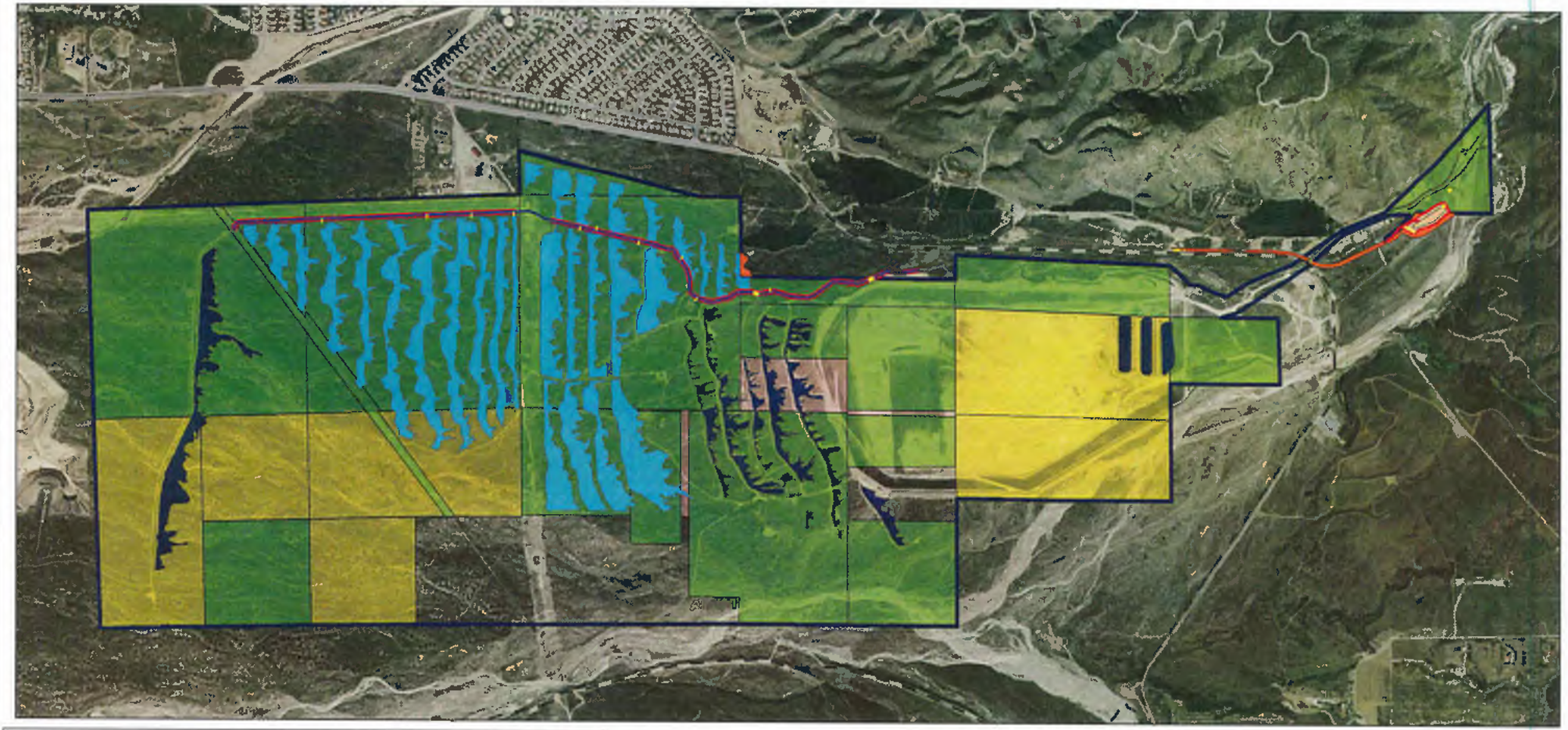
SUBJECT TO ALL RESERVATIONS, RESTRICTIONS, EASEMENTS, OFFERS OF DEDICATIONS, RIGHTS AND RIGHT OF WAYS OF RECORD.

This legal description was prepared by me or under my direction.

By:_____
Edward J. Bonadiman, P.L.S.
Date: 09/17/2012 L. S. #:7529

I:\2012 Jobs\123866 SBVWCD Legal Descriptions\LEGAL DESCRIPTION\123866_BLM_LEGAL DESCIPTION.doc

EXHIBIT 2



Legend

- Wash Plan Area Boundary
- Structures
- Canal
- Access Road
- Existing Basins
- Sedimentation Basins
- Pipeline Easement
- Planned Improvements
- SAR Recharge Area (1485 Acres)
- SBVWCD Lands (952 Acres)
- BLM Property Access (513 Acres)
- Other Ownership Limited Access

Exhibit 2

N
W E
S

0 950 1,900 3,800

Feet

C. Brudin
14 Sept 2012
M:\2011 Projects\Land Ownership District_Exhibit1.mxd

SBV WATER CONSERVATION DISTRICT
OUR NAME IS OUR MISSION

Exhibit 3

Cemex Lease

RECORDING REQUESTED BY AND
WHEN RECORDED RETURN TO:

San Bernardino Valley Water
Conservation District
1630 West Redlands Boulevard
Suite A
Redlands, CA 92373-8032

Attn: General Manager

FREE RECORDING REQUESTED
UNDER GOVERNMENT CODE
SECTION 6103

THIS SPACE FOR RECORDER'S USE ONLY

MINERAL LEASE FOR EXTRACTION OF SAND AND GRAVEL MATERIALS

THIS MINERAL LEASE FOR EXTRACTION OF SAND AND GRAVEL MATERIALS ("Lease") is entered into this 1 day of November, 2011, by and between SAN BERNARDINO VALLEY WATER CONSERVATION DISTRICT ("District") and CEMEX CONSTRUCTION MATERIALS PACIFIC, LLC ("Lessee"). This Lease is entered into in consideration of all of the following:

A. District is a California Water Conservation District, duly formed and existing under California Water Code section 74000 et seq. District has the authority to enter into leases of property it owns pursuant to provisions of California Water Code section 74550, and other provisions of law. Lessee is a limited liability corporation, with its principal place of business located in El Dorado Hills, California. Lessee is the successor-in-interest to a prior lease agreement between the District and C. L. Pharris Sand & Gravel, Inc.

B. District's and Lessee's predecessor-in-interest, C. L. Pharris Sand & Gravel, Inc., entered into a "Lease Agreement" dated September 10, 1979. That Lease Agreement authorized various excavation and sale of sand, gravel, and related material from property owned by the District, on terms and conditions stated therein, and incorporating prior leases between the parties (collectively "Original Lease").

C. The Original Lease was amended variously between the parties over time, culminating on a "Lease Amendment" dated July 10, 1997. Under the "Lease Amendment," the term of the lease was defined as an initial term ending June 1, 2011, with nine (9) additional successive five (5) year options to renew. The Lease Amendment required renewal notices to be in writing, made no later than six (6) months prior to the expiration of the then-existing term. The parties followed these procedures through the first five (5)-year extension of the term.

D. A dispute then arose between Lessee and the District regarding Lessee's expressed intent to enter an additional five (5)-year term under the lease. District rejected Lessee's attempt to exercise an additional five (5)-year option as untimely, and considers the lease effectively terminated as of June 1, 2011. Lessee believes that the option for an additional five (5)-year period under the lease was properly exercised, and that the term of the original lease, as modified by the Lease Amendment, continues until June 1, 2016.

E. The parties have met and conferred pursuant to a "Tolling Agreement Re Lease Dispute," they entered into on or about June 1, 2011 and extended on August 31, 2011 to resolve their differences. Pursuant to such discussions, the parties have now determined to enter into a new lease, defining new terms, and replacing, superseding, and rendering of no further effect the Original Lease, the Lease Amendment, and all previous agreements between District and Lessee with respect to lease of the District's property.

NOW, THEREFORE, in consideration of all of the foregoing, the parties do hereby set forth the terms of their new and sole lease agreement as follows:

1.0 Definitions. As used herein, the following terms shall have the following defined meanings:

1.1. "DISTRICT" shall mean the San Bernardino Valley Water Conservation District.

1.2. "LESSEE" shall mean Cemex Construction Materials Pacific, LLC, and its successors and assigns.

1.3. "PREMISES" shall mean all those properties owned by DISTRICT, more specifically described in the legal description attached hereto as Exhibit "A" and as more specifically depicted in the plat map attached hereto as Exhibit "B," with the exception of the northeasterly one-quarter of Section 12, which shall not be included within the PREMISES.

1.4. "MATERIAL" shall mean sand, rock, gravel, and kindred substances, lying on or under the PREMISES, and suitable for commercial extraction, processing, and sale, and any saleable by-products from same.

1.5. "Ton" shall mean a measurement of 2,000 pounds of material aggregate, by weight.

1.6. "INDEX" shall mean the Bureau of Labor Statistics Producer Price Index for Mining (Except Oil and Gas): NAICS 212, or if such index is no longer published or kept, such similar index as may be agreed to by the parties.

1.7. "FAIR MARKET ROYALTY" shall mean the prevailing market royalty rate being paid for Material within the markets served or able to be served by Material from the Premises, and such markets as may be reasonably comparable thereto, as of a then-present data value.

1.8. "WASH PLAN" shall mean the Upper Santa Ana River Wash Land Management and Habitat Conservation Plan, a comprehensive land use, property exchange, and mining and related permitting effort undertaken by District, Lessee, and a number of other public and private entities for realignment of prior leases for sand and gravel extraction, and for accommodation of water conservation and species habitat preservation.

1.9. "TRANSFER PREMISES" shall mean those properties which District and Lessee agree are appropriate for replacement of any portion of the Premises which may be exchanged to the federal government, Bureau of Land Management, or other entity, under the implementation and effectuation of the Wash Plan, or otherwise rendered unavailable for extraction, processing, and sale of Material. The parties contemplate that the Transfer Premises will consist of a portion of those properties already proposed to be exchanged from the Bureau of Land Management to the District under the Wash Plan, or otherwise transferred from the federal government to the District for the purposes of making such transferred areas available for mining. District and Lessee agree, however, that availability of, and the specific areas of the Transfer Premises cannot be determined precisely at this time, and that the exact areas, locations and parameters of the Transfer Premises will have to be determined in connection with the ultimate approvals that might be obtained through the Wash Plan.

1.10. "COMMENCEMENT DATE" shall be the date this Lease becomes effective, November 1, 2011.

1.11. "LEASE YEAR" shall mean the year following the commencement date in the first year of this Lease, and for every subsequent year, the period beginning each year on the anniversary of the Commencement Date, and continuing one (1) year thereafter.

1.12. "ORANGE STREET PLANT SITE" shall mean that area generally described in the legal description and depicted on the plat map collectively attached as Exhibit "D" hereto, consisting of approximately 100 acres, on which Lessee has, as of the Commencement Date, established and maintains a mining processing plant.

1.13. "REDLANDS AGGREGATES SITE" shall mean the area generally described in the legal description and depicted on the plat map collectively attached as Exhibit "E" hereto.

2.0 Lease of Premises and Rights Conferred.

2.1. Under this Lease, District hereby grants to Lessee the right to come onto the Premises, and to dig, excavate, transport, wash, process, crush, convey, stockpile, and sell all Material on the Premises, consistent with any applicable federal, state, or local regulations, and conditions of any permits that may be applicable thereto. This Lease includes the right to maintain all processing plants, structures, facilities, and equipment legally established by Lessee and existing on the Premises as of the Commencement Date, as are necessary or suitable for the defined purposes of the Lease. Lessee may also establish such other plants, buildings, paved roadways, structures, or other permanent improvements, or any silt ponds or places for the deposition of impermeable materials (collectively "Improvements") on the Premises, as may be necessary or appropriate for accomplishment of the purposes of the Lease, subject to the prior

written approval of the District as to the location, extent, specifications, and composition of such improvements. District's approval shall not be unreasonably withheld, conditioned or delayed. District's approval of Lessee's Improvements shall be directed to District's reserved water spreading and other reserved rights in, to, and for the Premises under this Lease, and the compliance and consistency of such Improvements with the terms and conditions of this Lease, and shall not be directed to the suitability of such Improvements for Lessee's purposes, nor the design, effectiveness, safety, nor engineering suitability of such Improvements, except insofar as District may, but is not required to, confirm that such Improvements as proposed meet otherwise applicable legal requirements and standards. Lessee shall not undertake any construction of such improvements without prior District review and approval of the plan for the location and other specifications for such improvements. District shall have a period of 45 days after submission of the complete construction plans and working drawings by Lessee of any proposed improvement construction to approve, conditionally approve, or disapprove such proposed improvements. Any disapproval by District shall be accompanied by written statement of the reasons therefor, including an explanation of what would be required for approval. Upon District's failure to approve, conditionally approve, or disapprove the Improvements construction within the 45 day period, the plans shall be deemed approved as submitted, so long as they are consistent with all other applicable legal requirements and standards. Lessee may relocate any Improvements located on the Premises, subject to District's approval, in the same manner as for Lessee's original establishment of Improvements. District may require Lessee to remove any Improvements placed on the Premises for which Lessee failed to provide the 45 day notice and opportunity for review and approval of District called for hereunder to the extent such Improvements violate applicable legal requirements, without any liability of District to Lessee. Such Improvements so constructed shall be the property of Lessee during the duration of the Lease, and shall be removed by Lessee upon the expiration or earlier termination of this Lease; provided, however, District may in writing elect to permit Lessee to leave any or all of the Improvements on the Premises after expiration of the Lease, in which case all such Improvements shall become the property of the District. Lessee shall assume all maintenance and insurance responsibilities for any Improvements constructed on the Premises. In addition, Lessee shall provide District no less than forty-five (45) days' notice before Lessee establishes any staging areas, processing areas, unpaved but graded and compacted haul routes, and equipment servicing areas which do not otherwise fit the definition of Improvements provided above, though such facilities shall not require District's prior approval before Lessee may be permitted to place them on the Premises. Further, Lessee shall provide to District no less than fifteen (15) days' notice before Lessee establishes any portable crushing or processing sites, which do not otherwise fit the definition of Improvements provided above, though such facilities shall likewise not require District's prior approval before Lessee may be permitted to place them on the Premises.

2.2. Premises Leased in "As Is" Condition. Lessee acknowledges that it is granted lease rights to the Premises, and the right to move Material therefrom, on an "as is" basis, and Lessee takes and operates the Premises without reliance on any representation by the District, or any of its officers, employees, agents, or representatives, or any other person, concerning the extent or quality of the Material on the Premises, its fitness for Lessee's intended use, or any particular purpose or use, its income producing history, potential, or capabilities, its value, or any other promise, representation, or inducement not expressly set forth in writing in

this Lease. District represents and warrants that it has not caused nor is aware of any environmental conditions relating to the Premises.

2.3. No Warranty. Lessee acknowledges that neither the District, nor any of its officers, employees, agents, or representatives, has made any written or oral representation, promise, or warranty, express or implied, arising out of or in connection with the Material on the Premises, or the transfer of Premises, if any, its fitness for Lessee's intended use, or any purpose or use, its income producing history, potential or capabilities, its value, the likely success or outcome of the Wash Plan, or any other matter not expressly set forth in writing in this Lease. Lessee acknowledges it has inspected, and occupied, the Premises prior to the execution of this Lease. Lessee acknowledges it takes and accepts the Premises in the condition in which the Material on the Premises (or lack thereof) exists as of the Commencement Date this Lease. Lessee assumes that any and all change in the condition of the rock on the Premises either before the Commencement Date or during the term of this Lease.

3.0 Lease Term.

3.1. Original Term. This lease shall begin on the Commencement Date, and shall continue in full force and effect for a period of four (4) years thereafter.

3.2. Options to Renew and Right of First Refusal. So long as Lessee shall not be in material breach of this Lease, Lessee shall have one (1) additional, successive six -year option to renew ("Option to Renew"). The renewal shall be on the terms of this Lease, or such additional or revised terms as the parties may then agree to.

3.3. Procedure for Exercise of Options.

(a) Initial Option. In the event Lessee elects to exercise the Option to Renew, Lessee shall provide written notice to District in writing. Such Option to Renew shall be made no later than one hundred eighty (180) days prior to the expiration of the Original Term of this Lease, to the person and in the manner set forth herein for the provision of Notices in Section 14.1 below.

(b) Exclusive Negotiation Period. In the event Lessee fails to exercise the six (6) year option provided for above, this Lease shall terminate as of the expiration of the initial four-year term. In the event Lessee does exercise the six (6) year option, Lessee shall have an Exclusive Negotiation Period with the District to meet and confer with District regarding the terms and conditions of a renewal or replacement lease for the Premises. Such Exclusive Negotiation Period shall run concurrently with the final ninety (90) days of the six (6) year option period so exercised by Lessee. The Exclusive Negotiation Period shall arise only upon the expiration of the exercised six (6) year option term; there shall be no Exclusive Negotiation Period upon the termination of the Lease, for whatever reason, or in the event of a Lessee default. During the Exclusive Negotiation Period, District shall not make any effort to sell, lease, offer, market, or solicit proposals with or from any party for the excavation, processing, or sale of Material from the Premises, except Lessee. Neither District nor Lessee shall be

obligated to enter into any type of an agreement during or as a result of the Exclusive Negotiation Period, but the parties shall meet and confer in good faith to discuss and explore the possibility of entering into such an agreement, should the parties determine that doing so would be in their mutual benefit.

(c) Right of First Refusal. In the event the Exclusive Negotiation Period occurs, and fails to result in an agreement between District and Lessee, and only in such event, Lessee shall have a Right of First Refusal upon any offer District may make to any other party for the right to excavate, process, or sell Material from all or any part of the Premises. Such Right of First Refusal shall entitle Lessee to priority acceptance of any such offer District may make to any other party, on the identical terms, conditions, requirements, and stipulations as the District makes, and is willing to accept, from any other party. The Right of First Refusal shall begin on the expiration of the Exclusive Negotiation Period, and shall continue for a period of three (3) years thereafter. District shall, prior to making or soliciting any offer for the right to excavate, process, or sell Material from the Premises advise the party or parties with whom it is dealing of the Lessee's Right of First Refusal. District shall require any offer it receives from any party to excavate, process, or sell Material from all or a portion of the Premises, and which it is prepared to accept and is authorized by its legislative body to accept, to be reduced to writing, and shall within thirty (30) days of any such offer, provide a written copy to Lessee, to the person and in the manner provided for in Section 14.1, Notices, below. Lessee shall have thirty (30) days thereafter to accept or reject the offer. In the event Lessee accepts the offer, District and Lessee shall enter into an agreement, on the identical terms as proposed to District and conveyed to Lessee. In the event Lessee rejects the offer, the Right of First Refusal shall thereupon terminate, and be of no further force and effect.

4.0 Royalty and Rental Payments.

4.1. Orange Street Plant Site Rent. Lessee shall pay to District, throughout the entire term of this Lease and any holdover period, the sum of Four Thousand Dollars ($4,000.00) per month for the lease of the Orange Street Plant Site ("Orange Street Plant Site Rent"). Such rent shall be in addition to, and shall not be credited against, any royalty amounts due, including guaranteed annual minimum royalty, which may be otherwise due and owing under this Lease.

4.2. Royalty. In addition to the plant site rent, Lessee shall pay a royalty to District, for every ton of Material removed from the Premises, as measured by State certified truck scales and recorded by a standardized, nationally recognized ticketing system whose mechanics and accuracy are disclosed and available to, and verifiable by, District. Lessee shall keep true, complete, and accurate records of all Material excavated on and removed from the Premises, and an accounting of all Material excavated and removed from the Redlands Aggregates Site. . Lessee shall report such figures, under penalty of perjury, to District on a monthly basis, in a form as District may reasonably specify and require. The parties shall track, calculate, and collect the royalty due on the excavated Material based on the amount of tonnage of Material sold or otherwise removed from the Premises and the Redlands Aggregates Site.

Any differences between the amount of Material excavated and the amount of Material sold or otherwise removed from the Premises shall be reconciled by way of a biannual audit. On or before ninety (90) days following the execution of this Agreement by both parties, District and Lessee shall jointly select and retain a party to perform a baseline aerial topographic survey of the Premises and the Redlands Aggregates Site. The parties shall share equally in the expense of the baseline aerial topographic survey, and once it is generated and delivered, the parties shall meet and confer to work out any issues or disagreements they may have regarding it, and both shall indicate in writing their approval of same, once any issues with the baseline survey that may arise are resolved. Once approved by both parties, the baseline aerial topographic survey shall serve as the beginning survey for later aerial topographic surveys to be performed under this Lease, for volumetric calculations of material excavated, inventoried, deposited into silt ponds, and removed from the premises by deduction. The volumetric results will be used to assess, compare, and reconcile the truck scale weight measurements. Based upon the results of the area topographic survey, Lessee and District shall reconcile the amounts paid on the tonnage sold or otherwise removed from the Premises and the Redlands Aggregates Site, and make any necessary adjustments to account for differences in the royalties due for Material from the Premises, and that from the Redlands Aggregates Site, and reconcile any amounts due or any credit for any amounts that may be overpaid during the immediately preceding twenty-four (24) month period. In the event the parties are unable to come to an agreement on such reconciliation, the matter shall be submitted to binding arbitration, as provided for herein.

4.3. Royalty Rate. For the first twelve (12) month period following the Commencement Date, the royalty rate shall be set at Fifty-Five Cents ($0.55) per ton. As of the first anniversary of the Commencement Date, the royalty rate shall be the Fair Market Royalty. On or before ninety (90) days prior to the first anniversary of the Commencement Date, the parties shall meet and confer, in an attempt to come to an agreement on the Fair Market Royalty. The parties shall provide, one to the other, any and all market analyses, appraisals, or other valuation Materials or opinions upon which their proposed Fair Market Royalty is based. If no agreement is reached within thirty (30) days of the parties' exchange of such information, the matter shall be submitted to binding arbitration, as provided for herein. The arbitrator shall select either one or the other of the parties' original Fair Market Royalty proposals, and the Fair Market Royalty rate so selected shall be the royalty rate paid by Lessee to the District for the remainder of the term, subject to any Index adjustment. The arbitrator shall not have the authority or discretion to compromise between the two parties' proposals, nor to come to an independent determination of the Fair Market Royalty rate. In the arbitration, no party may rely on, or submit to the arbitrator, any Material which was not originally exchanged pursuant to the exchange of Fair Market Royalty proposals ninety (90) days before the Commencement Date. The arbitrator shall only select one of the parties' Fair Market Royalty rates, which he or she determines most accurately determines the appropriate Fair Market Royalty.

4.4. Index Adjustment. All royalty rates shall be adjusted annually, on each anniversary of the Commencement Date, by any change in the Index, using 2012 as the base year. In no event, however, shall such change in any one year amount to a change in the applicable royalty rate more than fifty percent (50%), higher or lower, than the immediately preceding Fair Market Royalty rate. Such fifty percent limitation shall operate only to serve as the cap or floor for the year in which the change in the Index results in a change in the royalty rate of 50% or more, and not to change prospectively the Index calculation for succeeding years.

4.5. Guaranteed Annual Royalty; Orange Street Plant Site Material as Recovery of Credits.

(a) Guaranteed Annual Royalty Payments. Notwithstanding the level of excavation or sale of Material from the Premises, Lessee shall pay to District a guaranteed annual royalty, in addition to the Orange Street Plant Site rent. Such guaranteed annual royalty shall be in the amount of One Hundred Fifty Thousand Dollars ($150,000.00) for the first year of the Lease, and shall increase by an additional One Hundred Thousand Dollars ($100,000.00) on each anniversary of the Commencement Date thereafter; provided, however, such guaranteed annual royalty shall not exceed $550,000.00 annually. Such guaranteed annual royalty shall be paid in equal monthly installments, and shall be submitted along with all reporting by Lessee of its excavation and sales activities on the Premises and the Redlands Aggregate Site, comparing the amounts of guaranteed annual royalty paid, against the actual amount of Material excavated, and the actual amount of Material sold or otherwise removed from the Premises. The guaranteed annual royalty amount shall be paid by Lessee to the District; provided, however, to the extent District has Annual Royalty Credits in excess of Three Million Four Hundred Thousand Dollars ($3,400,000.00) ("Royalty Credits Cap"), Lessee's obligation to pay Guaranteed Annual Royalty Payments shall be suspended until such time as the Annual Royalty Credits are reduced below the Royalty Credits Cap., All per-ton royalty rates applicable to Material excavated by Lessee in excess of the guaranteed annual royalty rate shall be paid at the then-prevailing royalty rate, in addition to guaranteed annual royalty.

(b) Guaranteed Annual Royalty Credits. To the extent the per-ton royalty rate paid by Lessee in any given Lease Year is less than the amount of guaranteed annual royalty, Lessee shall be credited for the difference against any per-ton royalties otherwise due in any succeeding Lease Years above the guaranteed annual royalty due in such Lease Year, until all such credits have been offset against per-ton royalties in excess of applicable guaranteed annual rental. In no event shall such credit ever diminish or decrease the amount of guaranteed annual royalty due.

(c) Orange Street Plant Site Holdover to Retire Guaranteed Annual Royalty Credits. Except in the event of a Lessee default under Section 10.1 below, should this Lease expire or otherwise terminate prior to the time Lessee's guaranteed annual royalty credits have been retired, Lessee shall have the right, but not the obligation, to hold over and continue to occupy the Orange Street Plant site only, to remove any Improvements or other equipment or operations thereon, and to excavate and sell Material from such site. Such holdover right shall begin on the date the Lease expires or is terminated for any reason, including Lessee's exercise of its right of termination under Section 10.3 below. No guaranteed annual royalty or other royalty amounts shall be paid to District on the Material excavated and sold by Lessee from the Orange Street Plant Site during the holdover period, and such amounts of such per-ton royalties as would otherwise be applicable to the Material, as adjusted by the Index through and

including the holdover period, shall be applied to reduce the credits for guaranteed annual royalty payments made in excess of royalties paid on a per-ton basis. Lessee shall pay the Orange Street Plant site rent for all time that Lessee occupies the Orange Street Plant site during such holdover period, and such Orange Street Plant Site rental shall be adjusted by the Index, using the Effective Date as the base period and the beginning of the holdover period as the adjustment date for application of the Index adjustment. Thereafter, on each anniversary date of the beginning of the holdover period, the Orange Street Plant Site rent shall be adjusted again, per the Index. Such Orange Street Plant Site rent shall not be offset against or reduced to retire any guaranteed annual royalty credits. Lessee's right to hold over on the Orange Street Plant site shall continue only until the per-ton royalty amounts applicable to such Material excavated and sold by Lessee from the Orange Street Plant Site during the holdover period are equal to the sum total of guaranteed annual royalty credits for Lessee's payments of guaranteed annual royalty in excess of per-ton royalty, which accrued prior to the holdover period, but in no event longer than five (5) years from the time of the Lease's expiration or earlier termination. Any guaranteed annual royalty credits not retired within the applicable holdover period shall be lost, and forfeited without any further liability from District to Lessee.

4.6. Late Payments. Any payment due hereunder shall be made within thirty (30) days of the expiration of the month during which the excavations occurred, or the sales or other transfers occurred. Late payments shall incur a one and one-half percent per month late charge, which charge shall be added to, and considered to be additional, rent.

5.0 Permits.

5.1. Wash Plan Processing. As of the Commencement Date the parties are cooperating as part of the Upper Santa Ana River Wash Land Management and Habitat Conservation Plan Task Force ("Task Force") to process and secure approval of the Wash Plan. Under the agreement forming the Task Force, each of the participants was assigned a certain percentage of allocation for the overall costs of the Wash Plan. Beginning on the Commencement Date, and continuing until the Wash Plan gets final approval, or either parties' participation in the Task Force agreement shall have been finally terminated, either as provided in paragraph 23 of that agreement, or upon dissolution of the Task Force pursuant to paragraph 22 of the Task Force agreement, Lessee shall advance to District one-half of District's share of the Wash Plan processing and consultant costs, under the allocation as defined in the Task Force agreement. All such advanced costs shall be credited against any guaranteed annual royalty otherwise owing from Lessee to District, and to the extent such advanced costs exceed the amount of guaranteed annual royalty, shall be credited against future years' guaranteed annual royalty, until the entire amount of such advanced costs has been retired.

5.2. Lessee's Obligation to Secure Permits. Notwithstanding the parties' mutual efforts to effectuate the Wash Plan, it is and shall be the Lessee's sole responsibility to secure any and all land entitlements, SMARA permits or approvals, conditional use permits, or any and all discretionary permits required for Lessee to operate and maintain its operations on the Premises for the excavation, processing, removal, and sale of Material therefrom, including

any reclamation plans, or requirements, from all applicable federal, state and local jurisdictions (collectively "permits" herein). In the event the Wash Plan fails to result in the grant of such permits, Lessee shall diligently and continuously take all other actions necessary to obtain all permits required to accomplish the Material excavation purposes set forth herein, and shall obtain such permits at Lessee's sole cost and expense. Lessee shall submit to District, no less than forty five (45) days prior to submission of any permit application, or forty five (45) days prior to accepting any conditions that may be imposed on any such permit, all information, studies, applications, and other information relative to the permit or the proposed terms and conditions proposed to be imposed on same, for District's prior, written approval. District's review shall be limited to such permit applications, and / or permit conditions that the District determines, in the exercise of its reasonable discretion, could impair its ability to perform its water storage, conservation or spreading activities, or District's other reserved rights and uses in the Premises under this Lease, and / or impact the Premises beyond the term of this Lease. District shall not unreasonably disapprove the permit nor the conditions thereto. Lessee shall not finalize the permit, nor take any action in furtherance of conducting activities pursuant to any permit, until the District has approved the permit and any conditions thereto. In the event District fails to approve or disapprove any permit submitted to it by Lessee, provided that all proposed conditions have been documented and forwarded to District, within forty five (45) days from District's receipt of same from Lessee, the permit and conditions thereto shall be deemed approved by the District.

5.3. District Cooperation With Permits. District agrees that within the bounds of its reasonable discretion as reserved in Section 5.2 above, it will reasonably cooperate with Lessee and Lessee's efforts to obtain applicable permits and land use entitlements to allow Lessee to fulfill the purposes of this Lease, including, but not limited to, execution of petitions, applications or authorizations for applications. No consent given under this Lease by the District shall affect or limit Lessee's obligations under this Lease, nor shall any approvals or consents given by the District, in its capacity as the owner of the Premises, be deemed to be approval as to compliance or conformance of any application or any permit with applicable governmental codes, laws, orders, rules, or regulations.

5.4. Habitat Mitigation Dedications. District and Lessee acknowledge that effectuation of the Wash Plan, or potentially other permits should the Wash Plan not come fruition, may require the dedication by District of various areas, within or without the Premises, for endangered or threatened species habitat preservation or management. Notwithstanding this, however, District and Lessee agree to cooperate reasonably in an effort to effectuate the Wash Plan, as consistently as possible with the identified mitigation areas from the Final Environmental Impact Report for the Wash Plan certified by the District in 2008. The parties acknowledge the need to meet and confer, between themselves and other members of the Task Force, regarding the proper identification of any such required mitigation areas, the degree of reserved water conservation activity the District may require as a result of any encumbrance of District property for such purposes, and the nature and cost of habitat management strategies appropriate for such areas, none of whose specifics is presently known at this time. District and Lessee agree to cooperate reasonably on such subjects, in an attempt to effectuate the purposes of the Wash Plan and the purposes of this Lease.

5.5. Lessee Indemnification re Permit Challenges. Except at to such permits as may be obtained by the parties pursuant to the Wash Plan, Lessee shall indemnify, defend and hold the District harmless from any action, judicial or otherwise, contesting the validity of any permit granted to Lessee by the District or any other permitting jurisdiction, and Lessee shall promptly pay any judgment or award against the District in any such action, and shall take all other measures necessary to diligently defend and resolve any challenge to the validity of any such permit.

5.6. Transfer of Permits. Upon the expiration or earlier termination of this Lease, all transferable permits applicable to the Premises shall immediately transfer to the District, and Lessee shall take all actions required to complete such transfer, and otherwise cooperate fully with the District in accomplishing everything required to complete such transfer.

6.0 Use and Operation of Premises.

6.1. Safeguards. Lessee shall, at all times during this Lease, maintain proper and adequate safeguards on the Premises to assure its orderly use, and to prevent intrusion from trespassers, playing children and vandals.

6.2. No Waste or Nuisance. Lessee shall not maintain, commit or permit the maintenance of or commission of any waste or any nuisance (as defined in California Civil Code section 3479) within the premises. Lessee shall not use or permit the use of the Premises for any unlawful purpose.

6.3. Hazardous Materials Lessee shall not cause, permit or suffer the release or dumping of any Hazardous Materials on the Premises at any time. As used in this Lease, the term "Hazardous Materials" shall mean:

(a) Hazardous wastes, hazardous materials, hazardous substances, hazardous constituents, toxic substances or related materials, whether solids, liquids or gases, including but not limited to, substances deemed as "hazardous wastes," "hazardous materials," "hazardous substances," "toxic substances," "pollutants," "contaminants," "radioactive materials," or other similar designations in, or otherwise subject to regulation under, the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended ("CERCLA"), 42 U.S.C. §§ 9601 *et seq.*; the Toxic Substance Control Act ("TSCA"), 15 U.S.C. § 2601, *et seq.*; the Hazardous Materials Transportation Act, 49 U.S.C. § 1802; the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. § 9601, *et seq.*; the Clean Water Act ("CWA"), 33 U.S.C. § 1251, *et seq.*; the Safe Drinking Water Act, 42 U.S.C. § 300, *et seq.*; the Clean Air Act ("CAA"), 42 U.S.C. § 7401, *et seq.*; the Hazardous Waste Control Law, California Health & Safety Code § 2025, *et seq.* and Health & Safety Code § 33349; the Carpenter-Presley-Tanner Hazardous Substance Account Act, California Health & Safety Code Div. 20, Ch. 6.8; the Hazardous Materials Release Response Plans and Inventory Act, California Health & Safety Code Div. 20, Ch. 6.95; the Underground Storage of Hazardous Substances Act, California Health & Safety Code Div. 20, Ch. 6.7; the Porter-Cologne Act, California Water

Code § 13050, *et seq.*; and in any permits, licenses, approvals, plans, rules, regulations, or ordinances adopted, or other criteria and guidelines promulgated pursuant to, the preceding laws (collectively, the "Environmental Laws"); and

(b) Any other substances, constituents or wastes subject to any applicable federal, state or local law, regulation or ordinance, including any Environmental Law now in effect, including but not limited to petroleum, refined petroleum products, waste oil, waste aviation or motor vehicle fuel, asbestos, lead in water, paint or elsewhere, radon, polychlorinated biphenyls (PCBs), and ureaformaldehyde.

Lessee shall defend, indemnify, and hold District harmless for any release of any Hazardous Materials on the Premises caused by or arising from Lessee's possession of the Premises, or any of its activities undertaken thereunder except cause by the negligence or willful misconduct of District or any breach of District's warranties. Such indemnification shall include promptly paying any and all costs for site characterization, remediation, and any and all judgments for damages to persons or property, including any penalties, regulatory fines, or any other liabilities which may arise out of the Hazardous Materials released.

6.4. Maintenance and Perimeter Controls. Lessee shall, to the satisfaction of the District, keep and maintain the Premises and all improvements of any kind thereon in a state of good repair, clean, safe, and in compliance with all regulatory standards, laws, ordinances, statutes, and regulations applicable thereto, and any licenses or permits in connection therewith. Lessee shall maintain, and repair, fencing around the exterior boundaries of any active excavation on the Premises, so as to prevent purposeful or accidental intrusion by unauthorized persons or parties; provided, however, Lessee shall not be responsible or liable for maintenance, repair, or fencing around any portion of the Premises devoted to District's water spreading facilities on which no active excavation occurs. District shall be given keys, combinations, or other means of access through any such gates that may be connected or maintained pursuant to this requirement. Lessee and District shall each indemnify the other for any claims, liabilities, losses, or damages to persons or property caused by the indemnifying party's negligence or willful misconduct regarding such perimeter controls.

6.5. Mining Controls. In addition to complying with the conditions of any mining permit or other governmental approval relating to its mining activities, Lessee shall conduct its mining activities on the Premises subject to the following conditions and limitations:

(a) Timing. Lessee will notify the District in writing regarding which specific areas of the Lease Property will be mined, and at what times. Such notice shall be for the purpose of permitting the District to utilize portions of the Premises which are not actively being mined by Lessee, for water spreading activities or other activities which do not unreasonably inhibit or interfere with Lessee's proposed mining activity, which right is specifically granted to and reserved by the District. District and Lessee agree to reasonably coordinate their respective activities to minimize any interference with both groundwater recharge activities and mining activities.

(b) Mining Within Acceptable Distance to Groundwater.

(i) For all mining areas, Lessee shall establish, at its own cost, groundwater monitoring wells, at such times, and in such locations and numbers, as may be reasonably required by District to determine groundwater levels in the vicinity of active mining areas. Such wells shall be established in numbers and at locations sufficient to provide information regarding groundwater levels throughout the full extent of Lessee's active mining operations. District shall at all times have access to such wells, and may utilize such wells at any time to monitor or characterize groundwater levels; provided, however, District shall promptly replace or repair any damage caused by the District to the monitoring wells. Lessee does not warrant or confirm the accuracy of the monitoring wells and the District assumes all risk in utilizing the information obtained from the monitoring wells. District shall operate and maintain such wells, provided that Lessee shall not conduct any operations on the Premises which could damage or destroy such monitoring wells. Lessee shall promptly repair or replace any wells damaged by Lessee's mining or other activities, at Lessee's cost.

(ii) In the event groundwater levels in or around Lessee's mining operations rise to a point that is within twenty feet (20') of any active excavation, all such operations shall thereupon immediately be halted by Lessee, until such time as the groundwater table level drops to a point more than twenty feet (20') below the level of any active mining operations. Lessee shall be released from any payment obligations which accrue during any period in which Lessee is required to halt excavation activities under this subsection (ii). In addition, Lessee's Guaranteed Annual Royalty shall be reduced proportionally based on the number of days Lessee is required to cease excavation activities.

(iii) In the event of any unplanned cessation of mining activity by Lessee because of groundwater levels, District shall use its best efforts to redirect surface water recharge to areas which will not exacerbate high groundwater conditions in areas of active mining operations, and shall continue to do so until 1) the high groundwater conditions have abated, and mining activities can resume within the necessary twenty foot (20') separation between mining activities and groundwater levels in the affected area of active mining operations, or 2) it appears that District's operations are not affecting groundwater levels in the affected area of active mining operations, or 3) District has no reasonable alternative to spreading water in or around the areas of active mining operations.

(c) Depths. The Premises shall be mined in phased depths, as follows:

(i) In the initial phase, all of the Premises may be mined to a maximum depth of seventy-five feet (75').

(ii) In the second phase, all of the Premises may be mined to an additional depth of twenty-five feet (25'), provided:

(a) No more than fifteen percent (15%) of reserves are available to Lessee in the Premises above the Phase I depth limit of seventy-five feet (75') (excluding any reserves that are located at the Orange Street Plant Site which), lands are being utilized for processing, shipping, and storage of Materials; and

(b) Groundwater monitoring well information indicates such additional twenty-five foot depth can be achieved without posing an unreasonable risk of contamination, evaporation, or other risk, to groundwater.

(iii) The third phase will permit mining of the Lease Property to an additional depth of twenty feet (20'), provided:

(a) No more than fifteen percent (15%) of reserves are available to Lessee in the Premises above the Phase II depth limit of one hundred feet (100') (excluding any reserves that are located at the Orange Street Plant Site), which lands are being utilized for processing, shipping, and storage of Materials; and

(b) Groundwater monitoring wells indicate such additional depth can be achieved without posing an unreasonable risk of contamination, evaporation, or other risk, to groundwater.

(d) Side Slopes. For all portions of the Premises which are located in Section 12, mining shall be conducted in such manner that the ultimate side slope excavations and pit bottoms are never at any time steeper than 3:1 as measured from permitted setbacks. For those portions of the Premises located in Section 9, 10, and 11, side slopes shall be no steeper than 2:1 except existing slopes mined prior to the Effective Date left a finished slope steeper than 2:1, and the parties agree that Lessee has no obligation to correct those slopes. The ultimate side slopes, except at the Northwest corner of the Redlands Aggregate North parcel (south ½ of the northeast ¼ of Section 11, T1S, R3w, SBBM), and except where such side slopes were already in their final configuration as of the Effective Date of the July 10, 1997 Lease Amendment, shall be maintained in their natural condition, not reconstructed or recompacted.

6.6. Silt Deposits. District agrees that Lessee may deposit silt or impermeable fines within the Premises, only as follows:

(a) Alabama Pit No. 2 may be filled to its full capacity.

(b) The existing silt located along the north edge of the Johnson South Parcel and the existing silt pond on the Johnson North Parcel (consisting of the 80 acre parcel located in the South one-half of the Northwest one-quarter of

Section 11, T1S, R3W, SBBM), as shown and delineated in Exhibit "C" hereto, may remain, and effective on the Effective Date District waives any demand or claim for removal of silts deposited in such area by Lessee. District's waiver is of District's right, if any, to demand removal of such silts under its contractual rights as Lessor, and District makes no further representation or warranty regarding Lessee's ability to maintain any silts already deposited or whether such deposits comply with any applicable laws, statutes, regulations, or permit conditions of any kind. In addition, Lessee may use the Johnson North Parcel (but no portion of the Johnson South Parcel) for future deposit of silts or impermeable fines. Lessee shall not conduct any mining activity on the Premises north of the existing Johnson North parcel silt pond, except as may ultimately be allowed under the Wash Plan. The existing silt pond on the Johnson North Parcel (consisting of the 80 acre parcel located in the South one-half of the Northwest one-quarter of Section 11, T1S, R3W, SBBM), may remain. In addition, Lessee may use this area for future deposit of silts or impermeable fines. Lessee shall not conduct any mining activity on the Premises north of the existing Johnson North parcel silt pond.

(c) For both the Alabama Pit No. 2 and the Johnson North Parcel silt ponds, Lessee shall reclaim the areas by grading the top level of such silts or impermeable Materials according to the reasonable specifications of District, and by backfilling with non-silt, pervious earth Material of at least ten feet (10') of depth, and construct shallow water percolation basins and dikes thereon above the ten feet of pervious Material, all to the reasonable specifications of the District, so as to make the reclaimed land usable for spreading water in shallow surface ponds. Lessee shall not be responsible for payment of royalty for any Material excavated exclusively for such purposes.

(d) All pit bottoms shall be scarified to a depth of two feet (2'), as part of Lessee's reclamation activities, prior to quitting any mining site.

6.7. Lessee Production of Water. In addition to the groundwater monitoring wells provided for in Section 6.5 (2) (i), Lessee may sink such groundwater wells, or otherwise produce water from the Premises, as may be reasonably required in the quarrying, processing, and transportation of Material excavated and sold or removed from the Premises. Any wells established by Lessee on the Premises shall be considered improvements, and shall be subject to the requirements of Section 2.1 above. Lessee shall, in addition to any and all other payments due under this Lease, pay any groundwater charges associated with production of groundwater from the Premises, at then-applicable rates, and shall pay any and all other permitting or other charges required to establish and operate such wells. In connection with such wells, Lessee shall, upon reasonable request by the District, provide such information regarding groundwater levels, or water quality, produced from such wells, as Lessee otherwise does or is required to produce as a well operator, at no additional charge to District

7.0 District's Reservations.

7.1. District's Reservation for Water Conservation Activities. District reserves the right, from time to time and as it deems necessary in the exercise of its reasonable discretion, to utilize all or any portion of the Premises for its water recharge, conservation, spreading, and other operations. In connection with the exercise of this reserved right, the Conservation District shall make every effort to harmonize its water conservation activities with the then-current and anticipated immediate future excavation and other activities of Lessee, with the goal that the mining activity and the water conservation activity can harmoniously exist, without interruption to either. In the exercise of these reserved conservation rights, District shall do all of the following:

(a) Provide Lessee no less than forty-eight (48) hours' notice of its need to utilize portions of any active excavation areas, or areas of active haul road or other transport of excavated Material to and from areas of excavation and the plant site or stockpiling sites utilized in connection with the same.

(b) District shall not take all then-permitted portions of the Premises, which at that time Lessee is or could actively mine, out of production.

(c) Except in circumstances of sudden threatening precipitation, threat of immediate flooding from dam releases or other causes, or other immediate danger to persons or property, District shall meet and confer with Lessee to determine the appropriate areas for the exercise of the District's reserved water spreading rights as they impact active areas of excavation or other Lessee activities, to harmonize the need for areas of spreading with the needs of portions of the Premises for the activities permitted or authorized by this lease.

7.2. No Liability. Notwithstanding the procedural restrictions above, District shall have no liability to Lessee for any interruptions to excavations, or any other activities Lessee may undertake on the Lease, from the exercise of its reserved water spreading rights except as otherwise provided herein.

7.3. Inspection and Monitoring. District shall have the right, at all times during the pendency of this Lease, and at its own expense, to have an inspector remain on the Premises, including any plant site, scales, or sales areas, to observe, monitor, and inspect all aspects of Lessee's operations, and to confirm the validity and accuracy of Lessee's record keeping with respect to excavation and sale and removal of Material, and Lessee's compliance with all other aspects of the Lease. Such inspector shall be required to have all reasonable safety clearances or certifications required to access such areas of the Premises as District desires to monitor, as may be required under federal, state, or local statute, ordinance, or regulation. In addition, the inspector shall comply with Lessee's reasonable operating procedures and regulations, and shall undertake its monitoring activities in such a way as not to unduly disrupt, delay, or interfere with Lessee's operations.

7.4. Periodic Inspections. Whether or not District exercises its right to have an inspector on the Premises, District may, at any time during the pendency of this Lease, and upon no less than twenty four (24) hours' notice, come on to the Premises to assure compliance with permit conditions, conditions of the Lease, or the proper counting of tonnages excavated or sold.

7.5. Confidentiality of Information. All information received by the District pursuant to any inspector it maintains on the Premises, or any of its periodic inspections, shall be used solely for the purpose of assuring compliance with the terms of the Lease, and shall be considered confidential to Lessee, and kept confidential by District to the full extent permitted by the law. In connection with the receipt of such information, both District and Lessee specifically intend that the information is considered to be protected under Government Code section 6254(e), and shall not constitute a public record.

7.6. Audit. District may, no more frequently than once every two (2) years, and at its own expense require a full audit of Lessee's books, records, receipts, accounts, and any or all other information pertinent to the payment of plant site rent, royalties, or guaranteed annual royalty hereunder, including tonnages of Material excavated, sold, or otherwise transferred from the Premises the Redlands Aggregates Site, or both. Lessee shall reasonably and promptly cooperate with any and all requests made by District in connection with such audit, and any and all information received by the District in connection with such audit shall be considered confidential, as provided in the immediately preceding Section. To the extent the audit reveals any discrepancies between the amounts of plant site rent, royalty, or guaranteed annual royalties due, or any claimed offsets for Wash Plan processing costs or other items that may be agreed to between the parties as a legitimate offset to any amounts otherwise owing under the Lease, the party from whom either payment or refund is owing shall promptly pay the amount indicated by the audit. In the event of any disagreement as to the accuracy or results of the audit, the matter shall be submitted to binding arbitration, as provided for herein.

8.0 Binding Arbitration. In the event of any dispute arising under this Lease, including but not limited to disputes with respect to tonnages of Material excavated or sold or otherwise removed from the site, amounts of plant site rent, per-ton royalty, or guaranteed annual royalty, advanced costs for Wash Plan processing, or other amounts claimed due from one party to the other under this Lease, the determination of Fair Market Royalty, or any other controversy or dispute arising under this Lease, the matter shall be submitted to binding arbitration. To the extent not otherwise provided herein, any party wishing to submit any disagreement or alleged breach or noncompliance with any of the covenants or other provisions of this Lease shall first make demand upon the other party, in writing, specifying the issue, the amounts claimed due if known, and the steps it requires of the other party to resolve the dispute. Following such written notice, the parties shall, unless a different time period is specifically provided for otherwise herein, meet and confer in an attempt to resolve the dispute for a period of fourteen (14) days thereafter. In the event parties are unable to come to resolution, either party may demand that the matter may be submitted to binding arbitration. If such a demand is made, both parties shall, within five (5) business days of the receipt of the written demand to submit to arbitration, submit to the other a list of three (3) proposed arbitrators. Following exchange of such lists, the parties shall attempt to mutually select a single arbitrator to arbitrate the dispute. In the event the parties are unable to do so, each of the parties shall strike two arbitrators from the list of the other party, and the two remaining listed arbitrators shall thereupon decide upon a third arbitrator, who shall be someone other than the three originally listed by either party. Arbitrations regarding Fair Market Royalty shall proceed as provided for in Section 4.3 above. Arbitrations on all other subjects shall proceed according to such rules as the parties may reasonably agree to, and in the absence of their ability to agree, upon such rules as may be imposed by the single selected arbitrator. The decision of the arbitrator shall be final and binding, with each party waiving any

right to jury or other judicial determination of the dispute, except that the award may be corrected, or vacated, as provided by Code of Civil Procedure sections 1280 et seq. Notwithstanding Code of Civil Procedure section 1286.4 and 1286.8, the award may also be vacated or corrected if it is clearly contrary to law. Each party shall initially bear its own costs and fees in connection with the prosecution and hearing of the arbitration, and shall pay one-half (1/2) of the costs of the arbitrator. The advanced share of the arbitrator's costs and expenses, and attorneys' fees, expert witness fees, and the fees of any audit shall be considered as recoverable costs of the arbitration, and the reasonable costs thereof shall be recoverable by the prevailing party, in addition to any other relief that might be awarded.

9.0 Insurance. Lessee shall maintain, and keep in effect, all of the following policies of insurance at all times it occupies the Premises:

9.1. Workers' Compensation Insurance. By signature hereunder, Lessee certifies that Lessee is aware of the provisions of Section 3700 of the Labor Code, which requires every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and Lessee will comply with such provisions before commencing the performance or the work of this Agreement.

9.2. Workers' Compensation and Employer's Liability Insurance. Lessee, its agents, and its sub-contractors shall cover or insure under the applicable laws relating to workers' compensation insurance, all of their employees employed directly by them or through subcontractors in carrying out the work contemplated under this Agreement, all in accordance with the Workers' Compensation and Insurance Act, Division IV of the Labor Code of the State of California and any Acts amendatory thereof. Lessee shall provide employer's liability insurance in the amount of, at least, $1,000,000 per accident for bodily injury and disease.

9.3. Liability Insurance. Lessee shall provide and maintain at all times during the performance of this Agreement, the following commercial general liability insurance:

(a) Coverage. Coverage shall be at least as broad as the following:

(1) Commercial General Liability. Commercial General Liability coverage (Occurrence Form CG 0001) in the amount of two million dollars ($2,000,000) per occurrence for bodily injury, personal injury, and property damage. If Commercial General Liability Insurance or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to the project/location (with the ISO CG 2501 or insurer's equivalent endorsement provided to the District) or the general aggregate limit shall be twice the required occurrence limit.

(2) Required Provisions. All policies specified hereunder shall state or be endorsed to state that coverage shall not be canceled by either party, except after thirty (30) days (10 days for nonpayment of premium) prior written notice by U.S. mail has been given to the District.

(3) Required Format. All of the liability insurance shall be provided on policy forms satisfactory to the District. All insurance

correspondence, notations, certificates, or other documents from the insurance carrier or agent/broker shall each separately reference the District project number.

(4) Deductibles and Self-Insured Retention. Any deductible or self-insurance retention must be declared to and approved by the District. At the option of the District, the insurer shall reduce or eliminate such deductibles or self-insured retention.

(5) Acceptability of Insurers. Insurance is to be placed with insurers having a current A.M. Best's rating of no less than A-:VII or equivalent or as otherwise approved by the District.

(6) Evidences and Cancellation of Insurance. Prior to execution of this Agreement, Lessee shall file with the District evidence of insurance satisfactory to the District. The insurer will give by U.S. mail written notice to the District at least thirty (30) days prior to the effective date of any cancellation, except for nonpayment of premium for which ten (10) days prior written notice will be given. Lessee shall, upon demand of the District, deliver to the District all such policy or policies of insurance and the receipts for payment of premiums thereon.

9.4. Subcontractors. In the event that Lessee employs other contractors as part of the services covered by this Agreement, it shall be the Lessee's responsibility to confirm that each subcontractor meets the minimum insurance requirements specified above.

10.0 Default or Termination.

10.1. Default by Lessee. Each and every covenant and agreement contained in this Lease is declared to be a condition to the Lease, and to the rights hereby granted to Lessee. Lessee shall be considered to have materially breached this Lease, giving the District the remedies set forth in Section 10.2 below, in the event that any one or more of the following occur:

(a) Lessee fails or refused to pay to the District any royalties or other rentals due hereunder when due, and such royalty or rent remains unpaid for thirty (30) days after written notice by the District to Lessee; or

(b) Lessee defaults in the performance of or breaches any covenant, condition, or provision contained in this requirement other than set forth in Section 10.1 (a) hereinabove, and such default or breach is not cured within thirty (30) days after written notice thereof is served by the District on Lessee, or if such cure is physically impossible to cure within thirty (30) days, Lessee has begun and diligently prosecuted such cure.

(c) Lessee becomes insolvent. For the purposes of this Lease, Lessee shall be conclusively presumed to have become insolvent if (i) a receiver is appointed to take possession of all or substantially all of Lessee's property

because of insolvency; or (ii) Lessee makes a general assignment for the benefit of creditors; or (iii) Lessee allows any judgment against Lessee to remain unsatisfied or unbonded for a period of thirty (30) days or longer; or (iv) an attachment or execution is levied upon or against any or all of Lessee's right, title, or interests in or under this Lease, and the same shall not have been released within thirty (30) days from the date thereof; or (v) proceedings or receivership in bankruptcy have been instituted against Lessee; or (vi) Lessee is adjudicated bankrupt.

(d) Any disagreement between the parties as to whether a default has occurred shall be decided by binding arbitration, as provided for herein.

10.2. Remedies on Lessee's Default. Should Lessee breach this Lease, the District may, in addition to any other remedy given the District by law or in equity:

(a) Continue this Lease in effect by not terminating Lessee's right to possession of the Premises, in which event District shall be entitled to enforce all of the District's rights and remedies under this Lease, including the right to recover the royalties and other rental payments specified herein, as such royalties and payments become due under this Lease; or

(b) Terminate this Lease and Lessee's right to possession of the Premises;

(c) In the event Lessee becomes insolvent, the District may, by giving thirty (30) days' written notice to Lessee or to the person appointed to manage Lessee's affairs at the address for such person appearing in the official records of the court that appointed such person, terminate this Lease and forfeit Lessee's rights under the Premises and in any Improvements or facilities on or appurtenant to the Premises.

The remedies herein shall not be exclusive, but shall be cumulative and in addition to any and all of the remedies now or hereafter allowed by law or otherwise authorized in this Lease, and the exercise of one or more of said rights, powers, elections, or remedies shall not impair the District's right to exercise any other right, power, election, or remedy.

10.3. Lessee's Right of Termination. Lessee may terminate this Lease, with or without cause, at any time after the first anniversary of the Commencement Date, by providing District no less than one hundred and eighty (180) days' written notice. Upon giving such notice, and until the one hundred eighty day period passes, the Lease shall remain in effect, and Lessee shall fulfill all obligations of Lessee hereunder which accrues during the one hundred eighty (180) days, including the payment of Orange Street Plant Site rent, guaranteed annual royalty and any per-ton royalty amounts.

10.4. Surrender of Possession. At the expiration or termination of this Lease, for whatever reason, Lessee shall execute, acknowledge, and deliver to the District a Quitclaim Deed conveying all right, title, and interest of the Lessee to the Premises, both land and improvements. Thereafter, Lessee shall promptly, but in any event no later than six (6) months

following the expiration or earlier termination of the Lease, remove all Improvements (unless the requirements for such removal has been waived in writing by District), portable buildings, equipment, and personal property placed on the Premises by Lessee, and clear the Premises of all debris, and otherwise surrender to the District the Premises in good order and clean condition.

10.5. Quiet Enjoyment. District represents, covenants and warrants that Lessee, upon paying the rent and performing the covenants herein provided, shall peacefully and quietly have, hold and enjoy the Premises, subject to District's reserved rights hereunder.

11.0 Encumbrance, Assignment, and Subletting.

11.1. Hypothecation.

(a) Lessee shall have the right at any time, from time to time, and subject to prior written approval of the District (except to the extent any Improvements are subject to an encumbrance prior to the execution of this Lease), to subject the leasehold estate and any or all Improvements placed or to be placed on the Premises to one or more deeds of trust or other security instruments (collectively "Leasehold Deed of Trust" herein) as security for a loan or loans or other obligation of Lessee, provided that:

(i) The Leasehold Deed of Trust and all rights acquired under it shall be subject and subordinate to each and all of the covenants, conditions, and restrictions stated in this Lease, and to all rights and interest of the District except as otherwise provided herein, and

(ii) Lessee shall give District prior notice of any such Leasehold Deed of Trust, and shall accompany the notice with a true copy of the note and deed of trust.

11.2. Assignment and Sublease; Transfer Restrictions. Lessee may assign or sublease all or a portion of its interest hereunder to any other entity, but only with the prior written permission of the District. For the purposes of this Lease, an "assignment" shall include a transfer to any person or group of persons acting in concert, of more than twenty-five percent (25%) of the present ownership and/or control of Lessee in the aggregate, taking all transfers into account on a cumulative basis, except transfers of such ownership or control interest between members of the same immediate family, or transfer to a trust, testamentary or otherwise, in which the beneficiaries are limited to members of the transferor's immediate family. In the event Lessee or its successor is a corporation or trust, such transfer shall refer to the transfer of the issued and outstanding capital stock of Lessee, or of the beneficial interests of such trust; in the event that Lessee or its successor is a limited or general partnership, such transfer shall refer to the transfer of more than twenty-five percent (25%) of the limited or general partnership interest; in the event that Lessee or its successor is a joint venture, such transfer shall refer to the transfer of more than twenty-five percent (25%) of the ownership and/or successor control of any such joint venture partner, taking all transfers into account on a cumulative basis.

11.3. Licenses. Lessee shall have the right to grant licenses for ingress and egress to the Premises in connection with any assignment or sublease, provided such licenses are

made specifically subject to the covenants contained in this Lease, and do not extend beyond the term of this Lease. Upon any assignment, the assigning Lessee shall have no further obligation or liability under this Lease with respect to the portion assigned, except for such obligations that arose from the period of such assigning Lessee's occupancy of the Premises, and the new Lessee shall agree in writing to be bound by all terms and conditions hereof.

12.0 Transfer Premises. The parties agree to cooperate reasonably in defining the Transfer Premises, either before or upon the final approval of the Wash Plan, if the Wash Plan becomes effectuated. The Transfer of Premises shall be identified by way of appropriate legal description and plat maps, and shall be incorporated as Premises to which this Lease applies by way of a written amendment to this Lease. The Transfer of Premises shall not be replaced for any portion of the Premises without the mutual agreement of District and Lessee.

13.0 Condemnation. If during the term of this Lease, all or any portion of the Premises is acquired for public use by the use of eminent domain, or transfer under threat of eminent domain, the following shall apply:

(a) District shall be entitled to all compensation awarded for the taking of the Premises, including any leasehold bonus value, except that Lessee shall be entitled to any portion of the award representing the value of its leasehold improvements (less any reversionary value allocable to District upon the scheduled end of the lease term), moveable equipment, inventory, moving expenses or relocation benefits, any award for loss of Lessee's business goodwill, and any separately-assessed attorneys fees or costs which are awarded solely to Lessee.

(b) If the entire Premises are taken pursuant to any condemnation proceeding, or acquisition under threat of condemnation, the Lease shall terminate in its entirety, effective on the date the acquiring entity takes actual possession of the Premises. If only a part of the Premises is taken pursuant to any condemnation proceeding, or acquisition under threat of condemnation, and the part taken is so essential that the remainder Premises subject to the Lease is no longer suitable for the purposes of the Lease, Lessee shall have the option to terminate this Lease. Such option shall be exercised in writing, no later than: (1) thirty (30) days after the filing of any complaint in eminent domain and service of same upon Lessee; or (2) within thirty (30) days of Lessee being notified, by District or any other party, of the acquiring entity's intent to acquire by eminent domain, accompanied by a legal description or other detailed indication of the specific area and property interests the acquiring entity proposes to take, whichever of the two occurs earlier. Any dispute between the District and Lessee as to whether a part taking taken is so essential that the remainder Premises subject to the Lease is no longer suitable for the purposes of the Lease shall be submitted to binding arbitration as provided herein if no condemnation action is then pending, and if such an action is pending, by the court hearing and determining such action.

(c) If only a part of the Premises is taken pursuant to a condemnation proceeding or acquisition under threat of condemnation, and there is either (1) no such material impairment of Lessee's use of the remaining portion of the Premises, or (2) Lessee otherwise elects not to terminate this Lease as provided in this Section, then the Lease shall terminate only as to the portion taken, effective on the date the acquiring entity takes actual possession of the portion taken, and the Lease shall continue in full force and effect as to the remaining portion of the Premises.

(d) If any portion of the plant site is taken as part of a partial taking, the plant site rent shall be reduced, in a percentage equal to the percentage the land taken area from the plant site bears to the total area of the plant site before the taking, such reduction to be effective on the date the Lease terminates as to the portion of the plant site taken. There shall be no reduction to the guaranteed annual royalty or the per-tonnage royalty, however.

14.0 Assignment and Transfer. The qualifications and identity of Lessee are of particular concern to District. It is because of those qualifications and identity that District has entered into this Agreement with Lessee. Accordingly, except as expressly set forth herein, Lessee shall not, whether voluntarily, involuntarily or by operation of law, assign, transfer or convey all or any part of this Agreement or any rights hereunder or in this Lease or the Premises without District's prior written approval, which shall not be unreasonably withheld, delayed or conditioned on items not related to the prospective assignee's financial ability to perform Lessee's requirements and obligations under this Lease, or the prospective assignee's ability to comply with the terms, conditions, or requirements of any applicable permit, entitlement, development condition, or provision of law governing the mining activities to be carried out on the premises under this Lease. Notwithstanding the foregoing, Lessee may assign its interest in this Lease to (a) an entity whose majority interest is owned or controlled by Lessee; or (b) a limited partnership or limited liability company whose general partner or managing member is Lessee. The term "control," as used in the immediately preceding sentence, means, with respect to a person that is a corporation, the right to exercise, directly or indirectly, at least 50% of the voting rights attributable to the shares of the controlled corporation, and, with respect to a person that is not a corporation, the possession, directly or indirectly, of the power to direct or cause the direction of the management or policies of the controlled person

If District approves the assignment, the approval shall be subject to the satisfaction of the following conditions ("**Transfer Conditions**"):

(a) All of the obligations of this Lease shall have been assumed by the transferee pursuant to a written assignment and assumption agreement(s) in a form reasonably approved by District's legal counsel.

(b) The organizational documents of the transferee and a good standing certificate of the transferee shall have been submitted to District.

(c) There shall be no default of Lessee of this Agreement and no event has occurred that would constitute a default with the giving of notice or the passage of time.

15.0 Miscellaneous Provisions.

15.1. Notices. As expressly provided to the contrary herein, any notice, consent, report, demand document, or other such item to be given, delivered, furnished, or received hereunder, shall be deemed given, delivered, furnished, or received when given in writing and personally delivered to an authorized agent of the applicable party, or upon delivery by United States Postal Service, first class registered or certified mail, postage prepaid, return receipt requested, or by national "overnight courier," such as Federal Express, at the time of delivery shown upon receipt, and in any case, delivered to the address, addresses, and persons as each party may from time to time, by written notice designate to the other, and who initially are:

If to District:	San Bernardino Valley Water Conservation District 1630 West Redlands Boulevard Suite A Redlands, California 92373 Attn: General Manager
With a Copy to:	Rutan & Tucker 611 Anton Boulevard Suite 1400 Costa Mesa, CA 92626 Attn: David B. Cosgrove
If to Lessee:	Cemex Construction Materials Pacific, LLC 5180 Golden Foothills Parkway Suite 200 El Dorado Hills, CA Attn: Tom Powell
With a Copy to:	Cemex 920 Memorial City Way, Suite 100 Houston, TX 77024 Attn: General Counsel

15.2. Interpretation. The terms of this Lease shall be construed in accordance with the meaning of the language used, and shall not be construed for or against either party by reason of authorship. This lease contains the full agreement of the parties with respect to the subject matter contained herein, and supersedes all prior leases, negotiations, agreements, and/or representations, whether oral or written. Specifically, this Lease supersedes the "Lease Agreement" dated September 10, 1979, between the District and C. L. Pharris Sand and Gravel, Inc., the "Lease Amendment" dated July 10, 1997 between the District and C. L. Pharris Sand

and Gravel, Inc., dba Sunwest Materials, and any other prior lease agreements between the parties with respect to any portion of the Premises. All such prior lease agreements are superseded and replaced by this Lease Agreement, including any options, rights of first refusal, or other rights that may arise thereunder, all of which are of no force or effect. This Lease constitutes the entire lease agreement between District and Lessee.

15.3. Amendment. This Lease may be amended at any time by mutual agreement of the parties, by an instrument in writing, signed by both parties, and referencing that it is an amendment to this Lease.

15.4. Corporate Authority. The persons executing this Lease on behalf of the parties hereto warrant that (i) the party on whose behalf the signature appears is duly organized and existing; (ii) such party is authorized to execute and deliver this Lease on behalf of such party; (iii) by so executing this Lease, such party is bound to the provisions of this Lease; and (iv) by entering into this Lease, such party does not violate any provision to any other agreement to which said party is bound. .

15.5. Binding on Successors. Subject to the transfer restrictions stated elsewhere in this Lease, this Lease shall be binding upon each party's respective successors and assigns.

15.6. Time is of the Essence. Time is of the essence in this Lease. Failure to comply with any requirement, including but not limited to any time requirement of this Lease shall constitute a material breach of the Lease.

15.7. Severability. The invalidity or illegality of any provision of this Lease shall not affect the remainder of the Lease. The parties hereby declare that it is their intent that, in the event one or more portions of the Lease is declared invalid or unenforceable, they intend that the remainder of the Lease continue to bind both parties, unless the severed remainder is so essential to the terms of this Lease that additional performance of the Lease is impossible or so uncertain as to render meaningful performance impossible or unrealistic.

15.8. Force Majeure. The time limits provided herein for performance of any actions required hereunder shall be extended during any time, but only during such time, as a party is unable to perform obligations to war, insurrection, strikes, lock-outs, riots, floods, earthquakes, fires, casualties, acts of the public enemy, epidemics, quarantine restrictions, freight embargoes, inaccessibility of transportation or critical infrastructure, governmental restrictions or priority litigation, acts of God, or other similar causes beyond the control of, and without the fault of, the party charged to perform. The party to perform shall continue to exercise reasonable diligence to minimize the period of delay during any period of force majeure. An extension of time for any such cause shall be limited to the period of the delay, and shall commence to run from the time of the commencement of the force majeure, provided notice by the party be to perform claiming such extension is sent to the other party within ten (10) days of the commencement of the cause.

15.9. Attorneys' Fees. In the event of any suit to enforce any provision of this Lease, or to prevent or to correct any breach of this agreement, the prevailing party in such

action or proceeding, in addition to any other relief which may be granted, legal or equitable, shall be entitled to reasonable attorneys' fees. As used herein, "attorneys' fees" shall include costs for legal services, and all other reasonable costs for investigating the action, including the taking of depositions and discovery, and any other recoverable costs. All such fees shall be deemed accrued on the commencement of such action, and shall be enforceable whether or not such action is prosecuted to final judgment. The court in any such action shall be requested to name a prevailing party.

15.10. Counterparts. This Lease may be executed in two or more counterparts, each of which shall be an original, but all of which shall constitute one and the same instrument.

Dated: _____

SAN BERNARDINO VALLEY WATER CONSERVATION DISTRICT

By: _____
Clare Henry Day, President

APPROVED AS TO FORM:

RUTAN & TUCKER, LLP

By: David B. Cosgrove
General Counsel

Dated: _____

CEMEX CONSTRUCTION MATERIALS PACIFIC, LLC

By: _____
V.P.

State of ~~California~~ Arizona

County of ~~Orange~~ Maricopa

Subscribed and sworn to (or affirmed) before me on this 20th day of October, 2011, by OSCAR FRIAS, proved to me on the basis of satisfactory evidence to be the person(s) who appeared before me.

VICKI L. MAJORS
Notary Public - State of Arizona
MARICOPA COUNTY
My Comm. Expires Aug. 30, 2013

Seal: _____

Signature Vicki L. Majors

State of California

County of ~~Orange~~ San Bernardino

Subscribed and sworn to (or affirmed) before me on this 21 day of October, 2011, by Claire Mary Day, proved to me on the basis of satisfactory evidence to be the person(s) who appeared before me.

Seal: GUAY P WILSON

Signature _____

GUAY P. WILSON
COMM. # 1917449
NOTARY PUBLIC - CALIFORNIA
SAN BERNARDINO COUNTY
My Comm. Expires May 9, 2013

State of California

County of ~~Orange~~ San Bernardino

Subscribed and sworn to (or affirmed) before me on this 31 day of October, 2011, by Chris J. Terry, proved to me on the basis of satisfactory evidence to be the person(s) who appeared before me.

Seal: GUAY P WILSON

Signature

GUAY P. WILSON
COMM. # 1847449
NOTARY PUBLIC - CALIFORNIA
SAN BERNARDINO COUNTY
My Comm. Expires May 3, 2013

State of California

County of ~~Orange~~ San Bernardino

Subscribed and sworn to (or affirmed) before me on this _____ day of _____, 2011, by _____, proved to me on the basis of satisfactory evidence to be the person(s) who appeared before me.

Seal: _____

Signature _____

Exhibit "A"

Legal Descriptions of: "PREMISES" Properties

	Approx. Acres
Parcel I-1: (Portion of WCD Parcel 11-2) North one-half of the North one-half of Section 11, T. 1 S. R. 3 W., SBB&M, excepting thereform the North 40 feet.	155
Parcel I-2: (Portion of WCD Parcel 11-1) South one-half of the Southeast Quarter of Section 11, T. 1 S., R. 3 W., SBB&M	80
Parcel I-3: (WCD Parcels 12-2 and 12-3) North one-half of Section 12, T. 1 S., R. 3 W., SBB&M, except that portion lying northeasterly of the southwesterly right-of-way of the AT&SFe Railroad.	143
Parcel I-3a: (WCD Parcel 12-3) Three rights-of-way 80 feet wide across the AT&SFe right-of-way in the Southwest Quarter of the Northeast Quarter of said Section 12, as described in the deed from Charles Elliott to the San Bernardino & Eastern Railway Company	

Recorded December 15, 1891
Book 144, page 16 of Records of
San Bernardino County, California.

Parcel II-A: (Portion of WCD Parcel 11-2) East one-half of the South one-half of the North one-half of Section 11, T. 1 S., R. 3 W., SBB&M	80
Parcel II-B: (WCD Parcel 11-3) North one-half of the Northwest Quarter of the Southwest Quarter of Section 11, T. 1 S., R. 3 S., SBB&M	20
Parcel II-C: (WCD Parcel 11-4) Northeast Quarter of the Southwest Quarter of Section 11, T. 1 S., R. 3 W., SBB&M	40

Saving and excepting from the above parcels the main canal of lessor which crosses the property in an east-west direction and reserving unto lessor an easement 40 feet wide across the property adjacent to the Southerly boundary.

Parcel II-D: (Portion of WCD Parcel 10-2)

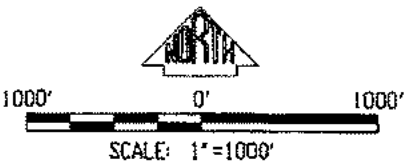
A non-exclusive easement across the North 60 feet of the North one-half of the Southeast Quarter of Section 10, T. 1 S., R. 3 W., SBB&M.

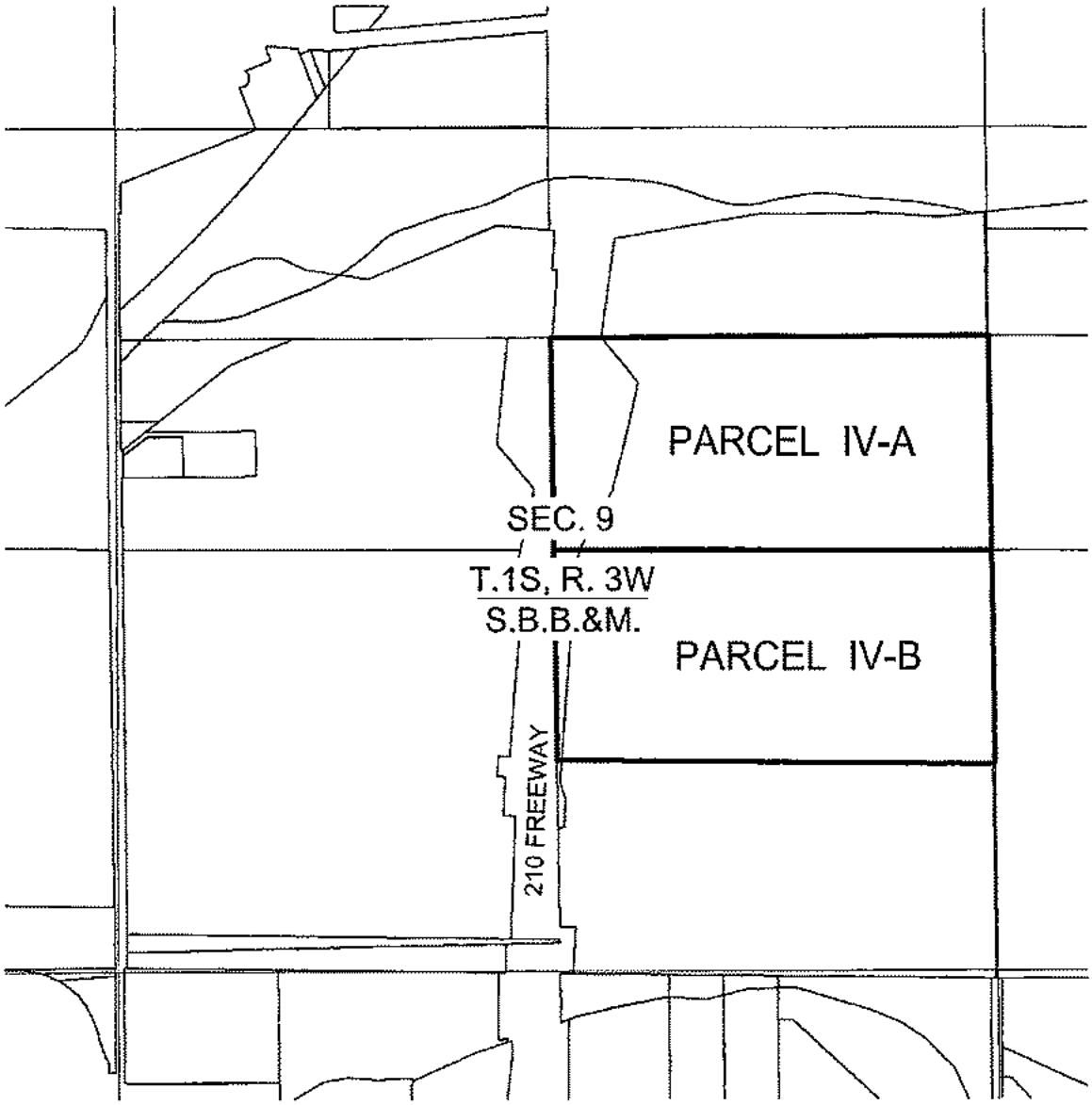
	Approx. Acres
Parcel II-E: (Portion of WCD Parcel 11-2) West one-half of the South one-half of the North one-half of Section 11, T. 1 S., R. 3 W., SBB&M	80
Parcel III-A: (Portion of WCD Parcel 11-1) The North one-half of the Southeast Quarter of Section 11, T. 1 S., R. 3 W., SBB&M	80
Parcel III-B: (WCD Parcel 10-2) The North one-half of the Southeast Quarter of Section 10, T. 1 S., R. 3 W., SBB&M, except the westerly 130+ feet thereof.	75
Parcel IV-A: (WCD Parcel 9-2) South one-half of the Northeast Quarter of Section 9, T. 1 S., R. 3 W., SBB&M.	80
Parcel IV-B: (Portion of WCD Parcel 9-1) North one-half of the Southeast Quarter of Section 9, T. 1 S., R. 3 W., SBB&M.	80

EXHIBIT "B"

SHEET 1 OF 4

NOV. 15, 2011





SEE SHEET 2 OF 4

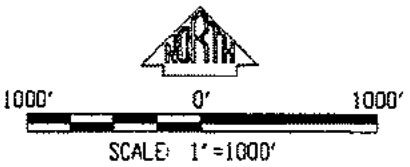
JOSEPH E. BONADIMAN & ASSOCIATES INC.
consulting engineers land surveyors
234 N. Arrowhead Ave., San Bernardino, CA. 92408
Phone: (909)885-3806 Fax: (909)381-1721

EXHIBIT "B"

(CONTINUED)

NOV. 15, 2011

SHEET 2 OF 4



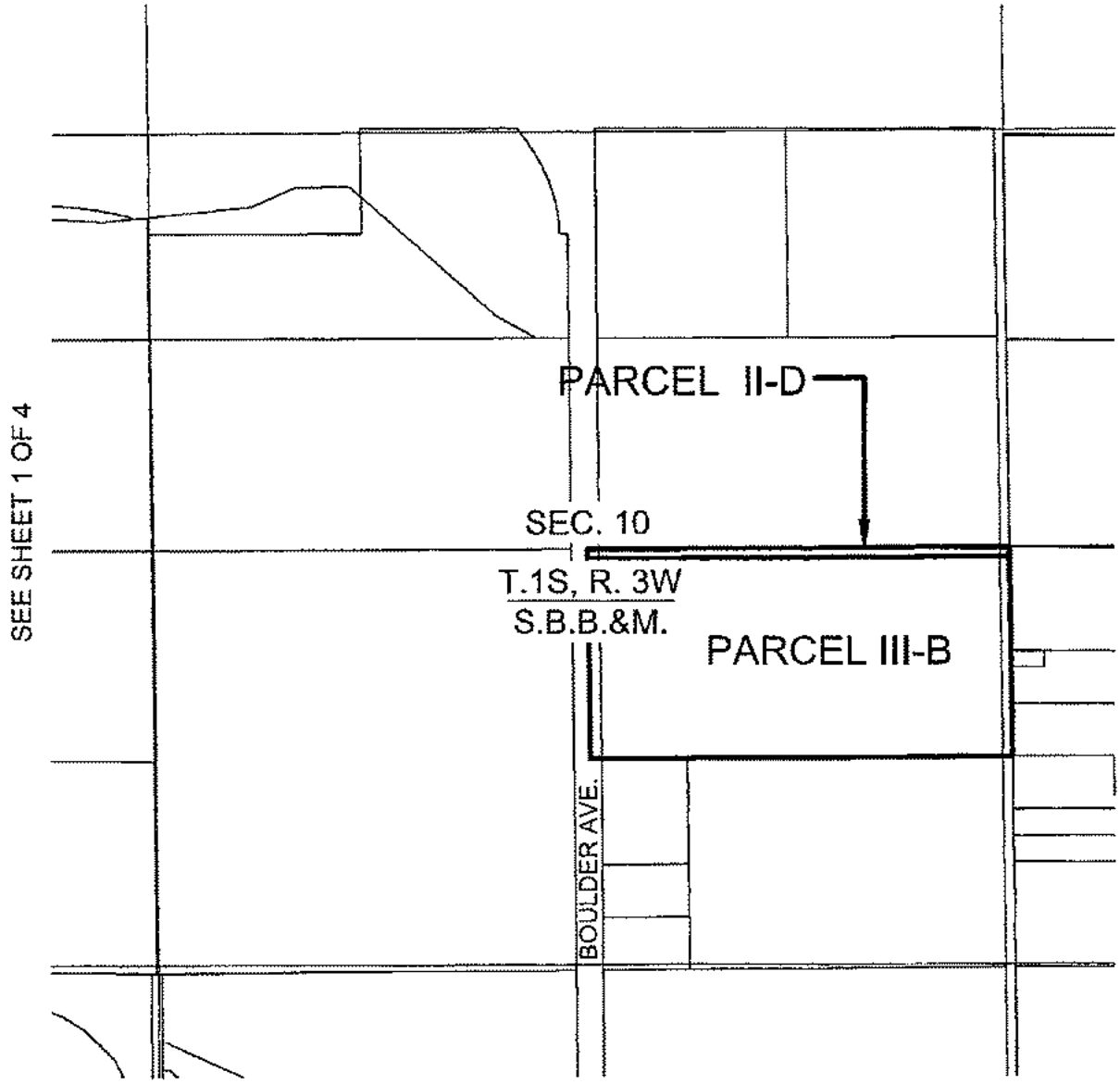


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EXHIBIT "B"

(CONTINUED)

NOV. 15, 2011

1000' 0' 1000'

SCALE: 1" = 1000'

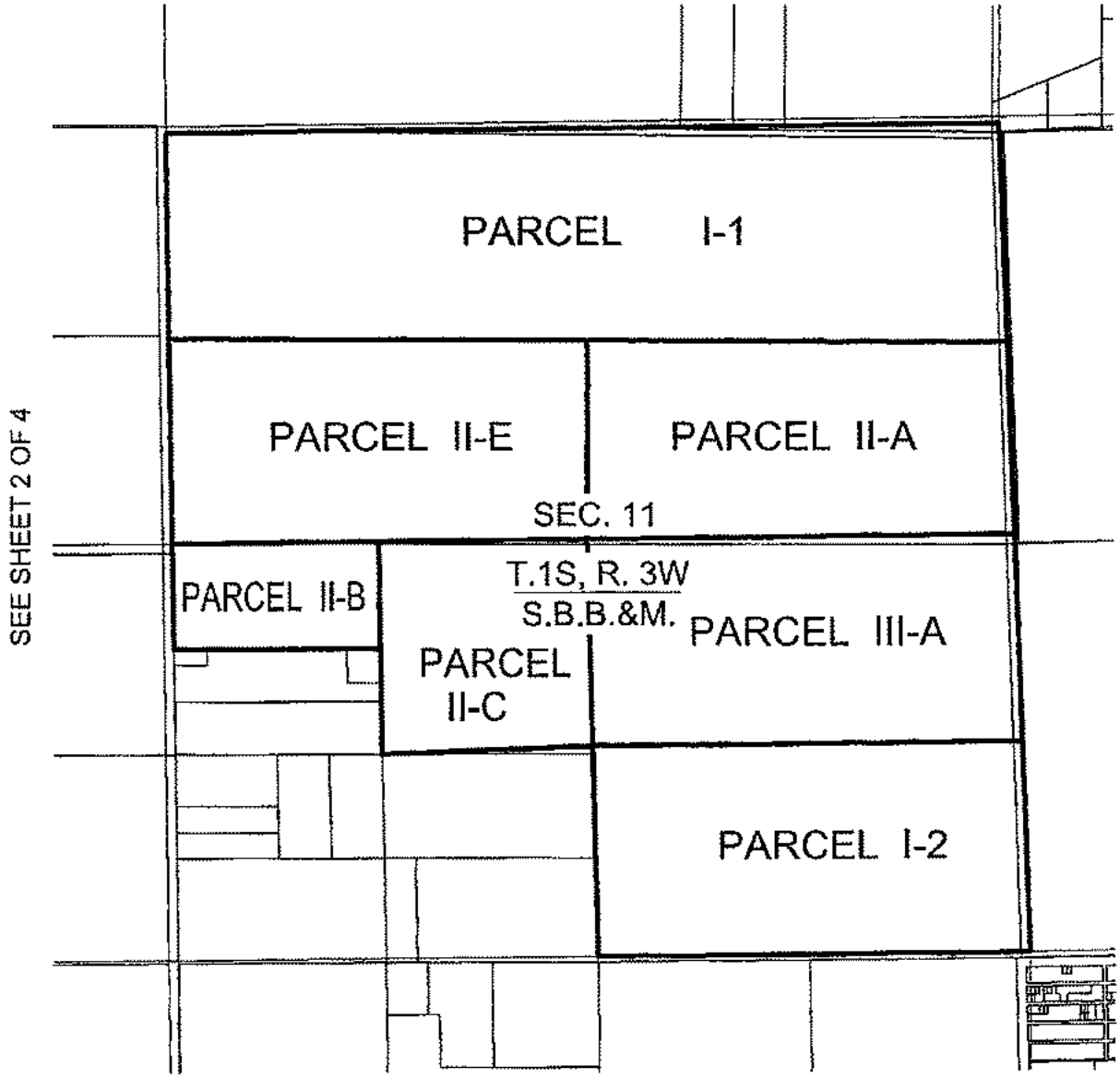

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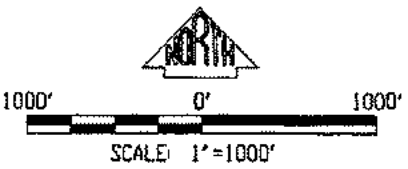
EXHIBIT "B"

(CONTINUED)

NOV. 15, 2011

SHEET 4 OF 4



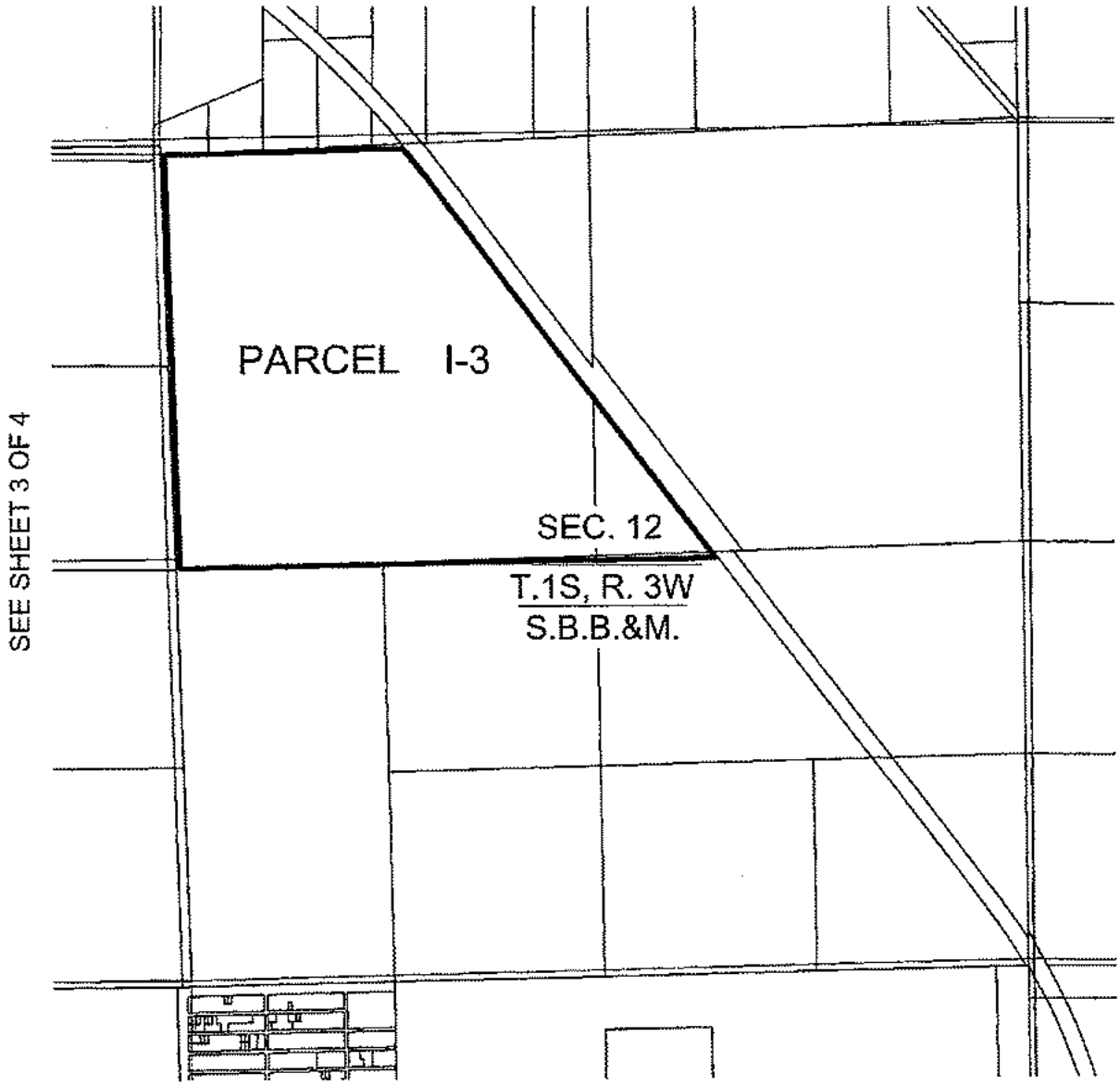


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EXHIBIT "C"

"SILT DEPOSIT AREA"

NOV. 15, 2011

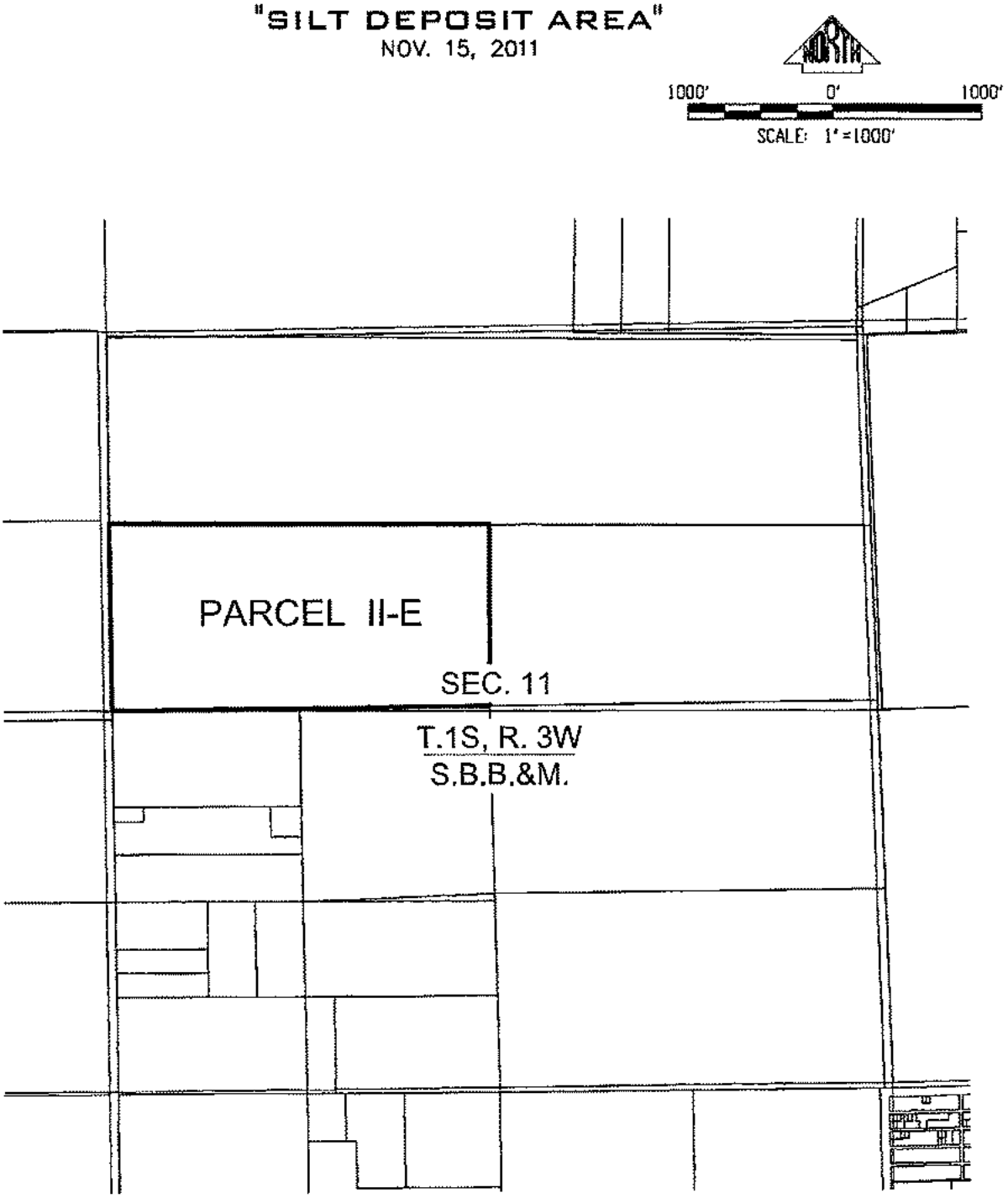

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EXHIBIT "D"

"ORANGE STREET PLANT SITE"

NOV. 15, 2011

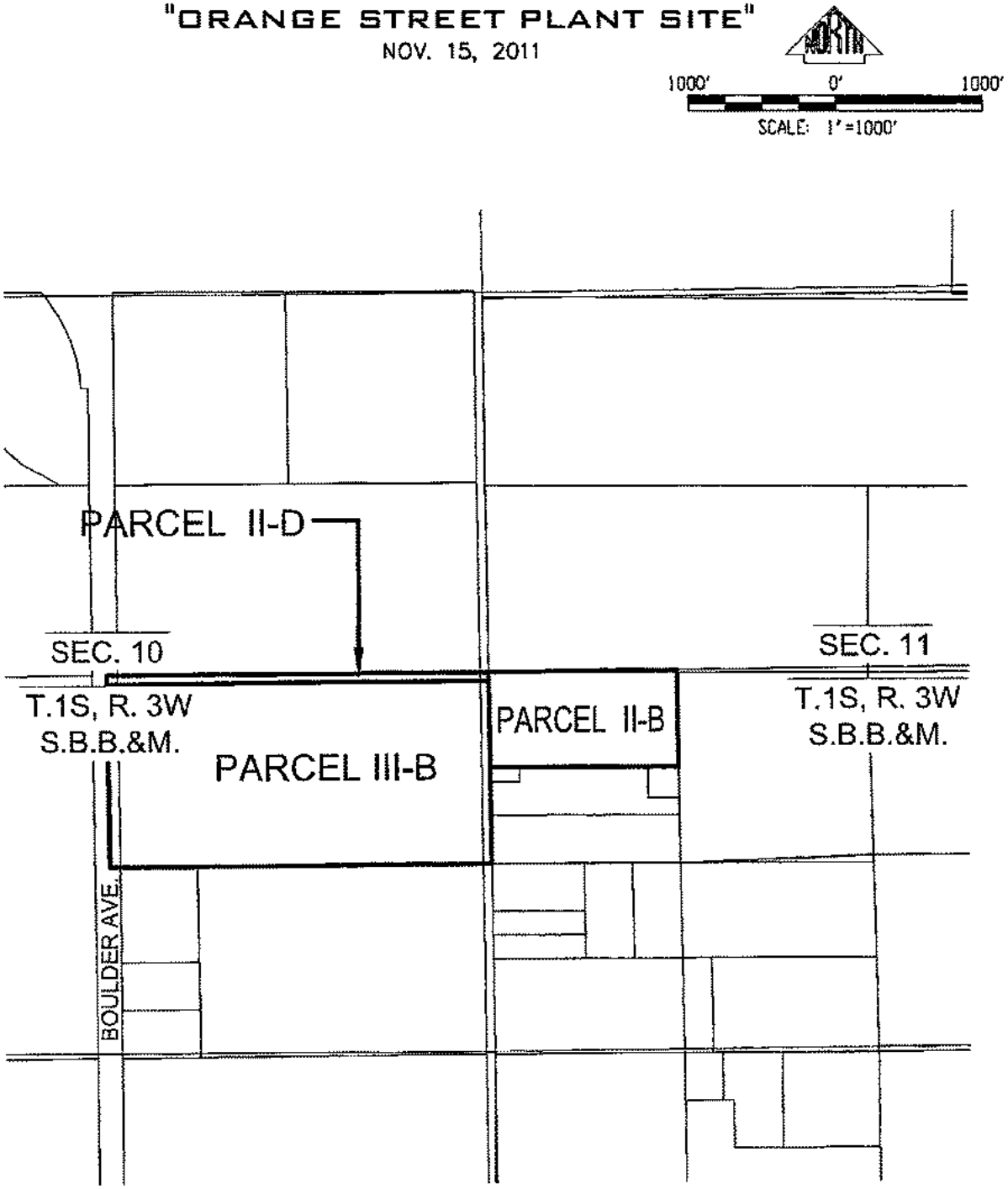

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EXHIBIT "E"

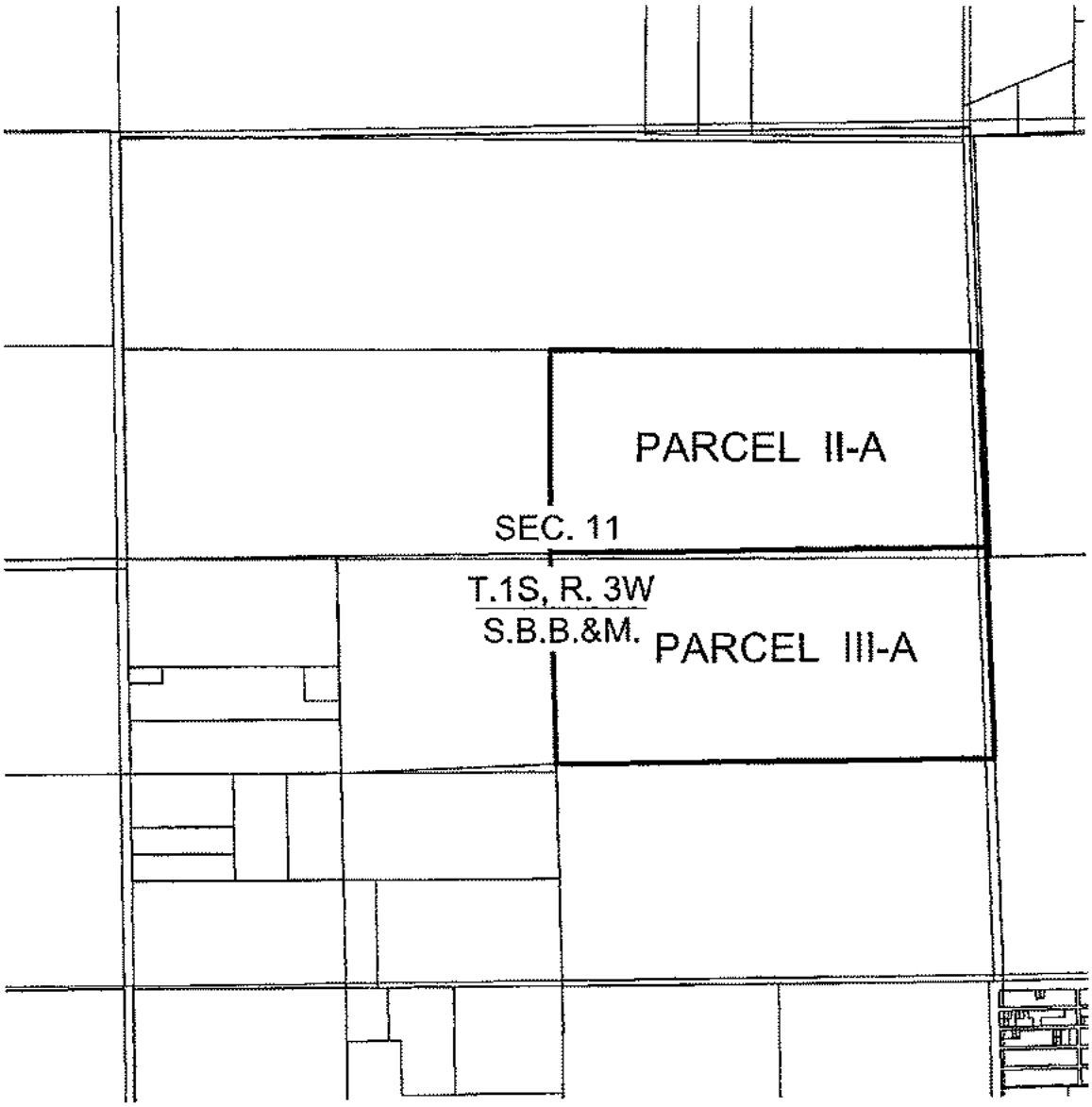
"REDLANDS AGGREGATES SITE"

NOV. 15, 2011

NORTH

1000' 0' 1000'

SCALE: 1" = 1000'



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consulting engineers land surveyors

234 N. Arrowhead Ave., San Bernardino, CA. 92408
Phone: (909)885-3806 Fax: (909)381-1721

Exhibit 4

Roberton's Ready Mix Lease

AGREEMENT

This Agreement is made on this 11th day of August, 2003, by and between San Bernardino Valley Water Conservation District ("District") and Robertson's Ready Mix, Ltd., ("Robertson's"), together "Parties" or individually, "Party".

RECITALS

A. District is a California water conservation district duly formed and operating under Sections 74000, et seq., of the California Water Code, and operating as a water conservation district, having as a purpose the recharge of ground water supply and maintenance of groundwater basins underlying its jurisdiction area.

B. Robertson's is a California limited partnership, duly formed and organized pursuant to the laws of the State of California, with its principal place of business in Corona, California. Robertson's engages in the business of excavating, processing, and selling rock, sand, gravel and other like substances ("Aggregates").

C. On or about October 5, 1992, the Parties entered into a Lease Agreement for Mineral Extractions ("Cone Camp Lease") pursuant to which Robertson's, on the satisfaction of certain conditions, would have the right to extract Aggregates from that property defined as the "Premises" in the Cone Camp Lease, and commonly referred to as "Cone Camp Quarry." A copy of the Cone Camp Lease is appended hereto, denoted Exhibit "A".

D. Some time in or about 1993, the Parties, together with other entities interested in mining, flood control, resource management and conservation, and municipalities, formed the Santa Ana River Wash Area Coordinated Planning Activities Committee ("Wash Committee") to address land use issues related to the Upper Santa Ana River Wash ("Wash").

E. The Wash Committee examined the most appropriate manner in which to use the Wash for the benefit of all landowners without regard to the existing interests in real property situated in the Wash. The Wash Committee determined that there should be a balance of land uses to accommodate the varied and competing concerns. The Wash Committee further determined that in order to achieve land use balance, the existing and potential uses must be reallocated among specific portions of the Wash.

F. Deliberations of the Wash Committee resulted in the drafting, circulation, and approval of a "Proposed Land Management and Habitat Conservation Plan for the Upper Santa Ana River Wash" ("Concept Plan"), which sets out concepts for realignment of mining, water conservation, recreation, habitat preservation, and other uses in the Santa Ana River Wash and was conceptually endorsed by all members of the Wash Committee, including the Parties. A copy of the Concept Plan as presently conceived is attached as Exhibit "B." This Concept Plan is subject to revision as the parties impacted continue to refine and negotiate its parameters. Implementation of the Concept Plan, as it may evolve over time, will require the formation of a Task Force, of which the Parties shall be members, to fund studies for environmental review of proposed mining, transfer of various property ownerships and lease interests, habitat conservation plans, recreational facilities, regional infrastructure, and water supply and conservation activities, and to implement such activities. A Task Force Agreement has been

prepared and circulated among applicable Wash Committee members, including the Parties, to guide and fund implementation of the Concept Plan. It has been reviewed and approved by the Parties, in the form attached hereto as Exhibit "C," and shall be executed by the Parties upon or prior to execution of this Agreement.

G. The Parties have found and determined that it is in their individual best interests to join together with other members of the Task Force to manage activities in connection with the planning, environmental review, and implementation of the Concept Plan (collectively the "Project").

H. The Cone Camp Lease requires that Robertson's "diligently and continuously take all actions necessary to obtain any and all licenses, permits, or other governmental entitlements.... required to accomplish the excavation purpose set out [therein]". There is currently pending before the city of Highland Robertson's application ("Cone Camp Application") for entitlements to mine Aggregates from the Cone Camp Quarry.

I. Robertson's has represented to the District that it has reached an agreement with Cemex Construction Materials, LP ("Cemex"), an entity engaged in business similar to that in which Robertson's is engaged, concerning the allocation, between Robertson's and Cemex, of the right to extract Aggregates from property which is contemplated for the excavation of Aggregates under the Concept Plan.

NOW, THEREFORE, IN CONSIDERATION OF THE MUTUAL COVENANTS CONTAINED HEREIN THE PARTIES AGREE AS FOLLOWS:

Section 1. Definitions.

In addition to capitalized terms defined elsewhere in this Agreement, the following terms shall be defined as follows:

1.1 "Effective Date" shall mean the date on which both Parties have executed the Task Force Agreement and this Agreement.

1.2 "Section," except as may be qualified to refer to the Cone Camp Lease, shall be deemed to be a reference to a portion of this Agreement.

1.3 "WPA" shall mean the Wash Planning Area, as that term is used and defined in the Concept Plan.

1.4 "Robertson's WPA Allocation" shall mean that portion of the WPA which is allocated, through written agreement between Robertson's and Cemex attached as Exhibit "D", to Robertson's for the mining of Aggregates. Robertson's agrees it must obtain approval from District for any substantial changes to this allocation prior to such changes being effective. Any change within the land acreage specifically dimensioned in Exhibit "D" as 1847' x 1303', that does not change the amount allocated to Robertson's for mining by more than 50% of the area of that dimensioned parcel, shall not constitute a substantial change; all other changes to the allocation agreement shall be considered substantial. The "Robertson's WPA Allocation" specifically excludes the real property located within the WPA and owned by Robertson's,

and/or its affiliate RRM Properties, Ltd., A California limited partnership, in fee as of the Effective Date.

1.5 "Premises Transfer Date" shall occur upon transfer of ownership of interest to the District of those portions of the WPA that fall within Robertson's WPA Allocation, and which, as of the date of this Agreement, are owned by the United States, through the Bureau of Land Management.

1.6 "Concept Plan Termination Date" shall mean any date prior to the Premises Transfer Date upon which either Party's participation in the Task Force Agreement shall have been finally terminated, as provided in Paragraph 23 of the Task Force Agreement, or upon dissolution of the Task Force pursuant to Paragraph 22 of the Task Force Agreement. Upon occurrence of the Premises Transfer Date, there shall be no Concept Plan Termination Date.

1.7 "Concept Plan Term" shall mean the period between the Effective Date and the occurrence of the earlier of the (1) Concept Plan Termination Date; or (2) Premises Transfer Date.

Section 2. Obligations During Concept Plan Term.

2.1 Prosecution of Concept Plan. The Parties, and each of them, agree that for so long as the Concept Plan, as may be modified consistent with the provisions of Section 2.3, below, but otherwise in substantially the same form as set forth in the Task Force Agreement, is being diligently and in good faith pursued, they will not, prior to January 1, 2006, terminate their participation under the Task Force Agreement pursuant to Paragraph 23 of the Task Force Agreement. Notwithstanding the foregoing, in the event that prior to January 1, 2006, Robertson's contribution to the total Task Force funding exceeds that required to be paid by CEMEX, or exceeds, by more than 0.25 percent of the total Task Force funding, that required to be paid by the District, Robertson's shall be free to exercise its rights of termination under Paragraph 23 of the Task Force Agreement. . During the Concept Plan Term each of the Parties shall use their best efforts to achieve the Premises Transfer Date; provided, however, that neither Party shall be considered to be in breach of this provision unless a party who believes that a breach has occurred first provides to the other Party written notice informing the notified Party of the specific nature of the alleged breach of this provision, the reasons therefore, the actions the notifying Party alleges must be taken to cure the alleged breach and provides to the noticed Party either, (a) reasonable opportunity to cure the breach, or (b) in the event the breach is of the nature that a cure cannot be promptly effected, reasonable opportunity to prepare and prosecute a plan pursuant to which the breach will be cured, or (c) in the event the alleged breach is one that cannot be cured, a good faith effort to meet and confer regarding whether mutually satisfactory alternative arrangements can be made. In the event of any dispute regarding either Party's alleged breach of this "best efforts" obligation, the matter shall be resolved through the binding arbitration mechanism set forth in Section 8.06 of the Cone Camp Lease.

2.2 Suspension of Robertson's Duty to Obtain Permits. During the Concept Plan Term, Robertson's obligations pursuant to paragraph 5.05 of the Cone Camp Lease, to diligently and continuously take all actions necessary to obtain any and all licenses, permits, or other governmental entitlements required to accomplish the excavation purpose set out in the Cone

Camp Lease, shall be suspended. Such suspension shall begin on the Effective Date and shall continue until the earlier occurrence of: A) the Premises Transfer Date or B) the Concept Plan Termination Date. Robertson's shall not pursue such licenses, permits, or other governmental entitlements for any excavation of any portion of the "Premises," as originally defined in the Cone Camp Lease, at any time during the Concept Plan Term.

2.3 District to Support Robertson's Attempt to Amend Concept Plan. Robertson's has advised District that during the Concept Plan Term, Robertson's will seek Task Force Approval to amend the present iteration of the Concept Plan, to expand the Concept Plan mining area to include additional property owned by Robertson's. District agrees that it will support Robertson's attempt to so amend the Concept Plan, provided it is consistent with District's water conservation and land management objectives.

2.4 Incorporation of Defined Terms into Cone Camp Lease. Beginning on the Effective Date hereof, the following terms, as they are defined herein, shall be deemed incorporated, as applicable, into the Cone Camp Lease: Premises Transfer Date, Concept Plan Term; Concept Plan Termination Date; Robertson's WPA Allocation; and Cone Camp Quarry.

Section 3. Rights and Obligations on Premises Transfer Date

3.1 Transfer of Premises. The Premises shall, upon the Premises Transfer Date, immediately and automatically be deemed to mean and refer to the Robertson's WPA Allocation and the Cone Camp Lease shall no longer apply to the Cone Camp Quarry. Upon the Premises Transfer Date, the parties shall prepare, and may record, such documents as may be necessary or appropriate to reflect the proper legal descriptions or other identification of the transferred Premises, but the transfer of the Premises from the area originally defined in the Cone Camp Lease to the Robertson's WPA Allocation shall not be conditioned or dependent upon such documentation, but rather shall occur immediately upon occurrence of the Premises Transfer Date.

3.2 Revival of Robertson's Duty to Obtain Permits on Premises Transfer Date. Immediately upon the Premises Transfer Date, Robertson's obligations pursuant to Section 5.05 of the Cone Camp Lease, to diligently and continuously take all actions necessary to obtain any and all licenses, permits, or other governmental entitlements required to accomplish the excavation purpose set out in the Cone Camp Lease, shall revive, and shall apply to the Robertson's WPA Allocation, as provided in Section 3.1 of this agreement.

3.3 Commencement Date on Premises Transfer Date. Immediately upon occurrence of the Premises Transfer Date, Section 1.01 of the Cone Camp Lease shall be automatically amended to read as follows:

> 1.01 Commencement Date. The Commencement Date of the Lease Term shall be the date sixty (60) days after occurrence of the Premises Transfer Date.

In applying the foregoing provision it is the intention of the Parties that in the event that Premises Transfer Date does not occur by January 1, 2007, the Cone Camp Lease shall not be terminated, but shall survive, subject to modification triggered by the happening of either Premises Transfer Date or Concept Plan Termination Date.

Section 4. Rights and Obligations on Concept Plan Termination Date.

4.1 Revival of Robertson's Duty to Obtain Permits on Concept Plan Termination Date. Immediately upon the Concept Plan Termination Date, Robertson's obligations pursuant to Section 5.05 (A) of the Cone Camp Lease, to diligently and continuously take all actions necessary to obtain any and all licenses, permits, or other governmental entitlements required to accomplish the excavation purpose set out in the Cone Camp Lease, shall revive.

4.2 Commencement Date on Concept Plan Termination Date. Immediately upon occurrence of the Concept Plan Termination Date, Section 1.01 of the Cone Camp Lease shall be amended to read as follows:

> 1.01 Commencement Date. The Commencement Date of the Lease Term shall, at Robertson's election, either be (x) the date sixty (60) days after the Concept Plan Termination Date, or (y) January 1, 2003, provided, however, that in no event shall District be required to refund any portion of the Phase I Payment before the expiration of one (1) full year following the date Robertson's provides to District written notice of its election hereunder. Robertson's election shall be made in writing and delivered to District prior to the 60th day following Concept Plan Termination Date.

In applying the foregoing provision it is the intention of the Parties that in the event that Concept Plan Termination Date does not occur by January 1, 2007, the Cone Camp Lease shall not be terminated, but shall survive, subject to modification triggered by the happening of either Premises Transfer Date or Concept Plan Termination Date.

Section 5. Mancino Property. Effective immediately upon the Effective Date, the original Cone Camp Lease shall be amended to exclude from the definition of "Premises" therein, all of the property more specifically described in Exhibit "E" hereto (the "Mancino Property").

Section 6. Waiver. Each of the Parties herein fully waives its right to claim that any act, omission, or inaction of the other Party, prior to the Effective Date, constituted: (a) a breach of any of the provisions of the Cone Camp Lease, or any obligation arising thereunder or in connection therewith, or (b) any basis for reformation or rescission of all or any part of the Cone Camp Lease, for which any relief, legal or equitable, and specifically, but not by way of limitation, monetary damages, were or could have been available, either as affirmative relief, or as an offset against any other claim. This waiver extends to all claims or causes of action, whether presently known or unknown, and in connection with such waiver, both parties specifically waive any operation or applicability of California Civil Code section 1542, which provides:

> "A general release does not extend to claims which the creditor does not know or suspect to exist in his favor at the time of executing the release, which if known by him must have materially affected his settlement with the debtor."

Each Party represents and warrants it has consulted with counsel regarding the nature and consequences of waiving the operation of Civil Code section 1542, and knowingly and willingly has decided to waive it.

Section 7. No Obligation on Robertson's to Transfer. Robertson's execution of this Agreement, its execution of the Task Fore Agreement, anything expressed or implied in either document, and/or its participation in advancing the Concept Plan, whether taken individually or collectively in any combination, shall not be construed or interpreted to require Robertson's to transfer, encumber or agree to any use restrictions being placed upon any real property Robertson's owns in fee on the Effective Date; or to cause any such real property be transferred, encumbered, or restricted as to use. Nothing in this Section 7 affects or relieves Robertson's obligation to transfer the Premises, as provided in section 3 above, however.

Section 8. Notices. All notices required to be provided hereunder, shall be in writing, and either served personally or sent by United States Mail. For these purposes, the addresses for the Parties are as follows:

As to Robertson's Ready Mix, Ltd.	As to District
President Robertson's Ready Mix, Ltd. 200 South Main Street Suite 200 Corona CA 92878	General Manager San Bernardino Valley Water Conservation District 1630 West Redland Blvd., Suite A Redlands CA 92373

Notices shall be deemed delivered on the date of personal service or on the third day following deposit in the United States Mail. Any Party may change the address or person to whom notices are to be directed hereunder, by written notice to the other Party.

Section 9. Entire Agreement. This Agreement, in connection with the unaffected portions of the original Cone Camp Lease, contains the entire agreement of the Parties hereto with respect to the matters contained herein and supersedes all negotiations, prior discussions, and preliminary agreements or understandings, written or oral. No waiver or modification of this Agreement shall be binding unless consented to by the Parties in writing.

Section 10. Cooperation; Further Acts. The Parties agree to use reasonable care and diligence to perform their respective obligations under this Agreement. The Parties agree to act in good faith to execute all instruments, prepare all documents, and take all actions as may be reasonably necessary, appropriate or convenient to carry out the purposes of this Agreement.

Section 11. Governing Law. This Agreement shall be governed by and construed under the laws of the State of California.

Section 12. Attorneys' Fees. In an action or proceeding involving a dispute between the Parties arising out of this Agreement, including arbitration, the prevailing Party shall be entitled to receive from the other Party, reasonable attorneys' fees. The term "attorneys' fees" shall include reasonable costs for investigating the action, conducting discovery, cost of appeal, costs

and fees for expert witnesses, and all other normally allowable costs incurred in such litigation, whether or not such litigation is prosecuted to final judgment.

Section 13. No Third Party Beneficiaries. There are no intended third party beneficiaries of any right or obligation assumed by the Parties.

Section 14. Construction: Captions. The language of this Agreement shall be construed according to its fair meaning, and not for or against any Party hereto based on authorship. The captions of the various articles and paragraphs are for convenience and ease of reference only, and do not define, limit, augment, or describe the scope, content, or intent of this Agreement.

Section 15. Severability. Each provision of this Agreement shall be severable from the whole. If any provision of this Agreement shall be found contrary to law, it is the intention of the Parties that the remainder of this Agreement shall continue in full force and effect.

Section 16. Incorporation of Recitals. The Recitals are incorporated herein and made an operative part of this Agreement.

Section 17. Authority to Enter into Agreement. The Parties warrant they have all requisite power and authority to execute and perform this Agreement. Each person executing this Agreement on behalf of their party warrants that he or she has the legal power, right, and authority to make this Agreement and bind his or her respective Party, and that in so doing, such Party is not thereby in breach of any other contract or agreement.

Section 18. Counterparts. This Agreement may be signed in counterparts, each of which shall constitute an original.

Section 19. Assignment. Neither Party shall assign its rights or delegate its responsibilities hereunder without the express written consent of the other Party, which consent shall not be unreasonably withheld. This Agreement, including the rights of first refusal and options granted hereunder, shall be binding on all successors and is intended to and shall run with the land.

Section 20. Recordation. Within fifteen (15) days of the Effective Date, the Parties shall have this Agreement recorded with the County Recorder for the County of San Bernardino, State of California.

ROBERTSON'S READY MIX, LTD.,
a California limited partnership
By: Robertson's Ready Mix, Ltd.
a California corporation
Its General Partner

By: _____
Dennis Troesh
Its: President

July 29, 2003

Date: 8/11/03

SAN BERNARDINO VALLEY WATER CONSERVATION DISTRICT,
a political subdivision of the State of California

By: _____
Sterling Woodbury

Its: President of the Board of Directors

Date: 8/11/03

State of California)
) ss.
County of Riverside)

On July 29, 2003, ~~2003~~, before me Susan J. Howard, notary public, personally appeared Dennis Troesh, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted executed the instrument.

Witness my hand and official seal

Susan J Howard

SUSAN J. HOWARD
Commission # 1314530
Notary Public - California
Riverside County
My Comm. Expires Jul 20, 2005

State of California)
) ss.
County of Riverside)

On August 11, 2003, before me Colleen E. Theuer, notary public, personally appeared Sterling Woodbury, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted executed the instrument.

Witness my hand and official seal

Colleen E. Theuer

COLLEEN E. THEUER
Commission # 1262640
Notary Public - California
San Bernardino County
My Comm. Expires May 4, 2004

Exhibit List

Description	Designation:
Cone Camp Lease	A
Concept Plan	B
Task Force Agreement	C
Allocation Agreement Between Robertson's and Cemex	D
Legal Description of Portion of Mancino Property Excluded from "Premises" of Original Cone Camp Lease	E

Exhibit 5

2010 State Water Rights Filing

[FINAL SUBMITTED VERSION]

REPORT OF LICENSEE FOR 2010

Primary Owner: SAN BERNARDINO VALLEY W C D
Application Number: A002217
License Number: 002831

Compliance with License Terms and Conditions	
The project has been abandoned and I request revocation of my water right license	No
I have reviewed my water right license	Yes
I am complying with all terms and conditions	Yes
Description of noncompliance with terms and conditions	
Intake location has been changed	
Description of intake location changes	
Type of use has changed	
Description of type of use changes	
Place of use has changed	
Description of place of use changes	

Purpose of Use	
Other	Groundwater Recharge

Month	Amount directly diverted or collected to storage (Acre-Feet)	Amount used (Acre-Feet)
January	241.0	0.0
February	285.0	0.0
March	1412.0	0.0
April	1977.0	0.0
May	1756.0	0.0
June	0.0	0.0
July	0.0	0.0
August	0.0	0.0
September	0.0	0.0
October	0.0	0.0
November	0.0	0.0
December	0.0	0.0
Total	5671	0

Month	Maximum Rate of Diversion (CFS)
January	
February	
March	
April	
May	

June	
July	
August	
September	
October	
November	
December	

Reservoir name	Spilled this year	Feet below spillway at maximum storage	Completely emptied	Feet below spillway at minimum storage	Method used to measure water level
NA	No	0.0	No	0.0	NA

Conservation of Water	
Are you now employing water conservation efforts?	Yes
Description of water conservation efforts	Cooperative Water Recharge for Basin
Amount of water conserved	5671.0 Acre-Feet

Water Quality and Wastewater Reclamation	
During the period covered by this Report, did you use reclaimed water from a wastewater treatment facility, water from a desalination facility, or water polluted by waste to a degree which unreasonably affects the water for other beneficial uses?	No
Amount of reclaimed, desalinated, or polluted water used	

Conjuctive Use of Groundwater and Surface Water	
During the period covered by this Report, were you using groundwater in lieu of available surface water authorized under your license?	No
Amounts of groundwater used	

Additional Remarks
Maximum Rate of Diversion not recorded for 2010 Cooperative Recharge with the Region's water entities occurs additional explanation is shown in the attached file.

Attachments	
File Name	Size
Water Rights Filing Explanaiton Final June 27 2011.pdf	13 KB

Contact Information of the Person Submitting the Form	
First Name	Daniel
Last Name	Cozad
Relation to Water Right	Authorized Official
I read the above and agree	Yes

[FINAL SUBMITTED VERSION]

REPORT OF LICENSEE FOR 2010

Primary Owner: SAN BERNARDINO VALLEY W C D
Application Number: A004807
License Number: 002832

Compliance with License Terms and Conditions	
The project has been abandoned and I request revocation of my water right license	No
I have reviewed my water right license	Yes
I am complying with all terms and conditions	Yes
Description of noncompliance with terms and conditions	
Intake location has been changed	
Description of intake location changes	
Type of use has changed	
Description of type of use changes	
Place of use has changed	
Description of place of use changes	

Purpose of Use	
Other	GROUND WATER RECHARGE

Month	Amount directly diverted or collected to storage (Acre-Feet)	Amount used (Acre-Feet)
January	0.0	0.0
February	0.0	0.0
March	0.0	0.0
April	0.0	0.0
May	0.0	0.0
June	0.0	0.0
July	0.0	0.0
August	0.0	0.0
September	0.0	0.0
October	39.0	39.0
November	0.0	0.0
December	268.0	268.0
Total	307	307

Month	Maximum Rate of Diversion (CFS)
January	0.0
February	0.0
March	0.0
April	0.0
May	0.0

June	0.0
July	0.0
August	0.0
September	0.0
October	0.0
November	0.0
December	0.0

Reservoir name	Spilled this year	Feet below spillway at maximum storage	Completely emptied	Feet below spillway at minimum storage	Method used to measure water level
ASDF	No	0.0	Yes		STICK

Conservation of Water	
Are you now employing water conservation efforts?	Yes
Description of water conservation efforts	Cooperative Groundwater Management with Regional Agencies.
Amount of water conserved	307.0 Acre-Feet

Water Quality and Wastewater Reclamation	
During the period covered by this Report, did you use reclaimed water from a wastewater treatment facility, water from a desalination facility, or water polluted by waste to a degree which unreasonably affects the water for other beneficial uses?	No
Amount of reclaimed, desalinated, or polluted water used	

Conjuctive Use of Groundwater and Surface Water	
During the period covered by this Report, were you using groundwater in lieu of available surface water authorized under your license?	No
Amounts of groundwater used	

Additional Remarks
Maximum Rate of Diversion not recorded for 2010 Cooperative Recharge with the Region's water entities occurs additional explanation is shown in the attached file.

Attachments	
File Name	Size
Water Rights Filing Explanaiton Final June 27 2011.pdf	13 KB

Contact Information of the Person Submitting the Form	
First Name	Daniel
Last Name	Cozad
Relation to Water Right	Authorized Official
I read the above and agree	Yes

SWRCB Annual Water Rights Report

Annotation to Accompany Filings by SBVWCD and SBVMWD/WMWD

During 2010, the San Bernardino Valley Water Conservation District (SBVWCD) and San Bernardino Valley Municipal Water District (SBVMWD)/Western Municipal Water District (WMWD) diverted water at the Cuttle Weir to replenish the groundwater basin. Each agency's season of diversion, total quantity of diversion and water rights are listed in the following table.

Agency	Season of Diversion	Total Quantity of Water Diverted	Water Right
SBVWCD	1/1/10 to 5/31/10	5,671 af	License No. 2831
SBVMWD/WMWD	6/29/10 to 12/31/10*	14,934 af	Permit No. 21264
SBVWCD	10/1/10 to 12/31/10	307 af	License No. 2832

* The State Water Resources Control Board issued Permit No. 21264 on June 29, 2010.

Diversion of approximately 882 acre feet to replenish the groundwater basin were shifted outside the Season of Diversion due to operations of the Seven Oaks Dam by the USACOE and are not being accounted for in this table. Such diversions occurred under water rights, jointly utilized under the Santa Ana River and Mill Creek Cooperative Water Project.

Additionally, SBVMWD/WMWD and SVBWCD are finalizing negotiations to expand our contractual relationships to cooperatively utilize and expand District facilities to maximize the water diverted for recharge jointly under these permits and licenses. Notwithstanding our intentions, should these negotiations for cooperative agreement not be fruitful, both districts may need to revise their filings.

AGREEMENT FOR THE COOPERATIVE USE OF UNUSED WELL CAPACITY, THE TEXAS GROVE RESERVOIR AND THE CENTRAL FEEDER

This Agreement for the Cooperative Use of Unused Well Capacity, the Texas Grove Reservoir and the Central Feeder ("Agreement") is entered into and effective this 2nd day of April , 2013 ("Effective Date") by and between the City of Redlands ("City") and San Bernardino Valley Municipal Water District ("Valley District"). City and Valley District are sometimes individually referred to herein as a "Party" and, together, as the "Parties."

Recitals

A. City owns the 3.9 million gallon Texas Grove Reservoir, which is shown on the map attached hereto as Exhibit "A" and incorporated herein by reference. The Texas Grove Reservoir is located adjacent to the Valley District Redlands Pump Station.

B. Valley District desires to purchase 2.3 million gallons of capacity in the existing City of Redlands' Texas Grove Reservoir which is already intertied with the Valley District Central Feeder system.

C. City is willing to sell Valley District 2.3 million gallons of capacity in the Texas Grove Reservoir.

D. City owns various water wells that deliver water to the Texas Grove Reservoir.

E. Valley District has constructed the Central Feeder Project Phase 1, which includes the Redlands Pump Station and a 78-inch pipeline (the "**Central Feeder**") that connects to the Metropolitan Water District of Southern California's Inland Feeder Pipeline and the East Branch Extension of the State Water Project. The Central Feeder is shown on the map attached hereto as Exhibit "A." Valley District further intends to construct new wells in the San Bernardino Basin Area (the "**SBBA**"), in, or upstream of, the Area of Historic High Groundwater (the "**AHHG**" or the "**Pressure Zone**") that could deliver water to the Central Feeder.

F. From time to time, Valley District intends to use its proposed wells to dewater the AHHG during periods when the Boards of Directors for Valley District and Western Municipal Water District (**"Western"**) agree additional extractions are needed to mitigate the risks associated with high groundwater which include the flooding of basements and the increased risk of property damage and personal injury from soil liquefaction during an earthquake. These Valley District wells may also be used to extract: (i) State Water Project water that has been "banked" in the SBBA, (ii) Western's portion of Santa Ana River water diverted and stored in the SBBA under State Water Resources Control Board permits 21264 and 21265, or (iii) "new conservation water," as defined in the *Western* Judgment (*Western Municipal Water District et al. v. East San Bernardino County Water District et al.*, Riverside County

SBVMWD LEGAL
DOCUMENT 2392

Superior Court Case No. 78426, April 17, 1969) and determined by the Western-San Bernardino Watermaster that is banked in the SBBA. Additionally, Valley District intends to consult with other water agencies with interests in the SBBA, by working with the Basin Technical Advisory Committee, in order to ensure Valley District and Western Boards of Directors are provided with the most up-to-date technical information upon which to base decisions.

G. To postpone the need to construct its own wells and related transmission pipelines, Valley District desires to utilize the City's water wells when the City is not using such wells (unused capacity) to pump and deliver water to the Central Feeder via the Texas Grove Reservoir and Redlands Pump Station.

H. City wishes to make its unused water well capacity available to Valley District provided that it does not cause lower water levels and, thereby, increase pumping costs for City's own customers nor cause water quality degradation for Total Dissolved Solids ("**TDS**") in the SBBA that causes Redlands Wastewater Treatment Plant discharges to exceed permitted concentrations.

I. City and Valley District, in addition to other parties, entered into the "Settlement Agreement Relating to the Diversion of Water From the Santa Ana River System (the "**Seven Oaks Accord**")" on July 21, 2004. One of the provisions of the Seven Oaks Accord provides for participation in a "groundwater spreading program" that would, among other things, maintain groundwater levels at relatively constant levels in the SBBA.

J. Valley District and the Santa Ana Regional Water Quality Control Board entered into the "Cooperative Agreement to Protect Water Quality and Encourage the Conjunctive Uses of Imported Water in the Santa Ana River Basin" (the "**RWQCB Agreement**") on January 16, 2008, which requires preparation of a report on water quality conditions in the SBBA every three years.

K. City and Valley District wish to cooperate in the operation of facilities for the mutual benefit of the Parties.

Agreements

1. *Valley District Purchase of Storage Rights in the Texas Grove Reservoir*

   a. *Storage Rights.* City hereby sells, and Valley District hereby purchases, all rights to the use of the upper 2.3 million gallons of usable storage capacity in the existing Texas Grove Reservoir, for the life of the reservoir, which capacity is understood by the Parties to be at, or above, elevation 1338.9 feet MSL NGVD. City shall retain all storage rights to the use of that portion of the Texas Grove Reservoir below elevation 1338.9 feet MSL NGVD. Neither Party shall interfere

with the other Party's use of its share of the storage capacity of the Texas Grove Reservoir, unless such storage capacity is needed to meet fire fighting demands by City. In such instances, City shall have the right to use all water available in the Texas Grove Reservoir. City shall cooperate with Valley District and allow Valley District to construct City-approved facilities necessary to utilize Valley District's full storage rights in the Texas Grove Reservoir.

b. *Payment by Valley District for Storage Rights.* Valley District shall pay City the sum of $2,168,426 for the rights described in paragraph 1a within 30 calendar days after the Effective Date of this Agreement. Valley District will make such payment by electronic funds transfer into a fund approved by City. City shall provide Valley District with a written receipt, acknowledging payment in full, within 7 calendar days of the electronic funds transfer.

c. *Operation and Maintenance.* City shall be responsible for the day to day operation and maintenance of the Texas Grove Reservoir, except for the 42-inch nozzle connecting the Texas Grove Reservoir to Valley District's Redlands Pump Station which shall be the responsibility of Valley District.

(1) *Ordinary Operation and Maintenance.* City shall operate the Texas Grove Reservoir in accordance with the terms of this Agreement and in accordance with good engineering practices, including normal maintenance of the reservoir.

(2) *Substantial Work.* In the event City determines, in its reasonable engineering judgment, that substantial work (i.e., more than $50,000 in a calendar year) is needed to properly maintain the Texas Grove Reservoir, City shall promptly consult with Valley District and, before commencing any work, City shall give written notice to Valley District of: (i) the work to be performed, (ii) the estimated cost of the proposed work, and (iii) the contractor(s) that will perform work. City may only commence such work upon receipt of written approval from Valley District, which approval shall not be unreasonably withheld or delayed.

(3) *Emergency Circumstances.* Nothing in paragraph 1c(2) shall be construed to prevent City from taking any action it reasonably believes necessary in the event of an emergency. City shall notify Valley District of the existence of an emergency as soon as reasonably possible and shall, to the extent feasible under the circumstances, coordinate a response with Valley District.

(4) *Reimbursement by Valley District.* Valley District shall reimburse City for 63% of the costs to operate and maintain the Texas Grove Reservoir, as determined based on the calculations attached hereto as Exhibit "B" and

entitled "City of Redlands Reservoir #1 (Texas Grove Reservoir)." Reimbursable costs shall include, but not be limited to, actual and reasonable costs of City staff, consultants and contractors for operating and maintaining the Texas Grove Reservoir.

(5) *Invoices to Valley District.* City shall invoice Valley District for such operation and maintenance costs quarterly in arrears and Valley District shall pay such invoices within 30 calendar days of the date of the invoice. Invoices shall indicate, in reasonable detail, the cost of each action undertaken by City to operate and maintain the Texas Grove Reservoir, including the date of the service, the individuals performing the service, the hourly rate of such individuals, and the costs of any materials. In the event Valley District objects to any costs identified on an invoice, Valley District shall pay the undisputed costs and shall invoke the dispute resolution process described in paragraph 10c below for the objectionable costs.

2. *Term of Agreement.* This Agreement shall have an initial term of five years from its Effective Date and shall automatically renew for subsequent five-year terms thereafter unless terminated as provided for in paragraph 8 below.

3. *Cooperative Operation of City Wells and the Central Feeder*

a. *Delivery of Water by City to Valley District.*

(1) *Estimate of unused capacity by City.* No later than each November 1, City shall provide Valley District with a written estimate of the availability of water during the following calendar year, up to a maximum of 20,000 acre-feet. City shall make this estimate in its sole and reasonable discretion. City may base its estimate on hydrologic conditions, groundwater levels, facility limitations, demand for water within City, or any other reasonable factor.

(2) *Valley District Water Order.* No later than each December 1 of each year, Valley District shall provide City with a written order for water for the following calendar year, up to a maximum amount equal to City's estimate of unused capacity.

(3) *Water delivery to Texas Grove Reservoir.* City shall operate its water production and distribution systems to provide Valley District with the amount of water ordered by Valley District at the Texas Grove Reservoir. Valley District shall install or cause to be installed a meter to measure deliveries by City to Valley District. City shall have the right to read the

meter on a monthly basis and inspect the meter at least annually in order to ensure the accurate calculation of water delivered to Valley District.

(4) *Modification of City's Estimate.* The Parties understand and acknowledge that a number of factors, including but not limited to greater/lesser precipitation or changes in customer demand for water, may modify City's ability to supply Valley District with ordered water. It is the intent of the Parties that this Agreement not interfere with City's obligation to serve its customers.

(a) City may increase or decrease its estimate of water available to Valley District at any time during a calendar year as may be reasonable to provide water service to City's customers. City will use reasonable, good faith efforts to meet Valley District's water demands.

(b) In the event of an emergency, as defined in California Public Contract Code Section 1102, City may take any actions it deems reasonably necessary to respond to the emergency and provide water service to its customers. City shall promptly consult with Valley District and jointly develop a plan that will provide Valley District water as soon as practicable after the conclusion of the emergency.

b. *Payment by Valley District for Water.* Valley District shall pay City the actual production cost, as determined pursuant to paragraph 3b(1) below, and the Operations, Maintenance and Repair ("**OMR**") cost, as determined pursuant to paragraph 3b(2) below, for water delivered to Valley District at the Texas Grove Reservoir.

(1) *Payment for Production Cost.* Valley District shall pay City for City's actual cost of producing water pursuant to this Agreement. Such actual costs may be determined by using either: (i) energy and treatment costs for the water production facilities that City specifically operates to meet Valley District's water order or (ii) a weighted average cost of energy and treatment for all City facilities producing water during a period in which City delivers water to Valley District. City shall determine, and notify Valley District in writing, which method will be used to determine the actual cost of producing water for Valley District prior to delivery of water to Valley District. Absent notification, the Parties shall use method (ii) above until notice is given.

(2) *Payment for OMR Cost.* Valley District shall pay City's actual costs to operate, maintain and repair its water production and distribution facilities

(including, without limitation, production wells, booster pumps, treatment facilities, etc.) for the benefit of Valley District. Specifically, Valley District shall pay all costs, including staff time, associated with City's operation of its water production and distribution facilities to deliver water to Valley District. In addition, Valley District shall pay its fair share of City's costs to maintain and repair its water production and distribution facilities. This cost shall be equal to the City's actual per acre-foot cost for maintenance and repair of its water production and distribution facilities over the preceding three calendar years, multiplied by the number of acre-feet ordered by Valley District.

(3) *Invoices to Valley District.*

(a) *Production Cost Invoices.* City shall invoice Valley District for production costs at least quarterly in arrears and Valley District shall pay such invoices within 30 calendar days of the date of the invoice. Invoices shall indicate, method used to determine production costs as described in paragraph 3b(1), facilities used to provide Valley District water, and cost for chemicals and power used. In the event Valley District objects to any costs identified on an invoice, Valley District shall pay the undisputed costs and shall invoke the dispute resolution process described in paragraph 10c below for the objectionable costs.

(b) *OMR Cost Invoices.* City shall invoice Valley District for OMR costs at least quarterly in arrears and Valley District shall pay such invoices within 30 calendar days of the date of the invoice. Invoices shall indicate, in reasonable detail, the information necessary to calculate costs as described in paragraph 3b(2). For expenses and work outside of what should normally be expected, City shall identify expenses and/or work performed and include date expense was made or work was performed, facilities involved, the individuals or company performing the service, hourly rate of such individuals or company, and costs of any materials or service using the methodology provided on Exhibit "C." In the event Valley District objects to any costs identified on an invoice, Valley District shall pay the undisputed costs and shall invoke the dispute resolution process described in paragraph 10c below for the objectionable costs.

c. *Water Quality Reporting.* The City shall provide Valley District with copies of all reports submitted to the Santa Ana Regional Quality Control Board.

d. *Future Actions.* The Parties understand and acknowledge that this Agreement is intended not only to serve as the basis for cooperative operations beginning in 2013, but is also intended to serve as the basis for long-term cooperation. The Parties agree they will consider amending this Agreement at appropriate times to reflect additional facilities and new opportunities to improve the conjunctive management of the SBBA and/or water supply reliability for the San Bernardino Valley.

4. *Water Level and Water Quality Monitoring.* The Parties shall cooperate in monitoring water levels and water quality to ensure that the terms of this Agreement do not have an adverse impact on water levels or water quality in the SBBA.

a. The Parties shall monitor water levels using the Basin Technical Advisory Committee annual Regional Water Management Plan and/or, independently, to ensure compliance with the water level requirements of the Seven Oaks Accord.

b. The Parties agree to monitor any water quality impacts to Total Dissolved Solids ("**TDS**") using data provided in the triennial report prepared for the Santa Ana Regional Water Quality Control Board pursuant to the Santa Ana Regional Water Quality Control Board Agreement.

5. *Impacts to Water Levels.* If it is determined by the Parties that the water level requirements in the Seven Oaks Accord are not being met, Valley District will take one of the following actions:

a. *Stop taking deliveries.* Valley District will cease to water through City facilities until water levels are in compliance with the requirements of the Seven Oaks Accord.

b. *Deliver Exchange Water to City.* To offset the pumping costs associated with lower water levels, Valley District will provide water to City, on a 1:1 basis ("**Exchange Water**"), for deliveries made to Valley District after water levels are determined to be out of compliance with the Seven Oaks Accord and up until the point water levels are determined to be in compliance with the Seven Oaks Accord.

(1) *Sources of Exchange Water.* Valley District may obtain such Exchange Water from the State Water Project, from the Santa Ana River, from Mill Creek, from sources outside the SBBA or from "new conservation" as that term is defined in the *Western* Judgment (*Western Municipal Water District et al. v. East San Bernardino County Water District et al.* (Riverside County Superior Court No. 78426, April 17, 1969). The selection of sources of Exchange Water shall be within the sole discretion of Valley District but water diverted from the Santa Ana River shall not

comprise more than 50% of the Exchange Water delivered to City during any three-year reporting period, as defined in paragraph 4a below.

(2) *Delivery of Exchange Water.* Valley District shall deliver Exchange Water to City as soon as feasible but no later than three calendar years after the calendar year in which City delivered water to Valley District. Valley District shall deliver Exchange Water to one or more of the following agreed upon locations:

(a) San Bernardino Valley Water Conservation District Mill Creek Spreading Grounds;

(b) San Bernardino Valley Water Conservation District Santa Ana River Spreading Grounds;

(c) Bear Valley Mutual Water Company Airport Spreading Grounds;

(d) City's San Bernardino Avenue Spreading Grounds (formerly Bear Valley Mutual Water Company Judson Ponds);

(e) Such other spreading grounds that directly benefit City's wells and other wells in the surrounding area, as the Parties may determine through mutual consent in the future.

Valley District shall calculate and document deliveries of Exchange Water to City at the above locations in a manner that both Parties agree to be reasonable, recognizing that several of the above locations are owned by non-parties to this Agreement.

In the event Valley District is unable to deliver Exchange Water to City within a three consecutive calendar year time period, Valley District shall increase the amount of Exchange Water delivered to City by 5% of the overdue balance for every calendar year beyond the three calendar years allowed until the Exchange Water is delivered. The Parties shall use a "first-in, first-out" accounting to track Exchange Water for multiple years.

(3) *In-Lieu Recharge.*

(a) In the event spreading of Exchange Water is not prudent: (i) due to high groundwater conditions in the pressure zone, (ii) because such spreading would have adverse impacts on groundwater contaminants, or (iii) because City determines it would be beneficial for City to take deliveries of Exchange Water at a water treatment plant in lieu of the spreading grounds identified in

paragraph 5b(2), City may take deliveries of up to 50% of Exchange Water at its Horace Hinckley Surface Water Treatment Plant or Henry Tate Surface Water Treatment Plant, at its sole discretion. Valley District shall deliver the remaining Exchange Water to such locations that Valley District, in its sole discretion, determines appropriate for sound management of the SBBA.

(b) If City chooses to take delivery of Exchange Water at the Henry Tate Surface Water Treatment Plant, City may receive up to 10% of the total Exchange Water delivered in a calendar year at Henry Tate Surface Water Treatment Plant at no cost to the City.

6. *Impacts to Water Quality.* If it is determined by the Parties that pumping by City for delivery to Valley District, under the terms of this Agreement, is the sole cause for the City violating one or more of its permits from the Santa Ana Regional Water Quality Control Board, Valley District will take one of the following actions:

a. *Stop taking deliveries.* Valley District will cease to water through City facilities until water levels are in compliance with the Seven Oaks Accord.

b. *Recharge high quality water.* Valley District will recharge lower TDS water in a mutually agreeable locations until TDS has returned to acceptable levels.

c. *Any combination.* Valley District may use one, or both, of the above, at its discretion, to reduce the TDS level until the TDS has returned to mutually agreed upon acceptable levels.

d. *Violation of Santa Ana Regional Water Quality Control Board TDS discharge limit on Redlands wastewater plant.* In the event the Santa Ana Regional Water Quality Control Board orders City to remedy an increase in the TDS limit for City's wastewater treatment plant that the Parties agree has been caused by conditions derived by the activities associated with this Agreement, Valley District shall take any or all of the actions identified in subparagraphs a-c above until water quality has returned to acceptable levels. Additionally, Valley District and City will work together to resolve the condition with the Santa Ana Regional Water Quality Control Board identify a solution to the condition, and fund an appropriate solution.

7. *Natural Disaster or Civil Unrest.* In the event that the Texas Grove Reservoir suffers from substantial damage due to natural disaster (e.g., earthquake, flooding or otherwise) or due to civil unrest (e.g., rioting, terrorist attack, or otherwise), neither Party shall be obliged to rebuild/reconstruct the Texas Grove Reservoir in its current configuration or to its current capacity. Instead, the Parties shall promptly meet and confer, determine a rebuilding plan/configuration that is reasonable and financially feasible under the

circumstances at the time, and then rebuild/reconstruct the Texas Grove Reservoir as quickly as practicable.

8. *Termination of Agreement.* Either Party may terminate this Agreement, with or without cause, by providing written notice of termination to the other Party at least one year prior to the conclusion of the then-current term of this Agreement. Valley District's purchase of storage rights at, or above, elevation 1338.9 feet MSL NGVD shall survive termination of this Agreement and, after termination, Valley District may use its storage rights by supplying water available to Valley District from any source. In the event that Valley District has not completed its delivery of Exchange Water to City as required by paragraph 5b above, that obligation shall survive any termination of this Agreement.

9. *Indemnification.* Each Party shall defend and indemnify the other Party and the other Party's elected officials, officers, employees, agents and authorized volunteers from and against all claims, demands, or liability for damages arising out of the Party's performance of the terms of this Agreement where such liability is caused or claimed or alleged to be caused by the willful misconduct, sole negligence or active negligence of the Party or any person or organization for whom or which the Party is legally liable.

In particular, Valley District shall defend and indemnify City's elected officials, officers, employees, agents and authorized volunteers for any and all claims, demands or liability arising from: (i) Valley District or its contractors' construction of the Central Feeder; (ii) the movement of groundwater contaminants due to the spreading of Exchange Water by Valley District and increased pumping; or (iii) a reduction in static groundwater levels due to extraction of water by City for delivery to Valley District.

The provisions of this Section 9 shall survive any termination of this Agreement.

10. *Administration of Agreement*

a. *Workers' Compensation.* Each Party certifies that it is aware of the provisions of section 3700 of the California Labor Code which requires every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code and each Party shall comply with such provisions before commencing the performance of any work under this Agreement. Each Party and any contractors or subcontractors shall keep workers' compensation insurance for their employees in effect during all work covered by this Agreement. Upon request, each Party shall provide the other with the certificate required by Labor Code section 3700.

b. *Books and Records.* Each Party shall have access to and the right to examine the other Party's pertinent books, documents, papers or other records (including, without limitation, records contained on electronic media) relating to the performance of that Party's obligations pursuant to this Agreement. The Parties

shall each retain all such books, documents, papers or other records to facilitate such review. Access to each Party's books and records shall be during normal business hours only. Nothing in this paragraph shall be construed to operate as a waiver of any applicable privileges.

c. *Disputes.* The Parties recognize there may be disputes regarding the obligations of the Parties or the interpretation of this Agreement. The Parties agree they may attempt to resolve disputes as follows:

(1) *Statement Describing Alleged Violation of Agreement.* A Party alleging a violation of this Agreement (the "**Initiating Party**") shall provide a written statement describing all facts it believes constitute a violation of this Agreement to the Party alleged to have violated the terms of this Agreement (the "**Responding Party**").

(2) *Response to Statement of Alleged Violation.* The Responding Party shall have sixty calendar days from the date of the written statement to prepare a written response to the allegation of a violation of this Agreement and serve that response on the Initiating Party or to cure the alleged violation to the reasonable satisfaction of the Initiating Party. The Initiating Party and the Responding Party shall then meet within thirty calendar days of the date of the response to attempt to resolve the dispute amicably.

(3) *Mediation of Dispute.* If the Initiating Party and the Responding Party cannot resolve the dispute within ninety calendar days of the date of the written response, they shall engage a mediator, experienced in water-related disputes, to attempt to resolve the dispute. Each Party shall ensure that it is represented at the mediation by an employee of such Party. These representatives of the Initiating Party and the Responding Party may consult with staff and/or technical consultants during the mediation and such staff and/or technical consultants may be present during the mediation. The costs of the mediator shall be borne by the unsuccessful Party.

(4) *Reservation of Rights.* Nothing in this paragraph 10c shall require a Party to comply with the dispute resolution process contained herein, and each Party retains and may exercise at any time all legal and equitable rights and remedies it may have to enforce the terms of this Agreement.

11. *CEQA Compliance.*

The Parties have determined that, because the activities contemplated under the terms of this Agreement involve the cooperative use of existing facilities within the capacity of those

facilities and within the limits established by existing regulations, the implementation of this Agreement is exempt from environmental review pursuant to Title 14, section 15301 of the Code of California Regulations. Within five business days of the Effective Date of this Agreement, the Parties will file a Notice of Exemption with the County Clerk for the County of San Bernardino, which Notice is attached hereto as Exhibit "D" and incorporated herein by reference.

12. *General Provisions.*

a. *Authority*. Each signatory of this Agreement represents that he is authorized to execute this Agreement on behalf of the Party for which he signs. Each Party represents that it has legal authority to enter into this Agreement and to perform all obligations under this Agreement.

b. *Amendment*. This Agreement may be amended or modified only by a written instrument executed by each of the Parties to this Agreement.

c. *Jurisdiction and Venue*. This Agreement shall be governed by and construed in accordance with the laws of the state of California, except for its conflicts of law rules. Any suit, action, or proceeding brought under the scope of this Agreement shall be brought and maintained to the extent allowed by law in the County of San Bernardino, California.

d. *Headings*. The paragraph headings used in this Agreement are intended for convenience only and shall not be used in interpreting this Agreement or in determining any of the rights or obligations of the Parties to this Agreement.

e. *Construction and Interpretation*. This Agreement has been arrived at through negotiations and each Party has had a full and fair opportunity to revise the terms of this Agreement. As a result, the normal rule of construction that any ambiguities are to be resolved against the drafting Party shall not apply in the construction or interpretation of this Agreement.

f. *Entire Agreement*. This Agreement constitutes the entire agreement of the Parties with respect to the subject matter of this Agreement and supersedes any prior oral or written agreement, understanding, or representation relating to the subject matter of this Agreement.

g. *Partial Invalidity*. If, after the Effective Date of this Agreement, any provision of this Agreement is held to be illegal, invalid, or unenforceable under present or future laws effective during the term of this Agreement, such provision shall be fully severable. However, in lieu thereof, there shall be added a provision as similar in terms to such illegal, invalid or unenforceable provision as may be possible and be legal, valid and enforceable.

h. *Successors and Assigns*. This Agreement shall be binding on and inure to the benefit of the successors and assigns of the respective Parties to this Agreement. No Party may assign its interests in or obligations under this Agreement without the written consent of the other Party, which consent shall not be unreasonably withheld or delayed.

i. *Waivers*. Waiver of any breach or default hereunder shall not constitute a continuing waiver or a waiver of any subsequent breach either of the same or of another provision of this Agreement and forbearance to enforce one or more of the remedies provided in this Agreement shall not be deemed to be a waiver of that remedy.

j. *Attorneys' Fees and Costs*. The prevailing Party in any litigation or other action to enforce or interpret this Agreement shall be entitled to reasonable attorneys' fees (including fees for use of in-house counsel by a Party), expert witnesses' fees, costs of suit, and other necessary disbursements in addition to any other relief deemed appropriate by a court of competent jurisdiction.

k. *Necessary Actions*. Each Party agrees to execute and deliver additional documents and instruments and to take any additional actions as may be reasonably required to carry out the purposes of this Agreement.

l. *Representations and Warranties*. Each representation and warranty contained herein or made pursuant hereto shall be deemed to be material and to have been relied upon and shall survive the execution, delivery and termination of this Agreement.

m. *Compliance with Law*. In performing their respective obligations under this Agreement, the Parties shall comply with and conform to all applicable laws, rules, regulations and ordinances.

n. *Third Party Beneficiaries*. This Agreement shall not create any right or interest in any non-Party or in any member of the public as a third party beneficiary.

o. *Counterparts*. This Agreement may be executed in one or more counterparts, each of which shall be deemed to be an original, but all of which together shall constitute but one and the same instrument.

p. *Notices*. All notices, requests, demands or other communications required or permitted under this Agreement shall be in writing unless provided otherwise in this Agreement and shall be deemed to have been duly given and received on: (i) the date of service if served personally or served by facsimile transmission on the Party to whom notice is to be given at the address(es) provided below, (ii) on the first day after mailing, if mailed by Federal Express, U.S. Express Mail, or other

similar overnight courier service, postage prepaid, and addressed as provided below, or (iii) on the third day after mailing if mailed to the Party to whom notice is to be given by first class mail, registered or certified, postage prepaid, addressed as follows:

CITY OF REDLANDS:

City of Redlands
35 Cajon Street
Redlands, CA 92373
(909) 798-7533
(909) 798-7535 (FAX)
Attn: Municipal Utilities and Engineering Director

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT:

San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
San Bernardino, CA 92408
(909) 387-9211
(909) 387-9247 (FAX)
Attn: General Manager

A Party may change its address for the receipt of notices by providing the other Party with notice of the same pursuant to this paragraph 12p.

CITY OF REDLANDS

By: _____
Pete Aguilar, Mayor

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: _____
C. Patrick Milligan,
President, Board of Directors

ATTEST:

_____
Sam Irwin, City Clerk

Exhibit "A"
Facility Map

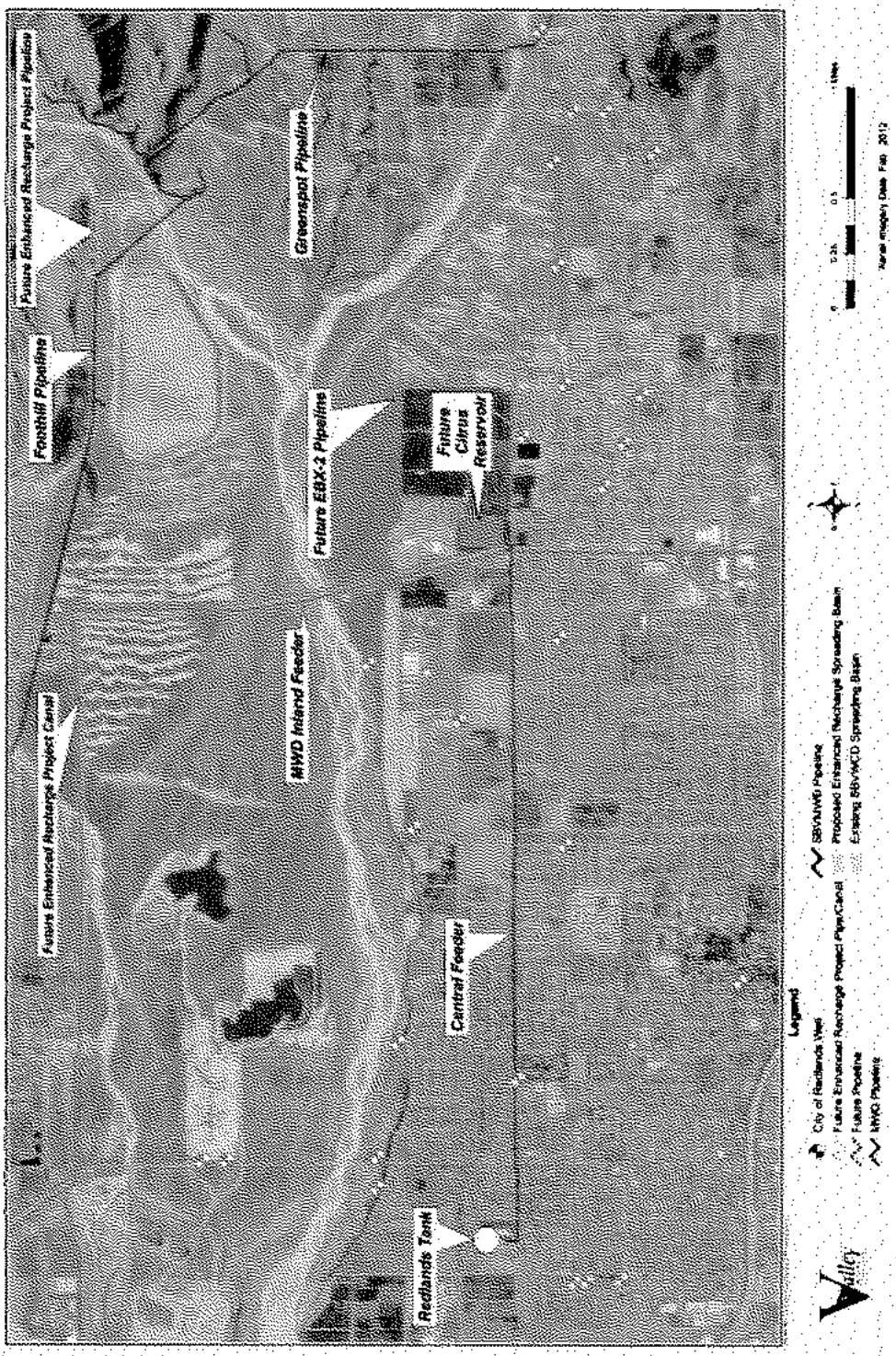

Exhibit "B"
Reimbursement Cost Calculations

CITY OF REDLANDS RESERVOIR #1 (TEXAS ST. RESERVOIR) CAPACITIES

AREA OF TANK

RADIUS	90.0 FT.	
PI	3.1416	
TOTAL AREA (AT) RAD*PI	25446.9 SQFT.	

HEIGHT OF WATER STORED IN TANK.

HIGH WATER SURFACE (H.W.S.)	1351.0 FT.	
BOTTOM OF TANK ELEVATION (TB)	1330.7 FT.	ELEVATION OF RING FOOTING
WATER HEIGHT (WC)	20.3 FT.	
VOLUME OF CONE (VC) VC=(PI*R^2*H)/3 R=90', H=1.0	8482.3 CUFT.	ACCOUNTS FOR VOLUME LOST DUE TO SLOPING TANK BOTTOM
MAX. WATER STORAGE CAPACITY ((AT*WC)-VC)	508853.2 CUFT.	
MAX. WATER STORAGE IN GALLONS	3806730.7 GAL.	7.481 GAL./CUFT.
MAX. USABLE STORAGE ((WC-1.0')*AT)	491888.6 CUFT	BOTTOM FOOT OF MAX. STORAGE IS NOT USABLE
MAX. USABLE STORAGE IN GALLONS (WSU)	3679818.5 GAL.	7.481 GAL./CUFT.

USABLE STORAGE FOR SBVMWD

H.W.S.	1351.0 FT.	
INVERT AT OUTLET OF STANDPIPE	1338.9 FT.	
MAXIMUM USABLE HEIGHT OF WATER (WU)	12.1 FT.	
SBVMWD USABLE STORAGE (AT*WU)	307907.5 CUFT.	
SBVMWD USABLE STORAGE IN GALLONS (WSV)	2303456.0 GAL.	7.481 GAL./CUFT.

COR USABLE STORAGE BELOW SBVWMD STORAGE

INVERT AT OUTLET OF STANDPIPE	1338.9 FT.	
HIGH POINT IN TANK = TB+1.0'	1331.7 FT.	
MAXIMUM USABLE HEIGHT OF WATER (WR)	7.2 FT.	
COR USABLE STORAGE (AT*WR)	183981.1 CUFT.	
COR USABLE STORAGE IN GALLONS (WSR)	1376362.5 GAL.	7.481 GAL./CUFT.

PERCENTAGE OF USABLE WATER STORAGE CALCULATED BY AGENCY

CITY OF REDLANDS	((WSR/WSU)*100%)	37.4%
SBVMWD	((WSV/WSU)*100%)	62.6%

Exhibit "C"

Operation Maintenance and Repair (OMR) shall be calculated as follows: total actual expenditures listed below (Expenditures), multiplied by the percent shown, divided by AF produced in City system multiplied by percent delivered to Valley District.

Total Actual City Expenditures ($) X (% Sold to Valley District) = $__/AF
Total Production (acre-ft)

where,

Total Actual City Expenditures = 50% (4000* Salaries) + (4010 Overtime Salaries) + (4012 Stand By) + (5317 Service for Function Facility) + (5590 Street Repair) + 50% (5710_Special Contractual Services)

*Codes are from the City of Redlands Water Fund 501403

Exhibit "D"
Draft Notice of Exemption

Notice of Exemption

To: County Clerk
County of San Bernardino
222 W. Hospitality Lane
San Bernardino, CA 92415-0022

From:
San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
San Bernardino, CA 92408

City of Redlands
35 Cajon Street
Redlands, CA 92373

Project Title: Agreement for Use of Water Facilities

Project Location - Specific: City of Redlands – Texas Grove Reservoir

Project Location - City: Redlands **Project Location - County:** San Bernardino

Description of Nature, Purpose and Beneficiaries of Project: The Project is an agreement between the San Bernardino Valley Municipal Water District ("Valley District") and the City of Redlands ("City") (collectively, the "Parties") providing for the cooperative use of existing water storage facilities and well capacity. Under the agreement, Valley District will purchase 2.3 million gallons of capacity in the City's existing Texas Grove Reservoir which is connected to Valley District's Redlands Pump Station that delivers water to Valley Districts Central Feeder Pipeline. Valley District will have an annual option of purchasing up to 20,000 acre-feet of existing well capacity to the extent such capacity is not needed by the City in any given year. The purpose of the Project is to postpone the need for Valley District to construct new water facilities in the area. The project involves the operation of existing facilities within existing limits established by applicable laws, regulations, agreements, and permits.

Name of Public Agency Approving Project: San Bernardino Valley Municipal Water District and City of Redlands

Name of Person or Agency Carrying Out Project: San Bernardino Valley Municipal Water District, City of Redlands

Exempt Status: *(check one)*

- ☐ Ministerial (Sec. 21080(b)(1); 15268);
- ☐ Declared Emergency (Sec. 21080(b)(3); 15269(a));
- ☐ Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
- ☒ Categorical Exemption. State type and section number: Sec. 15301, 15303
- ☐ Statutory Exemptions. State code number:

Reasons why project is exempt: The Project is categorically exempt under section 15301 of the CEQA Guidelines because it involves the operation of existing facilities within existing limits established by applicable laws, regulations, agreements, and permits. Valley District will make use of existing storage and well capacity not needed by the City, thus there will be no expansion of those facilities. The connection between the Reservoir and existing pipelines is categorically exempt under section 15301 as an addition to existing structures, and alternatively is categorically exempt under section 15303 as an extension of an existing pipeline of the length necessary to serve the Reservoir.

Lead Agency
Contact Person: Doug Headrick, General Manager **Area Code/Telephone/Extension:** (909) 387-9226

If filed by applicant:

1. Attach certified document of exemption finding.
2. Has a Notice of Exemption been filed by the public agency approving the project? Yes No

Signature: Date: Title: General Manager

☒ Signed by Lead Agency Date received for filing at OPR:

☐ Signed by Applicant

1299299.1

DATE FILED & POSTED
#435331

Notice of Exemption

To: County Clerk
County of San Bernardino
222 W. Hospitality Lane
San Bernardino, CA 92415-0022

From:
San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
San Bernardino, CA 92408

City of Redlands
35 Cajon Street
Redlands, CA 92373

CLERK OF THE BOARD
APR 09 2013
COUNTY OF
SAN BERNARDINO

Project Title: Agreement for Use of Water Facilities

Project Location - Specific: City of Redlands – Texas Grove Reservoir

Project Location - City: Redlands **Project Location - County:** San Bernardino

Description of Nature, Purpose and Beneficiaries of Project: The Project is an agreement between the San Bernardino Valley Municipal Water District ("Valley District") and the City of Redlands ("City") (collectively, the "Parties") providing for the cooperative use of existing water storage facilities and well capacity. Under the agreement, Valley District will purchase 2.3 million gallons of capacity in the City's existing Texas Grove Reservoir which is connected to Valley District's Redlands Pump Station that delivers water to Valley Districts Central Feeder Pipeline. Valley District will have an annual option of purchasing up to 20,000 acre-feet of existing well capacity to the extent such capacity is not needed by the City in any given year. The purpose of the Project is to postpone the need for Valley District to construct new water facilities in the area. The project involves the operation of existing facilities within existing limits established by applicable laws, regulations, agreements, and permits.

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Name of Person or Agency Carrying Out Project: San Bernardino Valley Municipal Water District, City of Redlands

Exempt Status: *(check one)*

- ☐ Ministerial (Sec. 21080(b)(1); 15268);
- ☐ Declared Emergency (Sec. 21080(b)(3); 15269(a));
- ☐ Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
- ☒ Categorical Exemption. State type and section number: Sec. 15301, 15303
- ☐ Statutory Exemptions. State code number:

Reasons why project is exempt: The Project is categorically exempt under section 15301 of the CEQA Guidelines because it involves the operation of existing facilities within existing limits established by applicable laws, regulations, agreements, and permits. Valley District will make use of existing storage and well capacity not needed by the City, thus there will be no expansion of those facilities. The connection between the Reservoir and existing pipelines is categorically exempt under section 15301 as an addition to existing structures, and alternatively is categorically exempt under section 15303 as an extension of an existing pipeline of the length necessary to serve the Reservoir.

Lead Agency
Contact Person: Douglas Headrick, General Manager
Area Code/Telephone/Extension: (909) 387-9226

If filed by applicant:

1. Attach certified document of exemption finding.
2. Has a Notice of Exemption been filed by the public agency approving the project? Yes No

Signature: Douglas Headrick Date: 4/8/13 Title: General Manager

☒ Signed by Lead Agency
☐ Signed by Applicant

Date received for filing at OPR:

State of California—Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE

2013 ENVIRONMENTAL FILING FEE CASH RECEIPT

RECEIPT# 438331

STATE CLEARING HOUSE # *(If applicable)*

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY

LEAD AGENCY: San Bernardino Valley Municipal Water District
DATE: 4/9/13
COUNTY/STATE AGENCY OF FILING: San Bernardino County
DOCUMENT NUMBER:
PROJECT TITLE: Agreement for Use of Water Facilities + City of Redlands
PROJECT APPLICANT NAME: San Bernardino Valley Municipal Water District
PHONE NUMBER: (909) 387-9220
PROJECT APPLICANT ADDRESS: 380 East Vanderbilt Way
CITY: San Bernardino
STATE: CA
ZIP CODE: 92408

PROJECT APPLICANT *(Check appropriate box)*:
☒ Local Public Agency ☐ School District ☐ Other Special District ☐ State Agency ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report (EIR)	$2,995.25	$
☐ Mitigated/Negative Declaration (ND)(MND)	$2,156.25	$
☐ Application Fee Water Diversion *(State Water Resources Control Board Only)*	$850.00	$
☐ Projects Subject to Certified Regulatory Programs (CRP)	$1,018.50	$
☑ County Administrative Fee	$50.00	$ 50.00
☑ Project that is exempt from fees		
☑ Notice of Exemption		
☐ DFW No Effect Determination (Form Attached)		
☐ Other		$ ϕ

PAYMENT METHOD: 3960103

☐ Cash ☐ Credit ☑ Check ☐ Other — TOTAL RECEIVED $ 50.00

SIGNATURE: X [signature]
TITLE: [signature]

WHITE - PROJECT APPLICANT YELLOW - DFW/ASB PINK - LEAD AGENCY GOLDENROD - COUNTY CLERK DFG 753.5a (Rev. 11/12)

San Bernardino Valley Municipal Water District

396103

CLERK OF THE BOARD 6600 · TAXES & LICENSES	NOTICE OF EXEMPTION TEXAS GROVE RESERVOIR	4/8/2013	50.00

CLERK OF THE BOARD OF SUPERVISORS
13 APR -9 PM 1:21
COUNTY OF SAN BERNARDINO
CALIFORNIA

CHECKING 50.00

San Bernardino Valley Municipal Water District

396103

CLERK OF THE BOARD 6600 · TAXES & LICENSES	NOTICE OF EXEMPTION TEXAS GROVE RESERVOIR	4/8/2013	50.00

CHECKING 50.00

PRODUCT SSLT104 USE WITH 91689 ENVELOPE MCBEE To Reorder: 1-800-662-2331 or www.mcbeeinc.com

2013 AGREEMENT REGARDING ADDITIONAL EXTRACTIONS OF NEW CONSERVATION WATER FROM THE SAN BERNARDINO BASIN AREA BETWEEN WESTERN MUNICIPAL WATER DISTRICT OF RIVERSIDE COUNTY AND SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

SBVMWD LEGAL
DOCUMENT 2402

2013 AGREEMENT REGARDING ADDITIONAL EXTRACTIONS OF NEW CONSERVATION WATER FROM THE SAN BERNARDINO BASIN AREA

This Agreement is entered into between San Bernardino Valley Municipal Water District ("Valley District") and Western Municipal Water District of Riverside County ("Western") on July 17, 2013.

RECITALS

A. Western and Valley District are parties to the Judgment in the case of *Western Municipal Water District of Riverside County v. East San Bernardino County Water District, et al.*, Riverside Superior Court No. 78426 ("Western Judgment" or "Judgment").

B. The Judgment is administered and enforced by a Watermaster, consisting of a committee of two persons, one representative nominated by Valley District, and one by Western.

C. The Judgment further implements the physical solution in the related Orange County Water District action, as well as determines the rights of the named Plaintiffs to extract water from the San Bernardino Basin Area ("SBBA"), and provide replenishment of the area above Riverside Narrows. Among other provisions, the Judgment provides that the annual "adjusted right" of each Plaintiff to extract and export water from the SBBA is the sum of (a) its base right, which was adjusted based on a determination of safe yield and is currently expressed as a percentage of safe yield; and (b) an equal percentage of any new conservation, provided the conditions described in the Judgment are met. Similarly, the Judgment provides that Valley District shall provide imported water for replenishment of the SBBA at least equal to the amount by which extractions in any five year period exceed the 1959-1963 "base period" extractions (such amount was reduced based on a determination of safe yield and may be increased by the amount of any new conservation).

D. "New Conservation" is defined in the Judgment as "[a]ny increase in replenishment from natural precipitation which results from operation of works and facilities not now in existence, other than those works installed and operations which may be initiated to offset losses caused by increased flood control channelization."

E. The Seven Oaks Dam is a component of the Santa Ana River Mainstem Project and was originally conceived as a way to address anticipated flooding on the Santa Ana River. In addition to providing flood control benefits and related incidental water conservation, Western and Valley District wished to formally include water conservation as an element of the facility. In 1991, Western and Valley District jointly filed an application to appropriate water conserved as part of the Seven Oaks project. The State Water Resources Control Board approved the application and issued permits to Western and Valley District in 2010.

F. Construction on the Dam began in the mid 1990s. Western, Valley District and Plaintiffs in the above-referenced action agreed to a methodology for participation in the project and a cost sharing formula pursuant to Paragraph VI(b)2 of the Judgment. Based on the cost sharing formula, Western, Valley District and Plaintiffs entered cost sharing agreements to study the feasibility of water conservation and to fund the physical improvements necessary to achieve water conservation in connection with the operation of the Dam.

G. The acquisition of the water rights permit and the related infrastructure improvements allow Western and Valley District to fully utilize water conserved by the project for replenishment of the SBBA.

H. As part of the 1991-2010 water rights permitting process, Western and Valley District developed models and other analytical tools to forecast hydrology and calculate water conservation. Over the last 2 years, a collaborative group of stakeholders has been meeting to further develop the models and procedures necessary to forecast long-term average New Conservation.

I. In addition to utilizing the recently-developed models and analytical tools to project future long-term average New Conservation, Watermaster has utilized the models and analytical tools to calculate the amount of New Conservation that occurred from 1998 through 2012. Watermaster was previously unable to calculate such New Conservation because the models and analytical tools were still being developed.

J. Consistent with the Judgment and cost-sharing agreements, Plaintiffs have paid their proportionate share of New Conservation-related costs through December 31, 2012 and are therefore entitled to the benefits associated with their allocated share of New Conservation that occurred from 1998 through 2012 due to operation of the Dam.

K. The Judgment does not provide a mechanism by which to allocate New Conservation retroactively. However, Paragraph VI(b)6 of the Judgment provides that Western and Valley District may enter into agreements providing for additional extractions from the SBBA. Western and Valley District have utilized Paragraph VI(b)6 in the past to allow additional extractions from the SBBA.

L. In addition, Western, Valley District and the City of Riverside are parties to an "Agreement Relating to the Diversion of Water from the Santa Ana River System" ("Diversion Agreement") dated March 20, 2007, wherein the parties acknowledge that water conservation in the SBBA associated with the operation of Seven Oaks Dam may cause adverse impacts on the Riverside Basin. The parties agreed that one method of mitigating such adverse impacts was to provide for additional Plaintiff extractions in the SBBA in an amount equal to the amount of replenishment in the SBBA that would have occurred in the Riverside Basin in the absence of the Seven Oaks Project, in exchange for a like amount of reduction in extractions in the Riverside Basin near the key wells used to measure Valley District's compliance with the Judgment objectives

M. Parties to the Diversion Agreement also agreed to implement an accounting methodology under the Western Judgment that will allow Plaintiffs to fully utilize their water

rights in the SBBA. In conjunction with this Agreement, the full use of such water rights could be facilitated by amending the August 18, 2004 Paragraph VI(b)6 agreement entitled "Western Replenishment and Extraction Agreement" which would allow Plaintiffs, in any year in which their entitlement was not fully used, to return any amount of water up to the amount of imported water previously acquired from Western.

N. The primary purpose of this Agreement is to provide for additional extractions of water from the SBBA by Plaintiffs and users within Valley District without replenishment by Valley District in amounts equal to the amount of New Conservation determined by Watermaster to have occurred from 1998 through 2012 due to operation of the Dam. As to future New Conservation associated with the operation of the Dam, Watermaster will utilize Paragraph VI(b)1, VI(b)2, and VI(c) to account for such New Conservation, as provided herein. In addition, another purpose of this Agreement is to ensure implementation of specific provisions of the 2007 Diversion Agreement related to New Conservation, as referenced in Recitals L and M, above.

O. Although the Judgment does not require court approval of Paragraph VI(b)6 agreements, the parties have historically sought court approval of such agreements.

NOW, THEREFORE, in consideration of the mutual covenants of the parties, and based upon the recitals above, IT IS HEREBY AGREED TO AS FOLLOWS:

1. Definition of Additional Extractions. As used herein, the term "additional extractions" means any extraction of water by Plaintiffs in the above-referenced action in excess of the amounts permitted by the Judgment; with respect to entities other than Plaintiffs in such action, the term means any extractions in excess of the total amount of water that can be produced from the SBBA without any replenishment obligation. No replenishment obligations shall be incurred on account of any additional extractions made pursuant to this Agreement.

2. Amount of Additional Extractions. Watermaster has determined that the total quantity of New Conservation resulting from operation of the Seven Oaks Dam for the period of 1998 through 2012 is 42,840 acre-feet. Consistent with the Judgment, such amount may be extracted by Plaintiffs and non-plaintiff entities producing water within the SBBA as additional extractions pursuant to this Agreement.

3. Allocation of Additional Extractions to Plaintiffs. Plaintiffs may make additional extractions from the SBBA for use within Western in any future year in the aggregate amount of 11,974 AF, or 27.95% of the 1998-2012 New Conservation water. Such amount shall be allocated among individual Plaintiffs as follows:

a.	City of Riverside	9,635 AF
b.	Meeks and Daley Water Co.	1,448 AF
c.	Riverside Highland Water Co.	793 AF
d.	Regents of University of California	98 AF

Such individual allocations are in proportion to Plaintiffs' respective shares of the safe yield of the SBBA.

4. Allocation of Additional Extractions to Other Entities. Entities in San Bernardino County other than Plaintiffs who produce water within the SBBA may make additional extractions from the SBBA in any future year in the amount of 30,866 AF, or 72.05% of the 1998-2012 New Conservation water.

5. Periodic Changes in Paragraph VI(b) and VI(c) Allowable Extractions. Periodically Watermaster shall consider making changes in:

(a) the portion of Plaintiffs' "adjusted right" related to New Conservation determined pursuant to Paragraph VI(b); and

(b) the New Conservation to which users in Valley District are entitled pursuant to Paragraph VI(c).

Such periodic consideration and any resulting changes shall be made to ensure that over a long-term period, equal to or greater than the number of years used to forecast the average amount of New Conservation, the amount of New Conservation allowed to be extracted is the same as it would have been if the New Conservation had been made available to Plaintiffs and users within Valley District each year in amounts equal to the actual amount of conserved water that is replenished. Any change shall be made prospectively in order to ensure that such change does not result in a change or reconciliation of a prior year "adjusted right" for Plaintiffs or an amount of New Conservation available for use by users within Valley District.

Periodic consideration of changes in the allowable extractions related to New Conservation shall occur for the duration of the forecast period at intervals of not less than five years nor more than ten years. The periodic consideration of change in the long-term average increase in allowable extractions related to New Conservation shall account for physical improvements in storage, diversion or recharge capability that may result in an increase in the forecast of the long-term average amount of New Conservation; and prospectively account for changes in the long-term forecast that arise from annual determinations of actual New Conservation and/or improvements in the data base and the analytical tools and procedures used to forecast New Conservation.

6. Paragraph VI(b) Service Area Delivery Limitations. The service area delivery limitations provided in Paragraphs V and VI of the Western Judgment shall not apply to New Conservation.

7. Assignment. Any Plaintiff may assign all or a portion of that Plaintiff's right to make additional extractions, as provided in Paragraph 3 herein, to any other Plaintiff.

8. Potential Reductions in Additional Extractions. If at any time prior to the extraction of all additional extractions pursuant to this Agreement Watermaster determines that New Conservation that occurred from 1998-2012 is causing a decrease in the natural safe yield of the SBBA by increasing subsurface outflow or rejecting native recharge that would have

occurred in the absence of Seven Oaks Dam, then Watermaster shall reduce the then-remaining amount of additional extractions provided for in Paragraph 2 and the subsequent amounts allocated to Plaintiffs and Valley District in Paragraphs 3 and 4 by an amount equal to the increase in subsurface outflow or rejected native recharge.

9. Annual Reports. Watermaster shall exclude any additional extractions under this Agreement from extractions in the Annual Report Tables 3A through 3D showing extractions by Plaintiffs. Watermaster shall also exclude additional extractions by entities other than Plaintiffs from the determination of extractions in Table 2 of the Annual Report.

10. Riverside Basin Mitigation Account. Any amount of replenishment in the SBBA resulting from the operation of Seven Oaks Dam and related diversion and spreading facilities that, in the absence of such operation, would have been replenished in the Riverside Basin, shall not be considered New Conservation and shall not be allocated for use by Plaintiffs and users within Valley District and shall instead be included in a Riverside Basin Mitigation Account. Watermaster shall maintain a record of the amount of water in the Riverside Basin Mitigation Account. Western shall maintain in force an agreement with the City of Riverside that provides for the City to increase extractions from its wells in the SBBA by a specified amount and reduce extractions from its Flume Tract wells in the Riverside Basin by the same amount. The agreement shall provide that such change in the location of extractions is subject to the following:

(a) Western and Valley District will jointly determine the specified amount of the change in extractions and the time period for such change; and

(b) The City of Riverside will change the location of extractions as determined by Western and Valley District unless Riverside is unable to do so because of physical or prior contractual constraints.

Watermaster shall account for the required extractions from the SBBA as additional extractions pursuant to Section 9 of this agreement and shall include the amount of the additional SBBA extractions as an extraction by the City of Riverside from Riverside North in the Annual Report Table 5.

11. Amendment to the Paragraph VI(b)6 Western Replenishment and Extraction Agreement. Paragraph 5 of the "Western Replenishment and Extraction Agreement" dated August 18, 2004 is hereby amended to also provide that, "Any Plaintiff at its option may assign and transfer to Western an amount of water equal to its unused water right in the SBBA in any year provided the aggregate amount of such transfers may not exceed the Plaintiffs aggregate amount of previously transferred right to extract imported water pursuant to this paragraph."

Date: July 16, 2013

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: _____
President

By: _____
Secretary

WESTERN MUNICIPAL WATER DISTRICT OF RIVERSIDE COUNTY

By: _____
President

By: _____
Secretary

APPROVED AS TO FORM:

By: _____
Jill N. Willis
Best Best & Krieger

By: _____
David R. E. Aladjem
Downey Brand LLP

DEPARTMENT OF PUBLIC WORKS

FLOOD CONTROL • LAND DEVELOPMENT & CONSTRUCTION • OPERATIONS
SOLID WASTE MANAGEMENT • SURVEYOR • TRANSPORTATION

COUNTY OF SAN BERNARDINO

825 East Third Street • San Bernardino, CA 92415-0835 • (909) 387-8104
Fax (909) 387-8130

GERRY NEWCOMBE
Director of Public Works

July 26, 2013

Mr. C. Patrick Mulligan, President
Board of Directors
San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
San Bernardino, CA 92408

Re: **PLANNING MEMORANDUM OF UNDERSTANDING BETWEEN THE SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT AND THE SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT – AGREEMENT NO. 13-608**

Dear Mr. Mulligan:

Please find enclosed the executed copy of the above-referenced agreement which was approved, by the Board of Supervisors on behalf of the San Bernardino County Flood Control District on July 23, 2013, for your records.

If you have any questions, please contact Kenneth Eke at (909) 387-8120

Sincerely,

D Stuwell for

KENNETH C. EKE, P.E., Chief
Flood Control Planning Division

KE:dja

Enclosure

cc: Front File
Reading File

SBVMWD LEGAL
DOCUMENT **2404**

GREGORY C. DEVEREAUX
Chief Executive Officer

Board of Supervisors
ROBERT A. LOVINGOOD, First District
JANICE RUTHERFORD, Second District
JOSIE GONZALES, Fifth District
JAMES RAMOS, Third District
GARY C. OVITT, Fourth District

REPORT/RECOMMENDATION TO THE BOARD OF SUPERVISORS OF THE SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT AND RECORD OF ACTION

July 23, 2013

FROM: **GERRY NEWCOMBE, Director**
Flood Control District

SUBJECT: **PLANNING MEMORANDUM OF UNDERSTANDING BETWEEN THE SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT AND THE SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT**

RECOMMENDATION(S)

Acting as the governing body of the San Bernardino County Flood Control District, approve a ten year Planning Memorandum of Understanding **(Agreement No. 13-608)** between the San Bernardino County Flood Control District and the San Bernardino Valley Municipal Water District for the purpose of working together in the planning and evaluation of San Bernardino County Flood Control District facilities for joint use by the San Bernardino County Flood Control District and the San Bernardino Valley Municipal Water District for both flood control and groundwater replenishment operations.
(Presenter: Gerry Newcombe, Director, 387-7906)

BOARD OF SUPERVISORS COUNTY GOALS AND OBJECTIVES

Pursue County Goals and Objectives by Working with Other Public Agencies.
Implement the Countywide Vision.

FINANCIAL IMPACT

Approval of this item will not result in the use of Discretionary General Funding (Net County Cost). The Planning Memorandum of Understanding (MOU) does not commit the San Bernardino County Flood Control District (FCD) to any expenditure other than staff time which has been accounted for in the 2013-14 budget. Site specific agreements may be brought to the Board of Supervisors at a later date that will contain provisions bringing revenue to FCD.

BACKGROUND INFORMATION

Approval of this item will authorize FCD to enter into an MOU with the San Bernardino Valley Municipal Water District (Valley District) to work cooperatively in the planning and evaluation of the possible joint use of FCD's facilities for both flood control and groundwater replenishment operations. The MOU does not bind FCD to any project. Any proposed use of FCD properties by Valley District that originates from this MOU is at the sole discretion of FCD.

cc: Flood Control-Eke w/agreement & Newcombe
Contractor c/o Flood Control w/agreement
Auditor-Controller/Treasurer/Tax Collector-Accounts Payable Manager w/agreement
EBIX-BPO c/o Risk Management
CAO-Nelson & Olhasso
File - w/agreement
ml 07/25/13
ITEM 42

Record of Action of the Board of Supervisors

APPROVED (CONSENT CALENDAR)
COUNTY OF SAN BERNARDINO
County Flood Control District

MOTION	AYE	AYE	SECOND	MOVE	AYE
	1	2	3	4	5

LAURA H. WELCH, CLERK OF THE BOARD

BY _____

DATED: July 23, 2013

Rev 7-1-13

FCD owns and operates a number of flood control facilities within Valley District's operational boundaries. Valley District and FCD first entered into a cooperative agreement for Valley District to deliver water to several FCD detention basins for purposes of recharging the groundwater basin in 1972, and both agencies have continued to cooperatively use these facilities ever since. Valley District is now interested in expanding the number of facilities used in this effort, in addition to upgrading the facilities currently used, in order to maximize the amount of water recharge performed while acknowledging the primary goal of FCD facilities is to maintain adequate flood protection for the safety and protection of the public. FCD and Valley District wish to jointly explore the opportunities to use existing flood control basins and perhaps other facilities owned by either party, for the combined purposes of adequate flood control and useful and beneficial water replenishment operations. The MOU establishes the framework for FCD and Valley District to work together to plan and evaluate the environmental, operational and financial impacts of such combined use of their facilities. The MOU does not authorize or guarantee any specific project and the parties will comply with the California Environmental Quality Act (CEQA) prior to approving any specific project. Any future use of a facility shall be subject to the parties' approval of a site specific agreement. The MOU remains in effect for a term of ten years and provides that the parties may agree to extend the MOU for subsequent ten-year periods. Either party may terminate the MOU prior to its expiration date, but only if there is cause (e.g. breach of the agreement), and after providing the other party a 60-day written notice and opportunity to cure.

REVIEW BY OTHERS

This item has been reviewed by County Counsel (Scott Runyan, Deputy County Counsel, 387-5455) on June 28, 2013, County Administrative Office (Cory Nelson, Administrative Analyst, 387-4378) on July 1, 2013, and Finance and Administration (Mary Jane Olhasso, Assistant Executive Officer, 387-4599) on July 8, 2013.

FOR OFFICIAL USE ONLY

ORIGINAL

San Bernardino County
Flood Control District

F A S

CONTRACT TRANSMITTAL

☒ New ☐ Change ☐ Cancel	FAS Vendor Code	SC	Dept. A	Contract Number 13-608
ePro Vendor Number				ePro Contract Number
Flood Control District		Dept. 094	Orgn. 094	Contractor's License No.
Contract Representative		Telephone		Total Contract Amount
Kenneth C. Eke, Chief, FC Planning Division		909-387-8120		

Contract Type
☐ Revenue ☐ Encumbered ☐ Unencumbered ☒ Other: Grant

If not encumbered or revenue contract type, provide reason:

Commodity Code	Contract Start Date	Contract End Date	Original Amount	Amendment Amount
			$	

Fund	Dept.	Organization	Appr.	Obj/Rev Source	GRC/PROJ/JOB No.	Amount
RFL	093	093			F02481	
RFF	092	092			F02482	

Project Name: PLANNING MOU SBVMWD

Estimated Payment Total by Fiscal Year

FY	Amount	I/D	FY	Amount	I/D
FY 13/14					

CONTRACTOR San Bernardino Valley Municipal Water District

Federal ID No. or Social Security No.

Contractor's Representative C. Patrick Mulligan, President, Board of Directors

Address 380 East Vanderbilt Way, San Bernardino, CA 92408 Phone 909-387-9200

Nature of Contract: Planning Memorandum of Understanding (MOU) between the San Bernardino County Flood Control District (FCD) and the San Bernardino Valley Municipal Water District (Valley District) to work cooperatively in the planning and evaluation of the possible joint use of FCD's facilities for both flood control and groundwater replenishment operations.

Approved as to Legal Form (sign in blue ink)	Reviewed as to Contract Compliance	Presented to Board for Signature
► Counsel	►	►
Date 7-19-13	Date 7/22/13	Date 7/22/13

(Attach this transmittal to all contracts not prepared on the "Standard Contract" form.

Auditor-Controller/Treasurer/Tax Collector Use Only

☐ Contract Database	☐ FAS
Input Date	Keyed By

Rev. [illegible]

Execution Copy

Planning Memorandum of Understanding
San Bernardino County Flood Control District (FCD) and
San Bernardino Valley Municipal Water District (Valley District)

1. *Recitals*

a. WHEREAS, the FCD was created by the San Bernardino County Flood Control Act of 1939, found in Chapter 43 of the California Water Code Appendix (Flood Control Act), and its primary statutory objects and purposes are to provide for the control of flood and storm waters and secondarily to conserve such flood and storm waters, and other waters, for beneficial uses in FCD's district area by spreading, storing, retaining, and through percolation.

b. WHEREAS, Valley District was formed in 1954 as a regional agency formed to plan a long-range water supply for the San Bernardino Valley and it imports water into its service area from the State Water Project and manages groundwater storage within its boundaries.

c. WHEREAS, FCD owns and operates a number of flood control facilities within Valley District's boundaries.

d. WHEREAS, Valley District and FCD first entered into a cooperative agreement for Valley District to deliver water to FCD detention basins for purposes of recharging the groundwater basin in 1972, and Valley District and FCD have continued to cooperatively use these facilities ever since.

e. WHEREAS, Valley District is interested in continuing to cooperatively use FCD's flood control facilities to promote groundwater recharge while acknowledging the primary goal of FCD facilities to maintain adequate flood protection for the safety and protection of the public.

f. WHEREAS, as a general matter, FCD and Valley District wish to jointly explore the opportunities to use existing flood control basins (and perhaps other facilities owned by either party) for the combined purposes of adequate flood control and useful and beneficial water replenishment operations.

g. WHEREAS, FCD and Valley District wish to enter into this Planning Memorandum of Understanding (MOU) to describe in general terms their interests in coordinating their efforts to plan and evaluate the environmental and financial impacts of such combined use of FCD's facilities.

h. WHEREAS, as provided herein, this MOU does not authorize nor guarantee any specific project and the parties will comply with the California Environmental Quality Act (CEQA) prior to approving any specific project.

NOW, THEREFORE, it is mutually agreed as follows:

2. *Understandings*

a. *Priorities*

i. The parties recognize that flood control is a higher, better and more necessary public use of the property and facilities owned by the FCD pursuant to the Flood Control Act and other state and federal law. This MOU shall be subject to the paramount legal duties and obligations of FCD pursuant to the Flood Control Act.

ii. The FCD shall have the sole discretionary authority to determine what constitutes "adequate flood protection" for the operation of its facilities.

iii. FCD shall have the sole discretionary authority to determine which of its facilities are available for use in re-charge activities proposed by the Valley District. Any future use of a FCD facility shall be subject to the parties' approval of a site specific agreement.

iv. Based on the priorities and discretion provided in this Section 2.a., "Priorities", as well as the general planning nature of this MOU, FCD and Valley District acknowledge and agree that no implied covenants attach to this agreement, including, but not limited to, the implied covenant of good faith and fair dealing.

b. *Term*

This MOU shall have a term of 10 years from the date on which the last party executes this MOU. This MOU may be extended by the parties for subsequent 10-year periods, subject to approval by both parties.

c. *General Planning Efforts*

i. Once a specific plan is initiated by Valley District for the specific use of a particular flood control facility, the parties agree to allocate sufficient staff time and resources to evaluate the joint use/operation of that existing facility for adequate flood control purposes in conjunction with water replenishment. Valley District shall provide to FCD all of the details associated with the proposed use for each FCD facility including, but not limited to, any proposed improvements (including a statement as to which entity will own the improvements after a project specific agreement terminates) and a proposed operational plan for each FCD facility. This information will also include the amount of estimated recharge for both

native stormwater and State Water Project water (if any), or other sources of water, for each facility, and quality of such water.

ii. The joint evaluation may consider replenishment with both native water and water from the State Water Project or other sources and shall also consider the potential effects of groundwater replenishment to the environment, including, but not limited to, an evaluation of whether such activities will introduce water quality pollutants or mobilize existing groundwater contamination, or will cause land subsidence, liquefaction, or seepage to low lying lands in any basin to be impacted by the replenishment activities of Valley District. The parties acknowledge that Valley District will be the agency primarily leading this evaluation as it has the appropriate expertise concerning groundwater storage and the quality of waters from sources such as the State Water Project. FCD will independently review Valley District's evaluation.

iii. Considering the statutory purposes of the FCD and the goals of Valley District, both parties agree that they will determine, on a case by case basis, which agency will be in charge of seeking permits for projects and which agency will be the "Lead Agency" for purposes of complying with CEQA.

iv. Valley District will work cooperatively with FCD towards Valley District's goal of maximizing the quantity of water that can be replenished annually from the existing flood control basins, while maintaining or improving the protection of the public from the dangers of flooding. In general, FCD will not object to Valley District's use of FCD's fee owned properties or the modification of existing flood control basins that are owned in fee by FCD by means of the installation of dual-purpose facilities, *provided* that: (i) Valley District is responsible for all regulatory and other costs associated with said activities, and (ii) the incremental cost of those modifications is paid by Valley District, and (iii) FCD reviews and is satisfied with the individual circumstances surrounding the proposed project and the existing flood control facility. Nothing in this paragraph is intended to alter the sole discretionary authority of the FCD concerning the uses of its facilities.

v. The parties will also collaborate with other local, state and federal agencies with regulatory authority over these activities, including, but not limited to, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, the California Regional Water Quality Control Board, the California Department of Fish and Wildlife and any others.

vi. Valley District agrees to pay a reasonable use fee for the use of the FCD's land and facilities as agreed to by both parties on a case by case basis.

vii. Valley District acknowledges and agrees that future project specific agreements with FCD will include indemnification and insurance provisions developed by FCD's counsel and FCD's Risk Management Department that adequately protect FCD from any and all claims, actions, losses, and damages arising out of the water conservation and replenishment activities described in this MOU. The parties agree that such indemnification and insurance provisions will be negotiated in consideration of the individual circumstances surrounding each existing flood control facility on a case-by-case basis.

viii. Valley District acknowledges and agrees that future project specific agreements with FCD will also require FCD permits.

3. *General Provisions*

a. *Early Termination.* Either party may terminate this agreement prior to its expiration date for cause, *provided* that it has provided 60-day written notice and opportunity to cure to the other party prior to termination.

b. *Recitals Incorporated Herein.* The parties agree and acknowledge that the recitals set forth above are true and correct and are fully incorporated in this MOU.

c. *Non-Exclusive Agreement.* Nothing in this MOU shall prevent either party from working cooperatively with other individuals, public agencies or private organizations to improve flood protection or groundwater recharge within that party's respective jurisdiction.

d. *Authority*. Each signatory of this MOU represents that he/she is authorized to execute this MOU on behalf of the party for which he/she signs. Each party represents that it has legal authority to enter into this MOU and to perform all obligations under this MOU.

e. *Amendment*. This MOU may be amended or modified only by a written instrument executed by each of the parties to this MOU.

f. *Jurisdiction and Venue*. This MOU shall be governed by and construed in accordance with the laws of the state of California, except for its conflicts of law rules. Any suit, action, or proceeding brought under the scope of this MOU shall be brought and maintained to the extent allowed by law in the County of San Bernardino, California.

g. *Headings*. The paragraph headings used in this MOU are intended for convenience only and shall not be used in interpreting this MOU or in determining any of the rights or obligations of the parties to this MOU.

h. *Construction and Interpretation*. This MOU has been arrived at through negotiations and each party has had a full and fair opportunity to revise the terms of this MOU. As a result, the normal rule of construction that any ambiguities are to be resolved against the drafting party shall not apply in the construction or interpretation of this MOU.

i. *Entire Agreement*. This MOU constitutes the entire agreement of the parties with respect to the subject matter of this MOU and supersedes any prior oral or written agreement, understanding, or representation relating to the subject matter of this MOU.

j. *Attorneys' Fees and Costs*. Regardless of whether it is the prevailing party in any litigation or other action to enforce or interpret this MOU, each party shall bear its own attorneys' and expert witnesses' fees, costs of suit and other necessary disbursements. This paragraph shall not apply to the costs or attorney(s) fees relative to Section 3.p., "Indemnification and Insurance."

k. *Necessary Actions*. Each party agrees to execute and deliver additional documents and instruments and to take any additional actions as may be reasonably required to carry out the purposes of this MOU.

l. *Third Party Beneficiaries*. This MOU shall not create any right or interest in any non-party or in any member of the public as a third party beneficiary.

m. *Counterparts*. This MOU may be executed in one or more counterparts, each of which shall be deemed to be an original, but all of which together shall constitute but one and the same instrument.

n. *Notices*. All notices, requests, demands or other communications required or permitted under this MOU shall be in writing unless provided otherwise in this MOU and shall be deemed to have been duly given and received on: (i) the date of service if served personally or served by facsimile transmission on the party to whom notice is to be given at the address(es) provided below, (ii) on the first day after mailing, if mailed by Federal Express, U.S. Express Mail, or other similar overnight courier service, postage prepaid, and addressed as provided below, or (iii) on the third day after mailing if mailed to the party to whom notice is to be given by first class mail, registered or certified, postage prepaid, addressed as follows:

SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT

Director
Department of Public Works
County of San Bernardino
825 East Third Street
San Bernardino, California 92415
Telephone: (909) 387-7906
Facsimile: (909) 387-7911

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

General Manager
San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
San Bernardino, California 92408
Telephone: (909) 387-9200
Facsimile: (909) 387-9247

o. *Assignment.* This MOU may not be assigned by either party without the written consent of the other party.

p. *Indemnification and Insurance.* FCD agrees to indemnify, defend (with counsel approved by Valley District) and hold harmless Valley District, its employees, officers, agents, and volunteers from any and all claims, actions, losses, damages, and/or liability resulting from FCD's negligent acts or omissions which arise from FCD's performance of its obligations under this MOU. Valley District agrees to indemnify, defend (with counsel approved by FCD) and hold harmless the FCD, its employees, officers, agents, and volunteers from any and all claims, actions, losses, damages, and/or liability resulting from the Valley District's negligent acts or omissions which arise from the Valley District's performance of its obligations under this MOU. In the event, FCD and/or Valley District is found to be comparatively at fault for any claim, action, loss or damage which results from their respective obligations under this MOU, FCD and/or Valley District shall indemnify the other to the extent of its comparative fault. FCD and Valley District shall maintain throughout the term of this MOU such policies of insurance or legally sufficient self-insurance for Professional Liability (as applicable), Automobile Liability, Comprehensive General Liability, and Workers' Compensation that are adequate to protect against all liabilities and indemnification responsibilities arising out of the performance of the terms, conditions or obligations of this MOU.

IN WITNESS WHEREOF, the parties have caused this MOU to be executed by their duly authorized officers or representatives as of the last day and year appearing below.

---------- **Signatures on Following Page** ----------

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: _____
C. Patrick Milligan
President, Board of Directors

Date: 7-16-13

SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT

By: _____
Janice Rutherford, Chair, Board of Supervisors

Date: JUL 23 2013

ATTEST:

By: _____
Clerk

SIGNED AND CERTIFIED THAT A COPY OF THIS CONTRACT HAS BEEN DELIVERED TO THE CHAIRMAN OF THE BOARD

Laura H. Welch
Clerk of the Board of Supervisors
of the County of San Bernardino

By: _____
Deputy

APPROVED AS TO FORM:
SPECIAL DISTRICT COUNSEL

By: _____
David R.E. Aladjem
Special Counsel

Date: 7/18/13

APPROVED AS TO FORM:
COUNTY COUNSEL

By: _____
Scott Runyan
Deputy County Counsel

Date: 7-19-13

AMENDMENT TO AGREEMENT TO FORM THE UPPER SANTA ANA RIVER WASH LAND MANAGEMENT AND HABITAT CONSERVATION PLAN TASK FORCE

THIS AMENDMENT TO AGREEMENT TO FORM THE UPPER SANTA ANA RIVER WASH LAND MANAGEMENT AND HABITAT CONSERVATION PLAN TASK FORCE ("Amendment") is made effective this 1st day of September, 2013, by and between the following entities (hereinafter individually referred to as a "Party" and collectively referred to as the "Parties"):

CEMEX CONSTRUCTION MATERIALS, LP ("CEMEX")

CITY OF HIGHLAND ("HIGHLAND")

CITY OF REDLANDS ("REDLANDS")

COUNTY OF SAN BERNARDINO ("SAN BERNARDINO COUNTY")

SAN BERNARDINO VALLEY WATER CONSERVATION DISTRICT ("SBVWCD" OR "CONSERVATION DISTRICT")

ROBERTSON'S READY MIX, LTD ("ROBERTSON'S")

EAST VALLEY WATER DISTRICT ("EVWD")

REDLANDS MUNICIPAL UTILITIES AND ENGINEERING DEPARTMENT ("RMUED")

SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT ("SBCFCD")

UNITED STATES BUREAU OF LAND MANAGEMENT ("BLM")

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT ("VALLEY DISTRICT")

RECITALS

This Amendment is entered into on the basis of the following facts, understandings, and intentions of the Parties:

A. All Parties hereto, except Valley District, entered into that certain "Agreement to Form the Upper Santa Ana River Wash Land Management and Habitat Conservation Plan Task Force" on November 20, 2002 ("Original Agreement"), for the purposes of advancing environmental planning and permitting in connection with the Upper Santa Ana River Wash Land Management Plan ("Wash Plan").

B. Since the time the Original Agreement was entered into, planning for the Wash Plan has advanced in all phases, including with respect to groundwater recharge and other water conservation facilities. In connection with such facilities, Conservation District and Valley District have entered into a series of agreements to allow for joint use

of Conservation District property, and construction of additional facilities as part of an Enhanced Recharge Program with Valley District, to fulfill various of the Wash Plan objectives regarding expanded groundwater recharge and water conservation capabilities.

C. The Original Agreement provided, in paragraph 2 (G), that all Parties acknowledged and agreed that the effectiveness of the Task Force may be improved by the addition of other entities that had interest in the work of the Task Force, and given Valley District's intended role in contributing to expanding groundwater recharge facilities in the Wash Plan area, Valley District is such an entity.

D. At a Task Force meeting held July 16, 2013, the Task Force reviewed cost estimates for the completion of environmental review and permitting activities for the Wash Plan, and the individual members will be going to their respective governing bodies for funding authorization for the completion of such environmental review and permitting activities. In addition, the Task Force has refined its description of covered activities to be included within the "take" and other permitting authorizations proposed to be pursued, such that the Wash Plan process is now at a point where responsible estimates for long-term habitat maintenance and other costs can be generated, and an equitable distribution of such costs over parties sponsoring, or benefitting from, component projects of the overall Wash Plan can be determined.

E. The Parties therefore wish to amend the Original Agreement to add Valley District as a regular member of the Task Force, and to specify their going-forward intentions for additional consultations for deriving an equitable cost-sharing allocation for the costs that may be incurred by the Task Force members for implementation of the Habitat Conservation Plan and other permanent funding requirements that may attend final Wash Plan approval.

NOW, THEREFORE, the Parties do hereby agree as follows:

1. Valley District is, and henceforth shall be, a "Regular Member" of the Task Force under Section 2 (A) of the Original Agreement. Valley District shall pay a one-time fee into the Fund (provided in Section 5 (C) of the Task Force Agreement) of $275,000.00. Such amount shall be utilized by the Conservation District, as Project Manager, to help offset the Conservation District's share of interim and estimated costs of completion of the environmental and permitting documentation for the Wash Plan. The Task Force at its meeting on July 16, 2013 approved estimated costs for planning and consulting services.

2. The Parties agree to meet and confer, in order to rework the contribution levels specified in Exhibit "B-1" to the Original Agreement, for those expenses that will be required of the Task Force members for costs for implementation of the Habitat Conservation Plan and other implementation funding requirements that may attend final Wash Plan approval. As presently contemplated, the basis for the allocation of such implementation costs shall be allocated on a proportionate acreage basis as it relates to the habitat disturbances attributable to the portions of the

component projects of the Wash Plan advanced by, sponsored by, or benefitting Task Force members, with offsetting credit being given to the amount of habitat as acreage being contributed by various Task Force members. The Task Force will refine such costs allocations once the PAR analysis and final permitting costs are more fully determined.

3. Except as specifically amended herein, the Original Agreement remains in full force and effect.

IN WITNESS WHEREOF, the Parties hereto have entered into the Amendment as of the day and year first set forth above.

APPROVED AS TO FORM:

_____
Counsel for CEMEX

CEMEX CONSTRUCTION MATERIALS, LP

_____

APPROVED AS TO FORM:

_____
Counsel for Robertson's Ready Mix, Ltd.

ROBERTSON'S READY MIX, LTD.

_____

UNITED STATES BUREAU OF LAND MANAGEMENT

_____
Field Manager

APPROVED AS TO FORM:

_____
General Counsel

SAN BERNARDINO VALLEY WATER CONSERVATION DISTRICT

_____
President, Board of Directors

Attest: _____
Secretary of the Board

APPROVED AS TO FORM:

_____
General Counsel

EAST VALLEY WATER DISTRICT

_____
President, Board of Directors

Attest: _____
Secretary of the Board

[SIGNATURES CONTINUED ON FOLLOWING PAGE]

APPROVED AS TO FORM:

_____
City Attorney

REDLANDS MUNICIPAL UTILITIES AND ENGINEERING DEPARTMENT

_____
Mayor

Attest: _____
City Clerk

APPROVED AS TO FORM:

_____
County Counsel

COUNTY OF SAN BERNARDINO

_____
Chairperson, Board of Supervisors

Attest: _____
Clerk of the Board

APPROVED AS TO FORM:

_____
General Counsel

SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT

_____
Chairperson, Board of Supervisors

Attest: _____
Clerk of the Board

APPROVED AS TO FORM:

_____
City Attorney

CITY OF REDLANDS

_____
Mayor

Attest: _____
City Clerk

APPROVED AS TO FORM:

_____
City Attorney

CITY OF HIGHLAND

_____
Mayor

Attest: _____
City Clerk

[SIGNATURES CONTINUED ON FOLLOWING PAGE]

APPROVED AS TO FORM:

General Counsel

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT,

President, Board of Directors

Attest:

Secretary, Board of Directors

AGREEMENT TO FORM THE UPPER SANTA ANA RIVER WASH LAND MANAGEMENT AND HABITAT CONSERVATION PLAN TASK FORCE

THIS AGREEMENT is made effective this 20TH day of NOV, 2002, by and between the following entities (hereinafter individually referred to as a "Party" and collectively referred to as the "Parties"):

CEMEX CONSTRUCTION MATERIALS, LP ("CEMEX")	ROBERTSON'S READY MIX, LTD ("ROBERTSON'S")
[CITY OF HIGHLAND ("HIGHLAND")]	EAST VALLEY WATER DISTRICT ("EVWD")
CITY OF REDLANDS ("REDLANDS")	REDLANDS UTILITIES DEPARTMENT ("RUD")
COUNTY OF SAN BERNARDINO ("SAN BERNARDINO COUNTY")	SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT ("SBCFCD")
SAN BERNARDINO VALLEY WATER CONSERVATION DISTRICT ("SBVWCD" OR "CONSERVATION DISTRICT")	UNITED STATES BUREAU OF LAND MANAGEMENT ("BLM")

RECITALS

This Agreement is entered into on the basis of the following facts, understandings, and intentions of the Parties:

A. Representatives of numerous agencies, including water, mining, flood control, resource management and conservation, and municipalities, formed the Santa Ana River Wash Area Coordinating Planning Activities Committee ("Wash Committee") to address local mining issues and other land functions on the Upper Santa Ana River Wash ("Wash"). A Policy Action Committee ("PAC") was subsequently established, consisting of elected officials from San Bernardino County, Highland, Redlands, and the Conservation District, as well as the Field Manager of the BLM. A Technical Advisory Committee ("TAC") was also formed with representatives from the PAC agencies, and other water, mining, flood control, and resource protection interests.

B. The Wash Committee examined the most appropriate manner in which to use the Wash for the benefit of all landowners without regard to preexisting planning of the Wash or current land ownership. Ultimately, the Wash Committee determined that there should be a balance of land uses to accommodate the needs of mineral extraction, water conservation, habitat protection, and municipal infrastructure

requirements (i.e. utilities, trails, etc.). To achieve land use balance, current land uses must be reassigned to better accommodate mineral extraction, water conservation, and habitat. To effect such change, an exchange of existing land ownership between BLM and the Conservation District, and a transfer of leasehold interests between the mining companies and the Conservation District will be required.

C. The TAC reached a general consensus in early 2000 regarding the designation of specific areas of the Wash for the desired uses. The result of this multi-jurisdictional effort was the creation of a proposed Land Management and Habitat Conservation Plan for the Upper Santa Ana River Wash ("Concept Plan"). The Concept Plan establishes the framework for balancing ongoing and future land activities proposed for the Wash Planning Area ("WPA"), including habitat protection areas and recreational trail alignments. The Concept Plan was reviewed and endorsed by the governing boards and/or officials with approval authority from each of the Parties, and various other agencies involved in the deliberations on the Concept Plan.

D. Each of the Parties have found and determined that it is in their best interests to join together to: manage activities in connection with the necessary refinements, environmental review, and implementation of the Land Management and Habitat Conservation Plan (collectively the "Project"); provide an equitable cost-sharing mechanism for the funding of the Project; and, define the projected schedule and scope of work to execute the Project.

E. The Parties hereto now enter into this Agreement to establish a Task Force, consisting of a representative from each party, to oversee and administer the preparation of plans, environmental review documents, public notices and hearings, and other activities requisite to the formulation and, if adopted, execution of the Project.

F. In entering into this Agreement, the Parties reserve their discretionary authority with regard to the execution of the Project, including but not limited to, any land use and planning authority under state and local law, authority, designated under the Surface and Mining Recovery Act ("SMARA"), and CEQA approval of their own discretionary decisions executing the Project.

TERMS & CONDITIONS

SECTION 1: DESCRIPTION OF PROJECT.

The Project to be undertaken by the Task Force consists of all of the following:

A. Refinement and expansion of the Concept Plan (Exhibit "A") to develop the Component Plans of a "Land Management and Habitat Conservation Plan for the Upper Santa Ana River Wash" ("Plan"), which includes the following:

1. A Mining and Reclamation Plan under the Surface Mining and Reclamation Act ("SMARA") designating the areas as generally depicted in Exhibit "A" to be devoted to sand, gravel, and mineral extraction and the terms and conditions under which such extraction may proceed, which will be provided by CEMEX and

Robertson's to the appropriate municipality, Highland or Redlands, for review and approval;

2. A Water Conservation Plan, which describes the scope, extent, and location of water diversions, conveyance, spreading, and monitoring activities, which will be provided by the Conservation District;

3. A Recreation Plan, which coordinates the planning and development of trails, parks, and public recreation areas, which will be provided by Conservation District, San Bernardino County, and Redlands;

4. An Infrastructure Plan, which describes the location of pipelines, utility corridors, roads, highways, and communication facilities, which will be provided by the Conservation District, EVWD, and Redlands;

5. A Habitat Protection Plan, which will be provided by the Conservation District to identify habitat areas that may be considered to protect threatened and endangered species at such time as other activities within the Wash are presented to the appropriate agency for entitlements, approvals and /or land use permits; and

6. A Flood Control Plan, which describes flood control facilities/activities including detention and retention basins, drains, and storm water conveyance facilities, which will be provided by SBCFCD.

B. Preparation of preliminary documents necessary to conduct an environmental analysis, including the following:

1. A Project Description for the environmental analysis based on the Component Plans described above;

2. Alternative land balancing plans to be studied in the environmental analysis;

3. A plan outline, including actions, required funding, and the administrative or legislative measures needed to implement the Project, which will be known as the Implementation Action Plan; and

4. A draft agreement to execute the Implementation Action Plan, which will be known as the Implementation Agreement.

C. Preparation of an EIR/EIS for implementation of the Plan, including a mitigation monitoring plan, based on the Component Plans in 1.A. above, and the preliminary documents in 1.B. above.

D. Completion of a proposed land exchange between BLM and Conservation District. BLM, working with the Conservation District, shall undertake activities to assess, and if appropriate, implement by way of a Memorandum of Understanding or

other appropriate instrument with the Conservation District, a land exchange. The assessment and potential implementation of the land exchange will analyze whether portions of property currently owned by BLM can feasibly and beneficially be exchanged for portions of property owned by the Conservation District.

E. Preparation of the implementation documents based on the completed EIR/EIS, including the following:

1. A certification of the EIR and record of decision for the EIS;

2. An Implementation Action Plan; and

3. A Habitat Conservation Plan, including a programmatic Section 10a Take Permit.

F. Task Force submit the EIR/EIS, Implementation Action Plan, and Habitat Conservation Plan to the appropriate agencies for their action and, if adopted, subsequent implementation.

SECTION 2: CREATION OF THE TASK FORCE.

There is hereby created a task force that shall be known as the Upper Santa Ana River Wash Land Management and Habitat Conservation Plan Task Force ("Wash Task Force" or "Task Force"). The Task Force shall oversee and direct preparation of the Project and shall be comprised of regular and advisory members as follows:

A. Regular Members.

Each Party who contributes financially to fund the Project in accordance with Exhibit "B" to this Agreement, as may be amended from time to time, or contributes with in-kind services that result in a product for use by the Task Force commensurate with the level of contribution identified in Exhibit "B," shall be deemed a Regular Member of the Task Force. Any dispute regarding whether "in-kind" services contributions by a Party entitles such Party to status as a Regular Member shall be submitted to all then-existing Task Force Regular Members, and will be decided by a majority vote of the Task Force Regular Members. Each Regular Member shall be entitled to appoint two (2) representatives to the Task Force concurrently with the execution of this Agreement. Each Regular Member shall appoint (1) representative to oversee and contribute to the technical/staff aspects of the Task Force's work, and one (1) member of the legislative body, Board of Directors, or other body with ultimate decision making and policy making authority for the Regular Member, who shall be the voting member of the Task Force. Notwithstanding that each Regular Member shall have two (2) representatives to the Task Force, each Regular Member shall have and exercise only one (1) vote. The identity of each of the appointed representatives from each respective Party shall be promptly communicated to the Project Manager. Appointed representatives to the Task Force shall serve at the pleasure of the governing body of the respective appointing Party, and may be removed by them at any time, with or without cause; provided, however, that the Parties acknowledge and agree the continuity of representation on the

Task Force is important to the overall effectiveness of the Task Force, and the Parties further agree to ensure such continuity whenever possible.

B. Advisory Members.

1. Any member of the TAC, which is not a Regular Member of the Task Force, and any other public or governmental agency, may with the approval of a majority of the Regular Members of the Task Force, designate representatives as non-voting advisors to the Task Force ("Advisory Members"). The Task Force will formally recognize these Advisory Members and ensure all materials and products of the Task Force are provided to the Advisory Members. A list of Advisory Members will be maintained by the Project Manager.

2. The California Department of Water Resources (DWR), the California Department of Fish and Game (DFG), and the United States Fish and Wildlife Service (USFWS), County of Orange, and the City of Highland are hereby designated as Advisory Members to the Task Force.

3. Advisory Members may be admitted as Regular Members, with voting privileges, with approval by a majority vote of Regular Members of the Task Force.

C. Function.

1. The Task Force shall oversee and direct the preparation of all of the component elements of the Project.

2. The Task Force shall assist in the selection of a consultant to assist in planning and implementing the Project ("Consultant"). The Consultant selected must be acceptable to the Federal lead agency.

3. The Task Force shall meet periodically for the purpose of reviewing and evaluating the work product of the Task Force and the Consultant.

4. The Task Force shall administer this Agreement, subject to the reserved right of each of the Parties to approve their respective financial appropriations to Task Force budgets.

5. The Task Force shall propose contribution levels for each Party, subject to Section 4.D. herein. The contribution level for each Party shall initially be those set out in Exhibit "B" hereto.

6. The Task Force shall, in consultation with the Consultant, prepare and adopt a project schedule ("Project Schedule"). When completed, the Project Schedule will be circulated among all Regular and Advisory Members, and will be maintained by the Project Manager.

D. Committees.

The Task Force may establish working committees, which shall be designated from a pool of Regular and Advisory members who shall be selected by and serve at the pleasure of the Task Force.

E. Designation of Officers.

The Task Force shall designate and appoint one of its representatives to act as Chair and another of its members to act as Vice-Chair, both of which shall be selected from the pool of Regular Members. The Conservation District shall perform the functions of project administrator, including secretarial and treasurer duties.

F. Meetings

Regular meetings of the Task Force shall be held at the Conservation District offices, or such other place as may be agreed upon by the Task Force. At the first meeting, the Task Force shall provide for the time and place of its regular meetings. Special meetings may be called at the request of the Chair or of a majority of Regular Members to the Task Force. A majority of Regular Members of the Task Force shall constitute a quorum for the purposes of transacting business. Except as otherwise provided herein, all actions of the Task Force shall be passed and adopted upon the affirmative vote of a majority of the quorum of Regular Members. All meetings of the Task Force shall be conducted in accordance with California's Open Meeting Laws. The Project Manager shall keep or cause to be kept, minutes of the meetings of the Task Force, copies of which shall be forwarded to each Task Force representative and to each Party. The Task Force may adopt, from time to time, such additional rules and regulations for the conduct of its affairs as may be required.

G. Additional Parties.

The Parties to this Agreement acknowledge and agree that the effectiveness of the Task Force may be improved by the addition of other entities that have interest in the work of the Task Force. Such entities may join the Task Force upon approval of a majority of the Regular Members of the Task Force, and upon such terms and conditions as are acceptable to such Regular Members, including, but not limited to, cash contributions to past, present, and/or future work of the Task Force.

H. City of Highland as Regular Member.

At the time of execution of this Agreement, the City of Highland has expressed its interest in joining the Task Force as a Regular Member, and the parties to this Agreement contemplate and desire that it do so. Provided City of Highland approves and executes this Agreement within One Hundred Eighty (180) days of the Effective Date, and pays its share of the Task Force Contribution Levels as set forth in Exhibit "B-1," for application to all expenses incurred by the Task Force from the Effective Date and following, City of Highland may join the Task Force, as a Regular Member, without the necessity of an approving vote of the Regular Members. In the event City of

Highland so joins the Task Force pursuant to the terms and conditions of this Section 2 (H), and effective immediately and prospectively from the date it does, various provisions of this Agreement shall be thereupon automatically be amended, all as more specifically set out in Exhibit "D" hereto.

SECTION 3: LEAD AGENCY DESIGNATION

A. Consistent with the First Amendment to the Memorandum of Understanding Regarding Coordinated Planning Activities Pertaining to the Santa Ana River Wash Area dated August 13, 1997, ("MOU") and its designation of the Conservation District as the Permanent Chair of the Policy Action Committee, the Conservation District is hereby designated as the Lead Agency for all non-federal activities associated with the Project under the California Environmental Quality Act ("CEQA").

B. The BLM is hereby designated as the Lead Agency for all federal activities associated with the Project under the National Environmental Policy Act ("NEPA").

SECTION 4: PROJECT MANAGER.

A. The Conservation District shall serve as the Project Manager, at the pleasure of the Task Force. The Project Manager shall act as the primary liaison and contact between the Consultant, the Task Force, and the Parties to the Second Amendment.

B. The duties of the Project Manager shall include the following:

1. Serve as the Lead Agency under CEQA and as assistant to BLM, which is the Lead Agency under NEPA; provided, however, that on issues relating to definition of level of significance for impacts, existence of and mitigation for significant adverse environmental impacts, and formulation of a mitigation monitoring program for those portions of the Project which involve mining activity within the jurisdictional boundaries of Redlands, and which require permits under SMARA, the Project Manager shall accept and incorporate into the EIR/EIS the determinations of Redlands for such aspects of the Project.

2. Administer the cost-sharing formula, which designates the percentage of the total cost of the Project, as approved by each Party to fund the Project;

3. Coordinate communications between the Consultant and the Parties;

4. Provide the Consultant with copies of all earlier studies and EIRs, which may be helpful to the Consultant to complete the Project;

5. Gather and transmit data to the Consultant from the Parties;

6. Provide periodic reports to the Task Force of the progress of the Project;

7. Report to and solicit input from the Task Force regarding policy issues that may arise;

8. Oversee the billing for all aspects of the Project;

9. Receive and pay all appropriate invoices for the Consultant;

10. Review the Consultant's charges and advise the Task Force of any problems associated with the Project;

11. Facilitate meetings of the Task Force and maintain records of the Task Force;

12. The Project Manager shall, through a written Notice to Proceed, cause the Consultant to commence the Project, and shall cause the Consultant to perform all services within the time period(s) established in the Project Schedule, and in conformity with the approved Project Flow Diagram, attached hereto as Exhibit "C"; and,

13. Either approve or deny by way of written response any requests for minor adjustments to the time period(s) specified in the Project Schedule.

C. Administration of Task Force Work.

The Conservation District shall make its personnel available as reasonably necessary to the Task Force to perform the secretarial, clerical, administrative, legal general counsel, and financial management duties requested by the Task Force. The Task Force shall compensate the Conservation District for the Conservation District's actual costs incurred in providing such services to the Task Force, upon presentation of an invoice detailing the services rendered and costs thereof, and approval of the same by the Task Force.

SECTION 5: FUNDING MECHANISM.

A. The current estimated cost for the preparation of plans and environmental review for the Project is $823,258, or $973,258 if the consultant prepares the Implementation Agreement. The Task Force shall periodically approve a contribution amount to be requested of all Regular Members, to be paid to and managed by the Project Manager consistent with the provisions of this Section 4, from which the Project Manager will meet the expenses incurred in implementing the Project. Contributions shall be apportioned among the Parties, as agreed to by the Parties. The initial levels of contribution are identified in Exhibit "B" to this Agreement.

B. The Conservation District as Project Manager shall coordinate Consultant retention, direction, coordination, and oversight in the planning and implementation of

the Project, and shall serve as the agency through which funds are to be conveyed and disbursed for the purpose of completing the Project.

C. The Conservation District shall establish a fund ("Fund") into which it will cause to be deposited all of the contributions received from the Task Force towards the estimated cost of the Project. It is intended that this Fund finance the Project in its entirety. In establishing the Fund, the Conservation District shall assure that all interest earned by the Fund is to be paid into the Fund, and made solely available for the funding of the Project. The Task Force may from time to time propose a cost-sharing formula differing from that attached as Exhibit "B", which designates the percentage of the total cost of the Project each Party will be required to contribute to the Fund. Upon approval by the Task Force of a contribution amount to be requested of the Regular Members, the Project Manager shall submit invoices to each Party requesting payment of their respective contributions, pursuant to the formula attached as Exhibit "B," or as otherwise proposed by the Task Force. Payment of these invoices shall be made to the Conservation District within 30 days of receipt of such invoice. If any Regular Member fails to timely remit payment of its share of the invoices in accordance to Exhibit "B" to this Agreement, the voting rights of such Regular Member shall be suspended until such time as the full amount of the invoice is paid, or the final resolution of any dispute regarding the invoice, as provided below. During such period of suspension, the Party shall enjoy only those rights and privileges as an Advisory Member of the Task Force.

D. Each Party reserves the right to approve its own contribution level to the Project, as well as its ultimate payment authority of invoices issued by the Project Manager, in whole or in part, on a per-invoice basis.

E. The Project Manager shall have authority and control of disbursements from the Fund. The Project Manager shall provide the Task Force with an accounting on at least a quarterly basis showing all disbursements, accrued interest, and other debits and credits to the Fund for the preceding quarter. Any amounts paid to the Project Manager shall not be subject to refund, except as provided herein.

F. Should a dispute arise between the Project Manager and any Party(ies) with respect to either an invoice submitted by the Consultant or any other disbursement from the Fund, the complaining Party(ies) shall notify the Project Manager in writing, specifying the nature of the objections, the reasons therefor, and the action the complaining Party(ies) requests the Project Manager to take in resolution of the dispute. Upon receipt of any such written objection, the Project Manager shall meet or otherwise confer with the complaining Party(ies) in a good faith effort to resolve the dispute. In the event such efforts do not result in resolution of the dispute within ten (10) days of the Project Manager's receipt of the written objection, the Project Manager shall refer the matter to the Task Force, and shall provide it with any and all receipts, invoices, or other documents necessary for the prompt resolution of the dispute. The Task Force shall consider and resolve the matter at its next scheduled meeting, but no later than thirty (30) days following the Project Manager's referral of the dispute to the Task Force. In resolving the dispute, the decision of the majority of the Regular Members of the Task Force shall be final.

G. Upon completion of the Project, or earlier termination of this Agreement, any unexpended Funds shall be returned to the Parties in proportion to their financial contribution.

SECTION 6: OWNERSHIP OF DOCUMENTS.

All work produced in association with the Project (including originals prepared by anyone in connection with, or pertaining to, the work of the Task Force) shall become the property of the Regular Members of the Task Force, and each of them.

SECTION 7: INDEMNIFICATION.

Neither the Project Manager nor any officer or employee thereof shall be responsible to any other Party for any damage or liability occurring by reason of anything done, or omitted to be done, by the Consultant, or in connection with any work, authority or jurisdiction delegated to the Project Manager under this Agreement. All Parties, and each of them, hold the Project Manager harmless from any claim, demand, suit of law or equity, or other proceeding arising from or relating to the Project Manager's performance of its obligations contemplated by this Agreement. Nothing herein shall be read or understood as indemnifying or holding the Conservation District, or any officer or employee thereof, harmless from any claim, demand, suit on law or equity, or other proceeding arising from or relating from the acts or omissions of the Conservation District while acting as a Party to this Agreement.

In addition, each Party agrees to indemnify, defend, and hold harmless each other Party and its officers, employees, agents, and volunteers from any and all claims, actions, losses, damages, and/or liability arising out of its obligations under this Agreement.

In the event any Party is found to be comparatively at fault for any claim, action, or loss, or damage that results from their respective obligations under this Agreement, the Party(s) found to be at fault shall indemnify the other(s) to the extent of its comparative fault.

Federal agencies' obligations under this Agreement shall be to the extent permitted by the Federal Tort Claims Act.

SECTION 8: NOTICES.

All notices required to be provided hereunder, except meeting notices, shall be in writing, and either served personally or sent by United States Mail. Meeting notices may be provided by electronic mail correspondence. For these purposes, the addresses for the Parties and Advisory Members are as follows:

As to Cemex Construction Materials, LP:
Regional Environmental Manager
CEMEX
P.O. Box 4120
Ontario, CA 91761-1607

As to Robertson's Ready Mix:
Robertson's Ready Mix, Ltd.
Attention: Rich Robertson
P.O. Box 33140
Riverside, CA 92519

[As to Highland:
Community Development Director
City of Highland
27215 Base Line
Highland, CA 92346]

As to EVWD:
General Manager
East Valley Water District
P.O. Box 3427
San Bernardino, CA 92413

As to Redlands:
Community Development Director
City of Redlands
P.O. Box 3005
Redlands, CA 92373

As to RUD:
Chief of Water Resources
Redlands Utilities Department
P.O. Box 3005
Redlands, CA 92373

As to SBCFCD:
Director
San Bernardino Co. Flood Control District
825 E. Third Street
San Bernardino, CA 92415-0835

As to San Bernardino County:
Land Use Services Department
Advance Planning Division
County of San Bernardino
385 North Arrowhead Avenue – 3rd Floor
San Bernardino, CA 92415-0182

As to Conservation District:
General Manager
San Bernardino Valley Water District
P.O. Box 1839
Redlands, CA 92373-0581

As to BLM:
Field Manager, Palm Springs-South Coast
Field Office
Bureau of Land Management
P.O. Box 581260
North Palm Springs, CA 92258-1260

As to USFWS:
Field Supervisor
U.S. Fish & Wildlife Service
2730 Loker Avenue West
Carlsbad, CA 92008

As to DFG:
Department of Fish & Game
P.O. Box 1217
Redlands, CA 92373

As to County of Orange:
Attn: Mike Wellborn
Planning and Development Services
County of Orange
P.O. Box 4048
Santa Ana, CA 92702-4048

As to DWR:
Recreation and Environmental Studies
Department of Water Resources
770 Fairmont
Glendale, CA 91203

SECTION 9: ENTIRE AGREEMENT.

This Task Force Agreement contains the entire agreement of the Parties hereto with respect to the matters contained herein, and supersedes all negotiations, prior discussions, and preliminary agreements or understandings, written or oral relating to

the Task Force and Project Manager. No waiver or modification of this Agreement shall be binding unless consented to by all Parties in writing.

SECTION 10: WAIVER.

No waiver of any default shall constitute a waiver of any other default or breach, whether of the same or other covenant or condition. No waiver, benefit, privilege, or service voluntarily given or performed by a Party shall give the other Party any contractual rights by custom, estoppel, or otherwise.

SECTION 11: COOPERATION: FURTHER ACTS.

All parties agree to use reasonable care and diligence to perform their respective obligations under this Agreement. All parties agree to act in good faith to execute all instruments, prepare all documents, and take all actions as may be reasonably necessary, appropriate or convenient to carry out the purposes of this Agreement.

SECTION 12: GOVERNING LAW.

This Agreement shall be governed by and construed under the laws of the State of California. Federal agency participation under this Agreement, however, shall be governed by the applicable federal laws.

SECTION 13: ATTORNEYS' FEES.

In the event the Task Force initiates or defends any litigation or other judicial or administrative proceeding in connection with the Project or this Agreement, retention of counsel to represent the Task Force, if required, shall be by the Project Manager, subject to the approval of the Task Force. The costs of such retention will be invoiced to the members of the Task Force in the same manner, and subject to the same procedures, as all other consultant costs invoiced to the Task Force. In any action or proceeding involving a dispute between the Parties arising out of this Agreement, the prevailing Party shall be entitled to receive from the other Party, reasonable attorneys' fees. The term "attorneys' fees" shall include reasonable costs for investigating the action, conducting discovery, cost of appeal, costs and fees for expert witnesses, and all other normally allowable costs incurred in such litigation, whether or not such litigation is prosecuted to final judgment. Service of process on any Party shall be made in any manner permitted by law and shall be effective whether served inside or outside of California.

Notwithstanding the foregoing, attorneys' fees and costs' recoverable against the United States, however, shall be governed by applicable federal laws.

SECTION 14: NO THIRD PARTY BENEFICIARIES.

There are no intended third party beneficiaries of any right or obligation assumed by the Parties. No member of, or delegate to, Congress or Federal Resident

Commissioner, shall be entitled to any share of this Agreement, or to any benefit that may arise from it.

SECTION 15: CONSTRUCTION: CAPTIONS.

The language of this Agreement shall be construed according to its fair meaning, and not for or against any Party hereto based on authorship. The captions of the various articles and paragraphs are for convenience and ease of reference only, and do not define, limit, augment, or describe the scope, content, or intent of this Agreement.

SECTION 16: SEVERABILITY.

Each provision of this Agreement shall be severable from the whole. If any provision of this Memorandum shall be found contrary to law, it is the intention of all the Parties, and each of them, that the remainder of this Agreement shall continue in full force and effect.

SECTION 17: INCORPORATION OF RECITALS.

The Recitals are incorporated herein and made an operative part of this Agreement.

SECTION 18: AUTHORITY TO ENTER INTO AGREEMENT.

All Parties warrant that they have all requisite power and authority to execute and perform this Agreement. Each person executing this Agreement on behalf of their party warrants that he or she has the legal power, right, and authority to make this Agreement and bind his or her respective Party, and that in so doing, such Party is not thereby in breach of any other contract or agreement.

SECTION 19: COUNTERPARTS.

This Agreement may be signed in counterparts, each of which shall constitute an original.

SECTION 20: EFFECTIVE DATE

The Effective Date of this Agreement shall be latest of the dates set next to the signatures of the parties hereto evidencing signature by all the parties hereto, which latest date shall be inserted into the preamble to this Agreement.

SECTION 21: NO ASSIGNMENT.

The rights and obligations of this Agreement may not be transferred, assigned, or encumbered by any Party hereto without the prior, express, written consent of a majority of the Regular Members of the Task Force.

SECTION 22: DISSOLUTION.

The Task Force may be dissolved upon a 2/3 majority vote of the regular members. Upon such dissolution, the Project Manager is entitled to pay all outstanding invoices, and distribute any remaining money in the Fund among the contributing members pro-rata according to each Party's respective financial contribution.

SECTION 23: TERMINATION.

A. Any Party may voluntarily terminate its participation under the Agreement at any time upon delivery of at least 60 days prior written notice to the Task Force.

B. The Task Force may, upon a 2/3 majority vote, terminate any Party's participation under the Agreement upon that Party's failure to make its pro-rata contribution:

(1) Within 30 days of the date said Party's contribution becomes due; OR

(2) Within 45 days after the Task Force resolves said Party's dispute over the payment of an invoice in favor of payment as set forth in Section 4(F) of this Agreement.

C. Upon a Party's termination from participation under the Agreement, the Project Manager shall return the portion of that Party's pro-rata contribution not expended by the Project Manager after paying invoices for all charges incurred during the period that Party served as a Member of the Task Force.

D. The termination of any member or members of the Task Force shall not affect the remaining Parties' obligations under this Agreement, except for redistribution of contributions described herein. This Agreement shall remain in effect until such time as 2/3 of the regular members vote to dissolve the Task Force as provided by Section 22 of this Agreement.

[SIGNATURES ON FOLLOWING PAGE]

IN WITNESS WHEREOF, the Parties hereto have entered into this Agreement as of the day and year set forth below, the last of which shall be the effective date of this Agreement.

APPROVED AS TO FORM:

Counsel for CEMEX

CEMEX CONSTRUCTION MATERIALS, LP, by CEMEX, Inc., its General Partner

APPROVED AS TO FORM:

Counsel for Robertson's Ready Mix, Ltd.

ROBERTSON'S READY MIX, LTD

UNITED STATES BUREAU OF LAND MANAGEMENT

Field Manager

APPROVED AS TO FORM:

General Counsel

SAN BERNARDINO VALLEY WATER CONSERVATION DISTRICT

President, Board of Directors

Attest: _____
Secretary of the Board

APPROVED AS TO FORM:

General Counsel

EAST VALLEY WATER DISTRICT

President, Board of Directors

Attest: _____
Secretary of the Board

APPROVED AS TO FORM:

City Attorney

REDLANDS UTILITIES DEPARTMENT

Mayor

Attest: _____
City Clerk

IN WITNESS WHEREOF, the Parties hereto have entered into this Agreement as of the day and year set forth below, the last of which shall be the effective date of this Agreement.

APPROVED AS TO FORM:

_____
Counsel for CEMEX

CEMEX CONSTRUCTION MATERIALS, INC.:

_____

APPROVED AS TO FORM:

_____
Counsel for Robertson's Ready Mix, Ltd.

ROBERTSON'S READY MIX, LTD

_____

UNITED STATES BUREAU OF LAND MANAGEMENT

_____
Field Manager

APPROVED AS TO FORM:

_____
General Counsel

SAN BERNARDINO VALLEY WATER CONSERVATION DISTRICT

_____
President, Board of Directors

Attest: _____
Secretary of the Board

APPROVED AS TO FORM:

_____
General Counsel

EAST VALLEY WATER DISTRICT

_____
President, Board of Directors

Attest: _____
Secretary of the Board

APPROVED AS TO FORM:

_____
City Attorney

REDLANDS UTILITIES DEPARTMENT

_____
Mayor

Attest: _____
City Clerk

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APPROVED AS TO FORM:

_____
Counsel for CEMEX

CEMEX CONSTRUCTION MATERIALS, INC.

_____

APPROVED AS TO FORM:

_____
Counsel for Robertson's Ready Mix, Ltd.

ROBERTSON'S READY MIX, LTD

_____

UNITED STATES BUREAU OF LAND MANAGEMENT

_____
Field Manager

APPROVED AS TO FORM:

_____
General Counsel

SAN BERNARDINO VALLEY WATER CONSERVATION DISTRICT

_____
President, Board of Directors

Attest: _____
Secretary of the Board

APPROVED AS TO FORM:

_____
General Counsel

EAST VALLEY WATER DISTRICT

_____
President, Board of Directors

Attest: _____
Secretary of the Board

APPROVED AS TO FORM:

_____
City Attorney

REDLANDS UTILITIES DEPARTMENT

_____
Mayor

Attest: _____
City Clerk

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APPROVED AS TO FORM:

_____
Counsel for CEMEX

CEMEX CONSTRUCTION MATERIALS, INC.

_____

APPROVED AS TO FORM:

_____
Counsel for Robertson's Ready Mix, Ltd.

ROBERTSON'S READY MIX, LTD

_____

UNITED STATES BUREAU OF LAND MANAGEMENT

_____
Field Manager

APPROVED AS TO FORM:

David B. Cosgrove
General Counsel

SAN BERNARDINO VALLEY WATER CONSERVATION DISTRICT

Sterling Woodbury
President, Board of Directors

Attest: Burnell Carroll
Secretary of the Board

APPROVED AS TO FORM:

_____
General Counsel

EAST VALLEY WATER DISTRICT

_____
President, Board of Directors

Attest: _____
Secretary of the Board

APPROVED AS TO FORM:

_____
City Attorney

REDLANDS UTILITIES DEPARTMENT

_____
Mayor

Attest: _____
City Clerk

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APPROVED AS TO FORM:

_____
Counsel for CEMEX

CEMEX CONSTRUCTION MATERIALS, LP

_____

APPROVED AS TO FORM:

_____
Counsel for Robertson's Ready Mix, Ltd.

ROBERTSON'S READY MIX, LTD

_____

UNITED STATES BUREAU OF LAND MANAGEMENT

_____
Field Manager

APPROVED AS TO FORM:

_____
General Counsel

SAN BERNARDINO VALLEY WATER CONSERVATION DISTRICT

_____
President, Board of Directors

Attest: _____
Secretary of the Board

APPROVED AS TO FORM:

_____
General Counsel

EAST VALLEY WATER DISTRICT

Vice George E."Skip" Wilson
President, Board of Directors

Attest: Robert E. Martin
Secretary of the Board

APPROVED AS TO FORM:

_____
City Attorney

REDLANDS UTILITIES DEPARTMENT

_____
Mayor

Attest: _____
City Clerk

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APPROVED AS TO FORM:

_____
Counsel for CEMEX

CEMEX CONSTRUCTION MATERIALS, LP

_____

APPROVED AS TO FORM:

_____
Counsel for Robertson's Ready Mix, Ltd.

ROBERTSON'S READY MIX, LTD

_____

UNITED STATES BUREAU OF LAND MANAGEMENT

_____
Field Manager

APPROVED AS TO FORM:

_____
General Counsel

SAN BERNARDINO VALLEY WATER CONSERVATION DISTRICT

_____
President, Board of Directors

Attest: _____
Secretary of the Board

APPROVED AS TO FORM:

_____
General Counsel

EAST VALLEY WATER DISTRICT

_____
President, Board of Directors

Attest: _____
Secretary of the Board

APPROVED AS TO FORM:

N/A
_____
City Attorney

REDLANDS UTILITIES DEPARTMENT

_____
Mayor

Attest: _____
City Clerk

APPROVED AS TO FORM:

County Counsel

COUNTY OF SAN BERNARDINO

Chairperson, Board of Supervisors

Attest:
Clerk of the Board

APPROVED AS TO FORM:

County Counsel

SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT

Chairperson, Board of Supervisors

Attest:
Clerk of the Board

APPROVED AS TO FORM:

City Attorney

CITY OF REDLANDS

Mayor

Attest:
City Clerk

[APPROVED AS TO FORM:]

[City Attorney]

[CITY OF HIGHLAND]

Mayor

[Attest:
[City Clerk]]

APPROVED AS TO FORM:

County Counsel

COUNTY OF SAN BERNARDINO

Chairperson, Board of Supervisors

Attest: Clerk of the Board

APPROVED AS TO FORM:

General Counsel

SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT

Chairperson, Board of Supervisors

Attest: Clerk of the Board

APPROVED AS TO FORM:

N/A
City Attorney

CITY OF REDLANDS

Mayor

Attest: City Clerk

[APPROVED AS TO FORM:]

[City Attorney]

[CITY OF HIGHLAND]

[Mayor]

[Attest:]
[City Clerk]

APPROVED AS TO FORM:

County Counsel

COUNTY OF SAN BERNARDINO

Chairperson, Board of Supervisors

Attest: Clerk of the Board

APPROVED AS TO FORM:

General Counsel

SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT

Chairperson, Board of Supervisors

Attest: Clerk of the Board

APPROVED AS TO FORM:

City Attorney

CITY OF REDLANDS

Mayor

Attest: City Clerk

[APPROVED AS TO FORM:]

[City Attorney]

[CITY OF HIGHLAND]

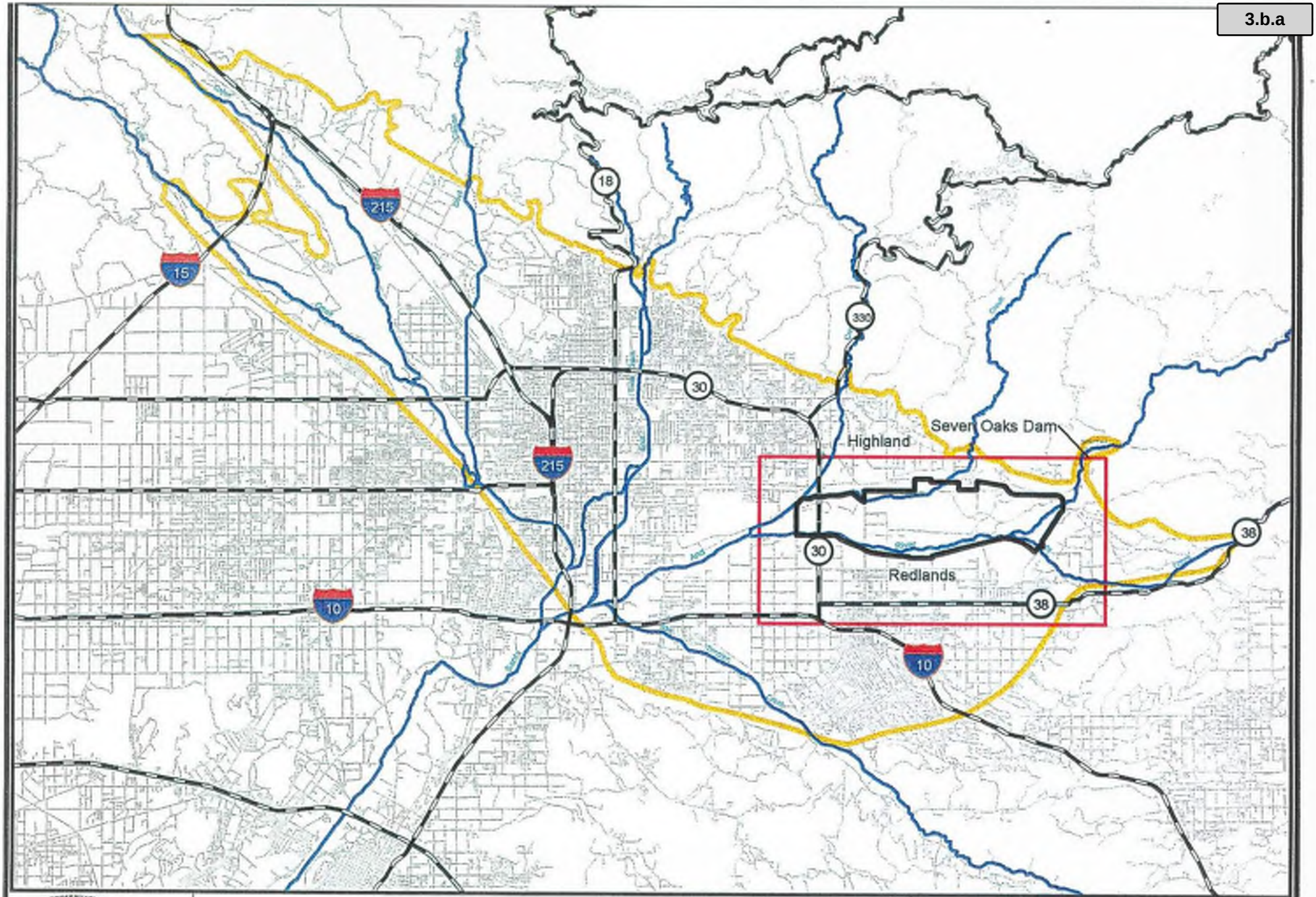
[Mayor]

[Attest: [City Clerk]]

159/015042-0001
169068.19 a06/12/02

EXHIBIT "A": CONCEPT PLAN (Executive Summary)

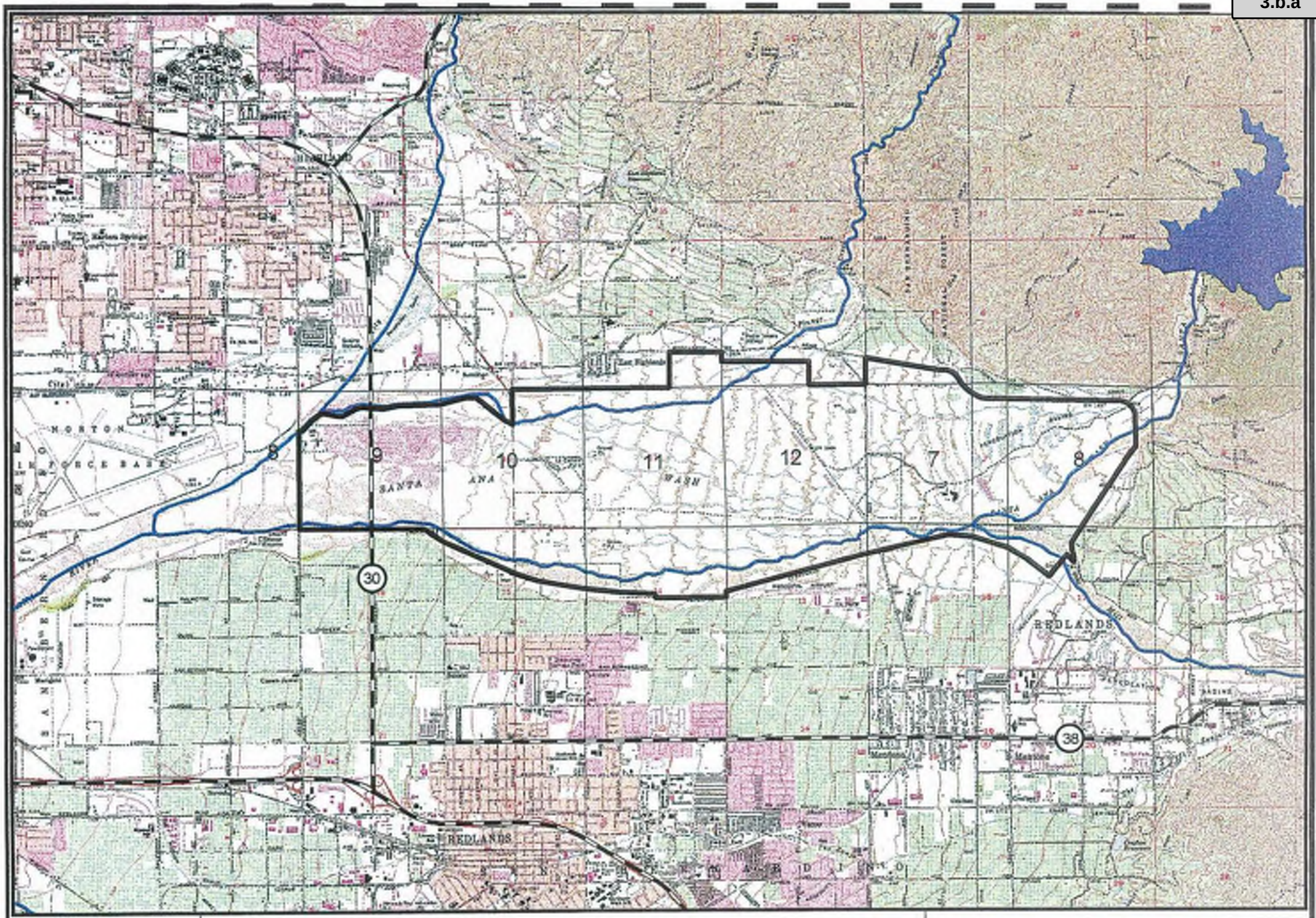
AREAS TO BE MINED UNDER SMARA, AREAS FOR WATER CONSERVATION, AND AREAS FOR PROTECTION OF HABITAT



Santa Ana Wash Planning Area (Plan B) - Location Map (Fig. 1)

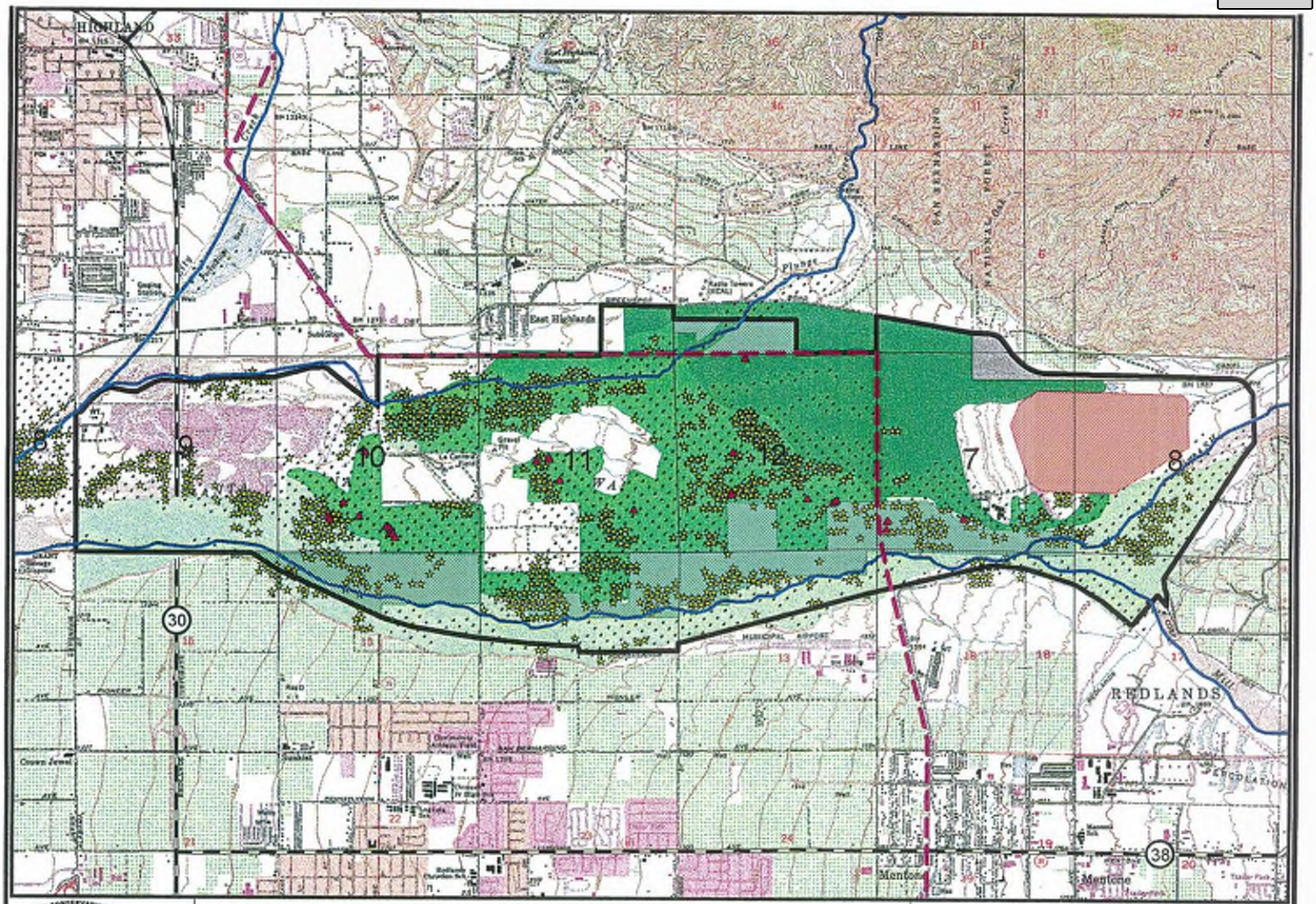
Interstate
Highway
Roads

WPA Boundary
Area of Interest
Bunker Hill Basin

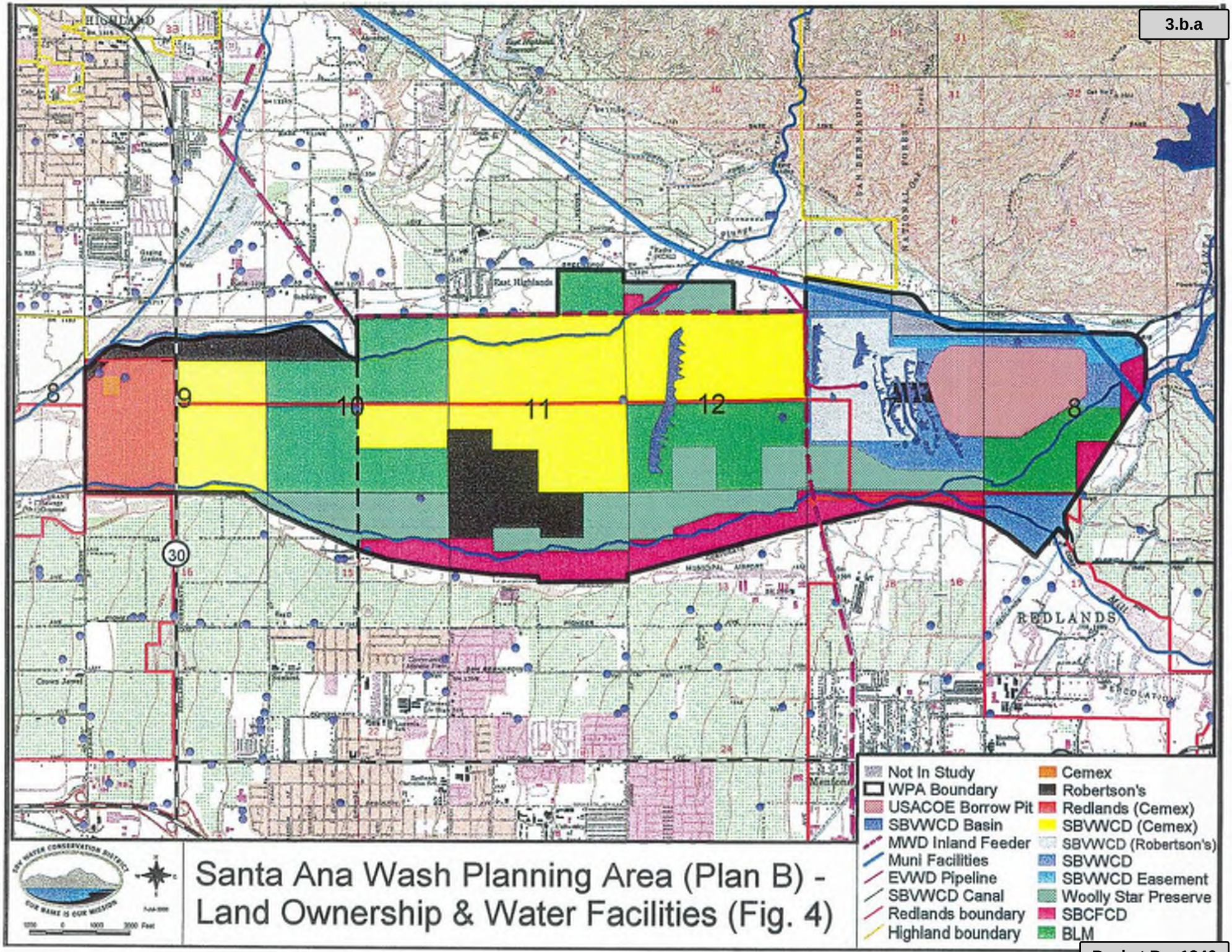


Santa Ana Wash Planning Area (Plan B) - Wash Planning Area (Fig. 2)

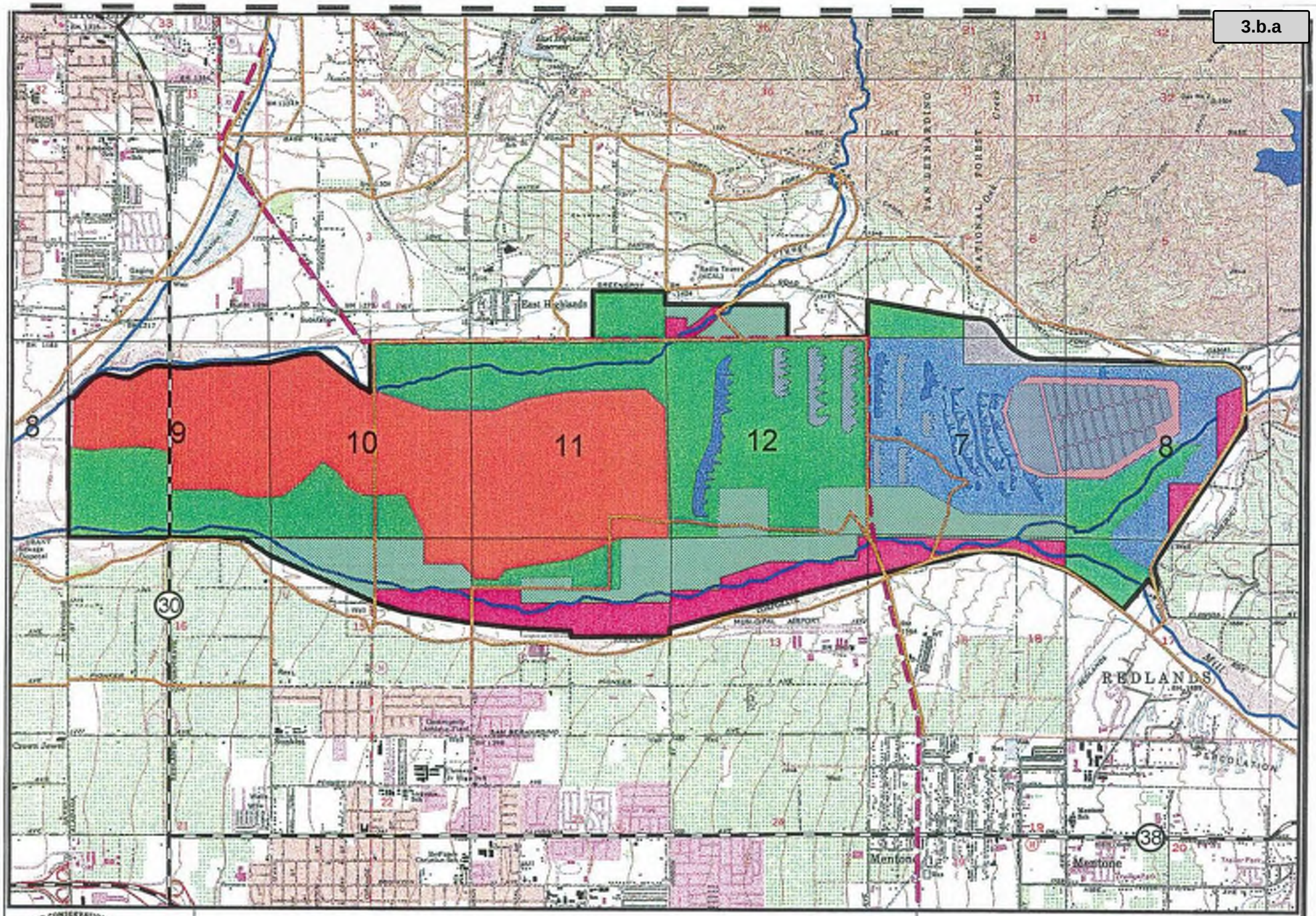
Highway
Section Lines
Rivers/Creeks
WPA Boundary
SOD Impoundment



Santa Ana Wash Planning Area (Plan B) - Biological Resources (Fig. 3)



Santa Ana Wash Planning Area (Plan B) - Land Ownership & Water Facilities (Fig. 4)



Santa Ana Wash Planning Area (Plan B) - Land and Habitat Management Plan (Fig. 5)

EXHIBIT "B": TASK FORCE CONTRIBUTION LEVELS

Allocation to the Parties of their share of the costs associated with the Project is as set forth below in the following proportions:

AGENCY	RESPONSIBILITY FOR FINANCIAL CONTRIBUTION
CEMEX	24.774
ROBERTSON'S READY MIX	24.774
SAN BERNARDINO VALLEY WATER CONSERVATION DISTRICT	24.644
EAST VALLEY WATER DISTRICT	3.226
REDLANDS UTILITIES DEPARTMENT	3.226
COUNTY OF SAN BERNARDINO	6.452
SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT	6.452
CITY OF REDLANDS	6.452

Should the cost to complete financing of the Project exceed the total current estimated charges set forth above, the Task Force will have the responsibility of obtaining any required additional funding from each of the Parties. Any such additional funding shall be assessed to those Parties in the above-mentioned proportions, or as otherwise determined by the Task Force.

Note that in the event the City of Highland joins the Task Force as a Regular Member pursuant to the provisions of Section 2 (H) of this Agreement, the contribution levels set forth here will be superseded by the levels set forth in Exhibit "B-1."

EXHIBIT "B-1": TASK FORCE CONTRIBUTION LEVELS IN THE EVENT CITY OF HIGHLAND JOINS AS A REGULAR MEMBER

Allocation to the Parties of their share of the costs associated with the Project is as set forth below in the following proportions:

AGENCY	RESPONSIBILITY FOR FINANCIAL CONTRIBUTION
CEMEX	23.272
ROBERTSON'S READY MIX	23.272
SAN BERNARDINO VALLEY WATER CONSERVATION DISTRICT	23.152
EAST VALLEY WATER DISTRICT	3.030
REDLANDS UTILITIES DEPARTMENT	3.030
COUNTY OF SAN BERNARDINO	6.061
SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT	6.061
CITY OF HIGHLAND	6.061
CITY OF REDLANDS	6.061

Should the cost to complete financing of the Project exceed the total current estimated charges set forth above, the Task Force will have the responsibility of obtaining any required additional funding from each of the Parties. Any such additional funding shall be assessed to those Parties in the above-mentioned proportions, or as otherwise determined by the Task Force.

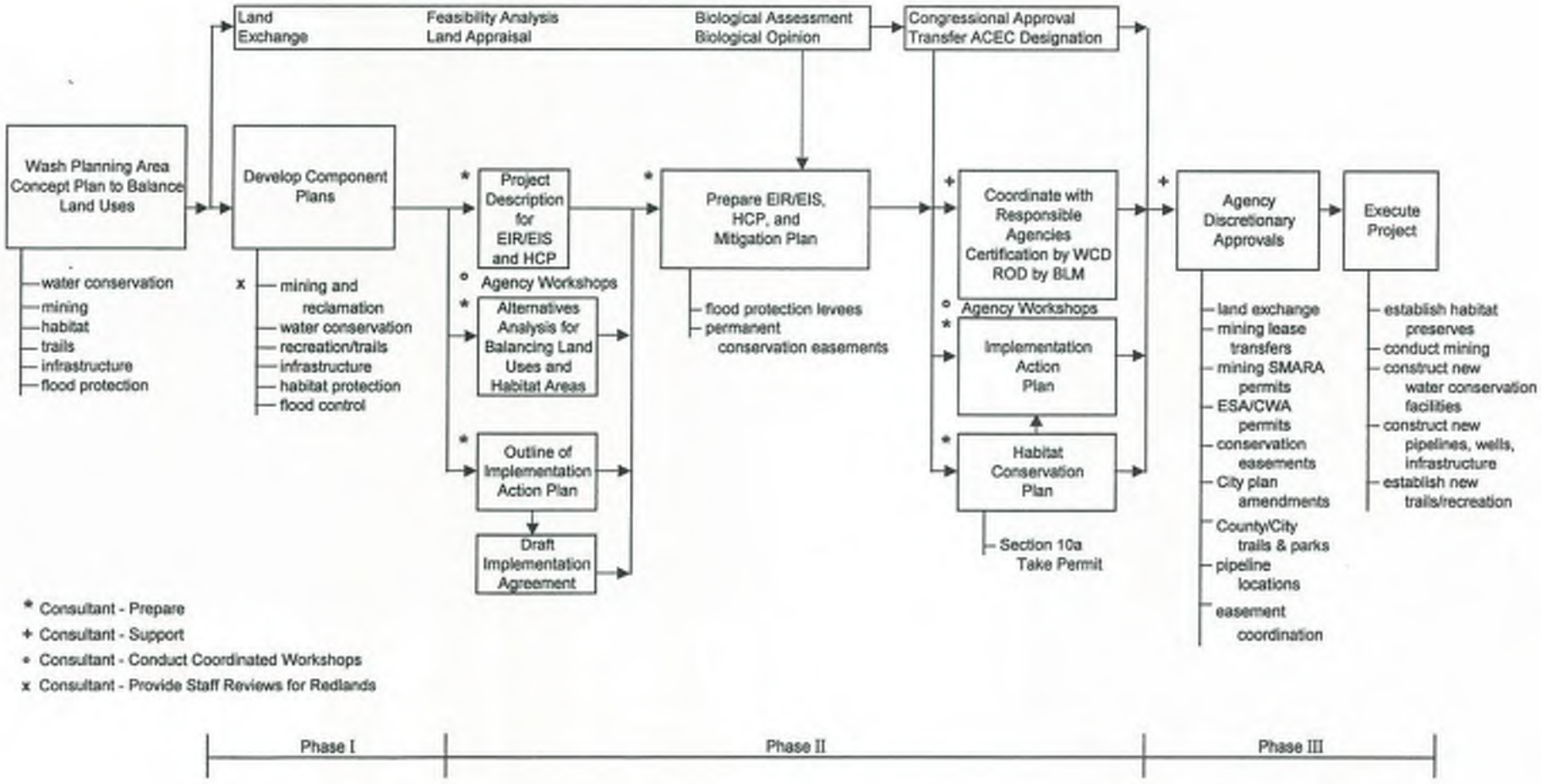
This schedule of contribution levels shall only become effective if the City of Highland joins the Task Force as a Regular Member pursuant to the provisions of Section 2 (H) of this Agreement.

EXHIBIT "C": PROJECT FLOW DIAGRAM

10/03/01
02/13/02
Special

EXHIBIT "C"

PROPOSED LAND MANAGEMENT & HABITAT CONSERVATION PLAN "PROJECT"



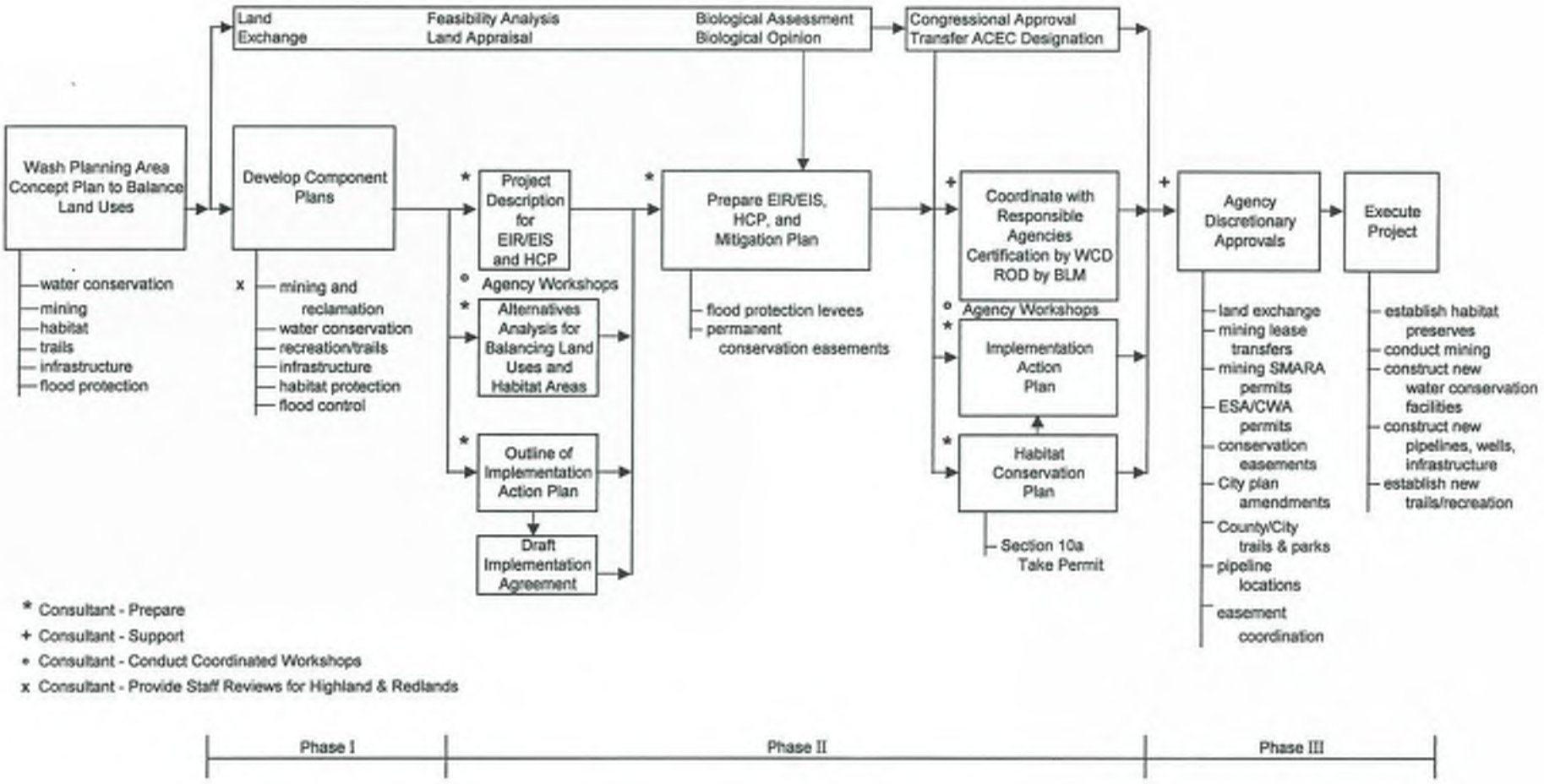
Working Files\Wash Comm Exhibit C.xls

EXHIBIT "C-1": PROJECT FLOW DIAGRAM IN THE EVENT CITY OF HIGHLAND JOINS AS A REGULAR MEMBER

10/03/01
02/13/02
Special

EXHIBIT "C-1"

PROPOSED LAND MANAGEMENT & HABITAT CONSERVATION PLAN "PROJECT"



Working Files\Wash Comm Exhibit C-1.xls

EXHIBIT "D": REVISIONS TO AGREEMENT IN THE EVENT CITY OF HIGHLAND JOINS AS A REGULAR MEMBER

In the event the City of Highland joins the Task Force as a Regular Member pursuant to, and in compliance with, the provisions of Section 2 (H) of this agreement, the parties hereto have agreed to certain modifications of the text of the Task Force Agreement, which will serve as amendments thereto, effective immediately and prospectively upon inclusion of the City of Highland as a Regular Member pursuant to Section 2 (H). These amendments are set out below:

Section 1 (A) 3): A Recreation Plan, which coordinates the planning and development of trails, parks, and public recreation areas, which will be provided by Conservation District, San Bernardino County, Highland, and Redlands.

Section 1 (A)(4): An Infrastructure Plan, which describes the location of pipelines, utility corridors, roads, bridges, highways, and communication facilities, which will be provided by the Conservation District, San Bernardino County, Highland, and Redlands.

Section 1 (F): Task Force submit the EIR/EIS, Implementation Action Plan, and Habitat Conservation Plan to the appropriate agencies for their action and, if adopted, subsequent implementation. The EIR/EIS shall not be certified by the Lead Agency as to those portions of the Project occurring within the jurisdictional boundaries of the City of Highland if, prior to the time the Lead Agency certifies the EIR/EIS, it has been disapproved by the City Council of the City of Highland. The EIR/EIS shall not be certified by the Lead Agency as to those portions of the Project occurring within the jurisdictional boundaries of the City of Redlands if, prior to the time the Lead Agency certifies the EIR/EIS, it has been disapproved by the City Council of the City of Redlands.

Section 2 (B)(2): The California Department of Water Resources (DWR), the California Department of Fish and Game (DFG), the United States Fish and Wildlife Service (USFWS), and County of Orange are hereby designated as Advisory members of the Task Force.

Section 4 (B)(1): Revise Section 4 (B)(1). to read as follows:

Serve as the Lead Agency under CEQA and as assistant to BLM, which is the Lead Agency under NEPA, provided, however, that on issues relating to definition of level of significance for impacts, existence of and mitigation for significant adverse environmental impacts, and formulation of a mitigation monitoring program for those portions of the Project requiring permits under SMARA, the Project Manager shall accept and incorporate into the EIR/EIS the collective determinations of the applicable agencies with SMARA permitting authority for such aspects of the Project, and in the absence of any agreement by such agencies, shall refer determination of such issues to the Task Force;

Exhibit "B": Replace with Exhibit "B-1."

EXHIBIT "D": REVISIONS TO AGREEMENT IN THE EVENT CITY OF HIGHLAND JOINS AS A REGULAR MEMBER (CONTINUED)

Exhibit "C": Replace with Exhibit "C-1."

UPPER SANTA ANA RIVER WASH LAND MANAGEMENT AND HABITAT CONSERVATION PLAN TASK FORCE ("Task Force")

LIST OF TASK FORCE MEMBER AGENCIES

(December 10, 2002)

REGULAR MEMBERS

Member Agency	Governing Member	Technical Member
City of Highland		
City of Redlands		
City of Redlands Municipal Utilities		
County of San Bernardino		
County Flood Control District		
East Valley Water District		
Robertson's Ready Mix, Ltd.		
CEMEX, USA		
U.S. Bureau of Land Management		
Water Conservation District		

ADVISORY MEMBERS

Member Agency	Member
U.S. Army Corps of Engineers	
U. S. Fish & Wildlife Service	
California Dept of Fish & Game	
California Dept of Water Resources	
County of Orange	

SAN BERNARDINO VALLEY WATER CONSERVATION DISTRICT

1630 West Redlands Boulevard, Suite A
Redlands, CA 92373-8032
(909) 793-2503
Fax: (909) 793-0188

P.O. Box 1839
Redlands, CA 92373-0581
Email: info@sbvwcd.dst.ca.us

December 10, 2002

Jack Woodbury
San Bernardino Valley WCD
31919 Florida Street
Mentone, CA 92346

RE: Agreement to Form the Upper Santa Ana River Wash Land Management and Habitat Conservation Plan Task Force

Dear Mr. Woodbury:

As previously announced, all of the required signatures have been obtained for the Task Force Agreement ("Agreement") referenced above. Attached are the signature pages that you should insert in your copy of the Agreement. On page 1 of the Agreement, you should write in "20th" day of "November" 2002 as the effective day. In accordance with the Agreement, the San Bernardino Valley Water Conservation District ("District") shall be the Task Force Project Manager.

As a reminder, the Agreement was prepared to accommodate the City of Highland because there was a potential delay in their decision to participate. As we now know, the City of Highland agreed to participate several months ago. Therefore, please annotate the appropriate paragraphs of the Agreement to refer to Exhibit "D," "*Revisions to Agreement in the Event City of Highland Joins as a Regular Member*."

Section 2 of the Agreement identifies the criteria for Regular and Advisory Members of the Task Force, and stipulates that each Regular Member will have two representatives: one to oversee and contribute to the technical/staff aspects and one from the governing body. The names of those representatives should be forwarded to the Project Manager at this time. Advisory Members should also submit representative names to the Project Manager at this time. A list of current Regular and Advisory Members is attached.

On December 20, the former Wash Committee Technical Advisory Committee (TAC) will meet for a Pre-final review of the proposed scope of work prior to the Project Manager issuing a Notice to Proceed to LSA Associates, Inc., who will prepare the environmental documentation for the Concept Plan. Following that review, an invoice will be submitted to each Regular member for its share of the consultant's cost, based

BOARD OF DIRECTORS
Bert Marcum, Jr.
Clare Henry Day
Arnold L. Wright
Sterling Woodbury
Cheryl A. Tubbs
Melody Henriques
Manuel Aranda, Jr.
GENERAL MANAGER
D. Burnell Cavender, AICP

on the distribution of costs shown on Exhibit "B-1": *Task Force Contribution Levels in the Event City of Highland Joins as a Regular Member*, of the Agreement, and attached hereto.

The District is looking forward to starting calendar year 2003 by issuing a Notice to Proceed to prepare the environmental documentation. Please note that the first task in the scope of work is to complete the Project Description. Therefore, please review Section 1 of the Agreement as a reminder of the responsibilities of the Task Force and the Regular Members for preparing the "Component Plans." When the Notice to Proceed is issued, we will not want to delay the consultant by not having Component Plans ready for review. It has already been 6 years since we started developing the Concept Plan. As Project Manager, we will do our best to assure the environmental documentation is prepared within the estimated 18 months.

We thank you for your past and continued perseverance and willingness to work toward a coordinated plan that we all know intuitively is the right thing to do. We look forward to continued good working relations among the Task Force members.

Sincerely,

D. Burnell Cavender, AICP
General Manager

Enclosures: Signature Pages (9)
List of Regular and Advisory Members
Exhibit "B-1"

Copy to: David B. Cosgrove, Esq, Rutan & Tucker

PROPOSED

LAND MANAGEMENT AND HABITAT CONSERVATION PLAN FOR THE UPPER SANTA ANA RIVER WASH

EXECUTIVE SUMMARY

PREPARED FOR THE
SANTA ANA RIVER WASH AREA COORDINATED
PLANNING ACTIVITIES COMMITTEE

BY

STAFF OF THE
SAN BERNARDINO VALLEY WATER CONSERVATION DISTRICT

APRIL 2001
(Figures Revised December 2001)

PROPOSED LAND MANAGEMENT AND HABITAT CONSERVATION PLAN FOR THE UPPER SANTA ANA RIVER WASH

D. Burnell Cavender, AICP
General Manager
San Bernardino Valley Water Conservation District

Introduction

The land area between the mouth of the Santa Ana River Canyon, down stream of the new Seven Oaks Dam on the east, Interstate 215 (I-215) on the west, the cities of Highland and Redlands to the north and south, respectively, is known locally as the Upper Santa Ana River Wash (Wash) (Fig 1). A part of that Wash, containing approximately 5,200 acres, from the canyon mouth to Alabama Street on the west and bounded by the cities, has been the subject of intense planning the past three years. This area is known as the Wash Planning Area or the "WPA" (Fig 2).

Historically, the Wash was a natural flood plain and alluvial fan. In the past, the flood plain has provided a place to convey frequently devastating flood waters and deposit sediment. The alluvial deposit provides excellent geologic conditions to establish settling basins for percolating surface water to the groundwater basin, providing a significant part of the water supply for the local region. These same geologic conditions provide regionally significant deposits of sand and gravel as classified by the California Department of Conservation, that are used to support the local economy. In recent years, the value of the Wash as habitat for a variety of sensitive, threatened, and endangered species has become more apparent due to the decrease in this type of habitat throughout Southern California (Fig 3). Because the Wash is a unique open space and corridor, the County of San Bernardino (County) and the cities of Highland and Redlands are also planning to establish a series of recreational trails in and around the Wash. These important functions within the Wash, flood control, water conservation, mineral extraction, and wildlife habitat, are often in direct competition for much of the same land. It has been apparent since the early 1980s that a land management plan for the future use of the Wash would be needed to maintain other public services (water supply facilities, transportation and utility corridors, and recreation/trails), provide areas for the extraction of valuable construction materials, and preserve declining sensitive habitats.

In 1993, representatives of numerous agencies, including water, mining, flood control, wildlife and municipal interests, formed a Wash Committee to address local mining issues. Subsequently, the role of the Committee was expanded to address all the land functions in the Wash. The Wash Committee began meeting again in 1997 to determine how to use the WPA to accommodate all the important functions identified above. A Policy Action Committee (PAC) was established consisting of elected officials from the County, cities of Highland and Redlands, and the San Bernardino Valley Water Conservation District (District), and the Field Manager from the U.S. Bureau of Land Management (BLM). A Technical Advisory Committee (TAC) was formed with

representatives of the PAC agencies and other water, mining, flood control, and wildlife interests. The District chairs and provides staff support for the Committees.

The TAC, in concept, wiped the WPA clean of land ownership lines (Fig 4) and began anew to decide how the land could best be used. As a result of extensive workshops during 1998 and 1999, a conceptual Coordinated WPA map has been developed. As expected, the way the land might best be used and the way the land use was planned were not the same, nor does it conform to current land ownership. For example, the TAC found that some land proposed for mining was better suited for joint use by water conservation and wildlife habitat while other areas proposed for habitat preservation could be used better for mining. It became apparent that to make a plan work, land ownership would have to change, in particular, a land transfer or exchange between the BLM and the District, and areas leased by the District for mining.

A general consensus of the TAC was reached in early 2000 on the areas within the WPA designated for the specified land uses, which is the basis of the Land Management and Habitat Conservation Plan (Plan) (Fig 5). As stated, the proposed designations for land use crossed land ownership (3 public and 2 private) and land use authority lines (2 cities and the County). The TAC determined that mining expansion is best addressed by consolidating the future mining activity into one large area adjacent to existing mining operations within the western half of the WPA. This focuses extraction activities on lands currently disturbed by mining and lands with the least long-term wildlife habitat value. Furthermore, the TAC determined that portions of the BLM land designated as Areas of Critical Environmental Concern (ACEC) were either previously disturbed or were fragmented by adjacent mining activities, and thus would be better suited for mining expansion. Some of the most intact, viable wildlife habitat areas are contained within lands that are leased for future mining and currently used for water conservation. The TAC concluded that some of these lands were best suited for joint use as water and habitat conservation rather than mining. For example, the up-gradient side of a percolation basin dike could be wetted and periodically contain water for water-dependent species; whereas, the down-gradient side could generally remain undisturbed, except for maintenance and repair of the percolation basin dike and, therefore, could support other wildlife species common to the WPA.

Refinements in land use boundaries were made and agency and jurisdictional coordination was accomplished. The result of this effort is a proposed Plan that designates areas of the WPA for specific uses. The Plan will allow the existing and future Wash activities and land functions to occur and establish habitat preserves.

It is imperative that the principles that will govern the use, management, and conservation of the WPA be set forth in legally binding documents to which all concerned parties can agree. The PAC believes that there are sufficient lands in the WPA that can be divided equitably among the advocates to accommodate the needs for water conservation and supply facilities, aggregate extraction, and flood protection, while providing land for wildlife habitat and recreation.

It is equally important to note that if this coordinated Plan is not implemented, the consequences could be very grave for each of the primary use groups. Without the Plan, attempts to expand water conservation to meet future demands, develop additional aggregate resources, or effectively protect habitat will likely be held up by legal proceedings. Such action could result in

piecemeal planning, thus impairing the ability to reach an effective compromise. If local land use agencies make decisions regarding mining development in the WPA, without considering a coordinated plan, there could be greater environmental degradation and reduced ability to meet future water supply demands. On the other hand, if local officials make land use decisions that significantly restrict water conservation activities and mining, the reduced availability of water and aggregate resources may impact the economic development of the region. The affect of not implementing this Plan is that none of the groups would be able to accomplish its goals.

Proposed Project Description Summary

The proposed project is a Land Management and Habitat Conservation Plan (Plan) for the Upper Santa Ana River Wash Planning Area. The land area addressed in this Plan is part of the overall alluvial fan and flood plain located along the Santa Ana River one mile downstream from the new Seven Oaks Dam between the cities of Highland on the north and Redlands to the south. The City of San Bernardino, to the northwest, is the largest city in the San Bernardino Valley. The WPA covers approximately 5,200 acres and starts at the canyon mouth at Greenspot Road, extends for some six miles to Alabama Street, and is as much as two miles wide.

The Plan will coordinate and accommodate existing ongoing and anticipated future activities planned to occur in the WPA, establish habitat preserve areas, and provide recreational trails. Each function will occupy designated specific areas within the WPA best suited for that function and will also accommodate the other competing uses for the overall benefit of the WPA. These existing and future activities include the following:

- Water conservation of both native and (when necessary) imported water resources for groundwater basin replenishment to augment public water supplies;
- Flood control, and management of the Seven Oaks Dam releases;
- Aggregate extraction and processing;
- Protection and conservation of sensitive and listed native species and habitat;
- Recreation planning including a portion of the Santa Ana River trail system; and
- Utilities, transportation, and water supply corridors and facilities.

The final approved Plan, its associated actions and permits, and environmental review will provide the necessary information for jurisdictional approvals for the described activities to move forward. The Plan, when implemented will be considered a "Win-Win-Win" for all the water, utility and service functions, mineral resource management, and environmental resource preservation.

As staff for the Wash Committee, the District invites your questions and support for this inter-relational concept plan. You may call me at 909-793-2503, or write to me at P.O. Box 1839, Redlands, CA 92373.

Coordinated Operations Agreement

This Coordinated Operations Agreement ("**Agreement**") is entered into and effective this 9 day of September, 2013 (the "**Effective Date**") by and between the San Bernardino Municipal Water Department (the "**Department**") and San Bernardino Valley Municipal Water District ("**Valley District**"). The Department and Valley District are each sometimes referred to herein as a "**Party**" and are collectively referred to as the "**Parties.**"

Recitals

A. The Department owns certain water delivery facilities serving the residents of the City of San Bernardino, including certain groundwater wells, the Encanto pumping station, the 10th Street Pipeline, and the Virginia Street Pipeline, all of which are identified more fully on the map attached hereto as **Exhibit A**, which is incorporated herein by reference ("**Department Facilities**").

B. By agreement dated June 15, 2005, Valley District purchased 61.98% of the capacity in Department's 10th Street Transmission Main and 46.73% of the capacity in Department's Virginia Street Transmission Main.

C. Valley District owns certain water delivery facilities in and through the City of San Bernardino which are identified more fully on the map attached hereto as **Exhibit A**, which is incorporated herein by reference ("**Valley District Facilities**").

D. At Valley District's request, the Department has been operating and making Department deliveries utilizing Valley District's Baseline Feeder Extension South Pipeline.

E. Both the Department and Valley District from time to time have unused capacity in their respective water delivery facilities.

F. The Parties share an interest in using their respective facilities to increase operational flexibility, improve water supply reliability in their respective service areas, encourage the efficient use of capacity within the each Party's water delivery system and provide the public with more reliable water service as efficiently as possible.

G. The Parties wish to enable each other to make use of unused capacity in their respective facilities whenever possible and so wish to provide for the coordinated operation of those facilities.

H. The Parties agree that if either Party uses the other's water delivery facilities to deliver water, that Party using the facilities should be responsible for the increased cost associated with that Party's use.

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I. The Parties wish to continue the spirit of cooperation they enjoy by memorialing in this Agreement their desire to share their respective water production, transmission and distribution facilities.

Agreements

The Parties agree as follows:

1. *Term.* This Agreement shall have an initial term of twenty-five (25) years from its Effective Date and shall automatically renew for subsequent ten-year terms thereafter unless terminated as provided for in paragraph 2 below.

2. *Termination.* This Agreement may be terminated by either Party: (i) at the end of the initial term or any subsequent term, with or without cause, upon written notice provided at least one year prior to the end of the initial or subsequent term; or (ii) for cause upon 90-days' written notice, *provided* that the Parties have, prior to the notice of termination, attempted to resolve the dispute as provided in paragraph 13.cbelow.

3. *Other Agreements*. This agreement is not intended to modify or change any other agreement the Parties may have together.

4. *Facilities Subject to This Agreement.* This Agreement governs the Parties' coordinated operation and use of the Department Facilities and the Valley District Facilities as described in Exhibit A, respectively. The Parties may amend this Agreement to add additional water delivery facilities owned by either Party upon the written consent of the other Party. Neither Party shall unreasonably delay or deny its consent for the addition of facilities owned by the other Party.

5. *Priority.* Save as may be provided by any other written agreement existing as of the Effective Date of this Agreement, each Party shall have priority for the use of the other Party's facilities, as set forth in Exhibit A, over any non-Party to this Agreement. Nothing in this Agreement, however, shall be construed to create a right by either Party to any specific share of the capacity in the other Party's facilities except for that capacity already purchased in Department's facilities by Valley District.

6. *Coordinated Operations.* This Agreement provides for the Parties' coordinated use of unused capacity within their respective water delivery facilities.

a. *Operation of Department Facilities*. The Department shall operate the Department Facilities to serve Valley District as follows:

(1) When Valley District requests a change to the current flow rate in one or more of the Department Facilities, Valley District shall request that change in writing at least 24 hours in advance, except in case of emergency.

(2) If the Valley District request is for flow through facilities in which Valley District has purchased capacity, Department's staff shall make the operational changes needed to provide the requested flow rate to Valley District for the duration requested.

(3) If the Valley District request is for flow through Department facilities in which Valley District does not own capacity and Department, in its sole discretion, determines that there will be unused and available capacity in that Department Facility, the Department's staff shall make the changes needed to provide the requested flow rate to Valley District for the duration requested.

b. *Operation of Valley District's Baseline Feeder Extension South Pipeline.* The Department shall operate the Baseline Feeder Extension South Pipeline on behalf of Valley District as follows:

(1) If the Department wishes to change the flow rate in the Valley District Facilities to make better use of unused and available capacity, the Department will provide Valley District with at least 24 hours' written notice of such change in flow rate. Valley District may, in its sole discretion, veto such modification of flow rates if Valley District believes that the modification in flow rates would not serve the interests of Valley District or its other customers.

(2) Valley District will coordinate deliveries of water with the Department staff operating the pipeline.

(3) The Baseline Feeder Extension South Pipeline presently conveys potable drinking water for the Department. Department agrees to fulfill all monitoring and other requirements associated with operating a potable water line per all applicable state and federal laws.

c. *Operation of other Valley District Facilities.* Valley District shall operate Valley District Facilities to serve the Department as follows:

(1) If the Department wishes to change the flow rate of a Valley District Facility to make better use of unused and available capacity, the Department will provide Valley District with at least 24 hours' written notice of such a change in flow rate. Valley District may, in its sole discretion, veto such modification of flow rates if Valley District believes that the modification in flow rates would not serve the interests of Valley District or its other customers.

(2) If the Department request is for flow through Valley District facilities, Valley District, in its sole discretion, determines that there will be unused and available capacity in that Valley District Facility, the Valley District

staff shall make the changes needed to provide the requested flow rate to the Department for the duration requested.

7. *Establishment of Joint Operations Committee.* The Parties shall establish and participate in a Joint Operations Committee (the "**JOC**") to serve in an advisory capacity to both Parties regarding their coordinated operation of the Department Facilities and the Valley District Facilities. The JOC shall establish which costs for the Department Facilities and the Valley District Facilities are eligible for reimbursement, and shall perform such other functions as determined by the Parties. The JOC shall meet at least twice a year to review the financial and water accounting needed to implement this Agreement.

8. *Maintenance.* Valley District shall be responsible for performing routine maintenance on Valley District Facilities, and Department shall be responsible for performing routine maintenance on Department Facilities. However, each Party shall be reimbursed for any JOC approved maintenance costs associated with the shared use of the facilities as described in Section 9 below.

9. *Eligible Reimbursement Costs.* Each Party will reimburse the other Party for its use of that Party's facilities as follows:

a. *Valley District Facility Replacement Costs.* Since Valley District's facilities were constructed and paid for entirely by Valley District, Valley District shall pay all replacement costs.

b. *Valley District Baseline Feeder Extension South Pipeline.* The Department will continue to provide and pay for all operations costs associated with the Baseline Feeder Extension South Pipeline provided that the Department is the sole user of this facility. At such time that Valley District and/or its partner Western Municipal Water District begin to operate this facility, the Department shall pay its proportional share of the operations costs as calculated in paragraph c, below.

c. *Valley District Operations Costs.* The Department will reimburse Valley District for **Fixed Costs** and **Variable Costs** associated with the Department's use of the Valley District Facilities, as provided in this paragraph. Department's total reimbursement to Valley District shall be the sum of the Fixed Cost and the Variable Cost in each calendar year.

(1) *Fixed Costs.* **Fixed Costs** shall consist of the sum of: (i) sampling costs, and (ii) permit compliance costs incurred by Valley District in the operation of its Facilities. Department shall pay Valley District a portion of total Fixed Costs for the operation of the Valley District Facilities that is equal to the proportion of the total capacity of the Valley District Facilities which is authorized for Department's use in that calendar year.

(2) *Variable Costs.* **Variable Costs** shall consist of the sum of: (a) energy costs associated with the use of the Valley District Facilities; (b) repair costs; and (c) personnel costs for the use of the Valley District Facilities.

Department shall pay Valley District the portion of the total Variable Costs for the operation of the Valley District Facilities that is equal to the proportion of the total capacity of the Valley District Facilities which is authorized for Department's use in that calendar year.

d. *Department Facilities.* Valley District will reimburse Department for **Fixed Costs** and **Variable Costs** associated with Valley District's use of the Department Facilities, as provided in this paragraph. Valley District's total reimbursement to the Department shall be the sum of the Fixed Cost and the Variable Cost in each calendar year.

(1) *Replacement Costs.* For all of the Department facilities in which Valley District has purchased capacity, Valley District shall pay its proportionate share of any replacement costs.

(2) *Fixed Costs.* **Fixed Costs** shall consist of the sum of: (i) sampling costs, and (ii) permit compliance costs incurred by the Department in the operation of the Department Facilities. Valley District shall pay the Department a portion of total Fixed Costs for the operation of the Department Facilities that is equal to the capacity which Valley District has purchased in Department facilities or its proportionate share, based on the capacity that has been authorized for Valley District use in that calendar year.

(3) *Variable Costs.* **Variable Costs** shall consist of the sum of: (a) energy costs associated with the use of the Department Facilities; (b) repair costs and (c) personnel costs for the use of the Department Facilities. Valley District shall pay the Department a portion of the total Variable Costs for the operation of the Department Facilities that is equal to the proportion of the total flows conveyed through the Department Facilities during a calendar year that were conveyed at the request of Valley District in that year.

e. *Fair Compensation.* For the purposes of Water Code Section 1810, both Parties agree that the payment structure set forth in this paragraph 8 constitutes fair compensation for each Party's use of unused capacity in the other Party's facilities.

10. *Invoices.* Each Party shall invoice the other Party for eligible reimbursement costs, as described in paragraph 8 above, annually in arrears on each March 1. Invoices shall include a full cost accounting, and must indicate, in reasonable detail, the cost of each action undertaken to operate and maintain the facilities in question. Invoices shall include all information reasonably necessary for each Party to confirm the other Party's calculation of reimbursement costs. In the event that either Party objects to any costs identified on an invoice, that Party shall pay the undisputed costs and shall invoke the dispute resolution process set forth in paragraph 13.c below for the objectionable costs.

11. *Payment Schedule.* Within 45 days of the date that an invoice is provided to a Party, the Party shall pay the invoicing Party for any costs that are not subject to an objection.

12. *Indemnification.*

a. *Indemnification by Department.* The Department shall indemnify, defend and hold harmless Valley District, its directors, officers, employees and agents from and against all damages, liabilities, claims, actions, demands, costs and expenses (including, but not limited to, costs of investigations, lawsuits and any other proceedings whether in law or in equity, settlement costs, attorneys' fees and costs), and penalties or violations of any kind, which arise out of, result from, or are related to the implementation of this Agreement by Department.

b. *Indemnification by Valley District.* Valley District shall indemnify, defend and hold harmless Department, its directors, officers, employees and agents from and against all damages, liabilities, claims, actions, demands, costs and expenses (including, but not limited to, costs of investigations, lawsuits and any other proceedings whether in law or in equity, settlement costs, attorneys' fees and costs), and penalties or violations of any kind, which arise out of, result from, or are related to the implementation of this Agreement by Valley District.

c. *Indemnification Procedures.* Any Party that is an indemnified party (the "**Indemnified Party**") that has a claim for indemnification against another Party (the "**Indemnifying Party**") under this Agreement, shall promptly notify the Indemnifying Party in writing, *provided, however,* that no delay on the part of the Indemnified Party in notifying the Indemnifying Party shall relieve the Indemnifying Party from any obligation unless (and then solely to the extent) the Indemnifying Party is prejudiced. Further, the Indemnified Party shall promptly notify the Indemnifying Party of the existence of any claim, demand, or other matter to which the indemnification obligations would apply, and shall give the Indemnifying Party a reasonable opportunity to defend the same at its own expense and with counsel of its own selection, *provided* that the Indemnified Party shall at all times also have the right to fully participate in the disputed matter at its own expense. If the Indemnifying Party, within a reasonable time after notice from the Indemnified Party, fails to defend a claim, demand or other matter to which the indemnification obligations would apply, the Indemnified Party shall have the right, but not the obligation, to undertake the defense of, and to compromise or settle (exercising reasonable business judgment), the claim or other matter, on behalf, or for the account, and at the risk, of the Indemnifying Party. If the claim is one that cannot by its nature be defended solely by the Indemnifying Party, then the Indemnified Party shall make available all information and assistance to the Indemnifying Party that the Indemnifying Party may reasonably request.

13. *Administration of Agreement.*

a. *Recordation of Agreement.* Valley District shall, within ten days of the Effective Date of this Agreement, cause this Agreement to be recorded in the Official Records of the County of San Bernardino. Valley District shall provide the Department with a recorded copy of this Agreement promptly upon the receipt of such copy from the County of San Bernardino.

b. *Books and Records.* Each Party shall have access to and the right to examine any of the other Party's pertinent books, documents, papers or other records (including, without limitation, records contained on electronic media) relating to the performance of that Party's obligations pursuant to this Agreement. The Parties shall each retain all such books, documents, papers or other records to facilitate such review. Access to each Party's books and records shall be during normal business hours only. Nothing in this paragraph shall be construed to operate as a waiver of any applicable privileges.

c. *Disputes.* The Parties recognize that there may be disputes regarding the obligations of the Parties or the interpretation of this Agreement. The Parties agree that they may attempt to resolve disputes as follows:

(1) *Statement Describing Alleged Violation of Agreement.* A Party alleging a violation of this Agreement (the "**Initiating Party**") shall provide a written statement describing all facts that it believes constitute a violation of this Agreement to the Party alleged to have violated the terms of this Agreement (the "**Responding Party**").

(2) *Response to Statement of Alleged Violation.* The Responding Party shall have sixty days from the date of the written statement to prepare a written response to the allegation of a violation of this Agreement and serve that response on the Initiating Party or to cure the alleged violation to the reasonable satisfaction of the Initiating Party. The Initiating Party and the Responding Party shall then meet within thirty days of the date of the response to attempt to resolve the dispute amicably.

(3) *Mediation of Dispute.* If the Initiating Party and the Responding Party cannot resolve the dispute within ninety days of the date of the written response, they shall engage a mediator, experienced in water-related disputes, to attempt to resolve the dispute. Each Party shall ensure that it is represented at the mediation by a Commissioner or Director. These representatives of the Initiating Party and the Responding Party may consult with staff and/or technical consultants during the mediation and such staff and/or technical consultants may be present during the mediation. The costs of the mediator shall be divided evenly between the Initiating Party and the Responding Party.

(4) *Reservation of Rights.* Nothing in this paragraph 13.c shall require a Party to comply with the dispute resolution process contained herein and each Party retains and may exercise at any time all legal and equitable rights

and remedies it may have to enforce the terms of this Agreement; provided, that prior to commencing litigation, a Party shall provide at least five calendar days' written notice of its intent to sue to all Parties.

14. *No Changes to Water Rights.* This Agreement is an agreement for the coordinated use of the Department Facilities and the Valley District Facilities only. Nothing in this Agreement shall validate, invalidate or modify, in any way, any rights to water held or claimed by a Party.

15. *Ownership of Department and Valley District Facilities.* Nothing in this Agreement shall be construed so as to change the ownership of such facilities or to provide one Party with a real property interest in the facilities of the other Party

16. *General Provisions.*

a. *Authority.* Each signatory of this Agreement represents that s/he is authorized to execute this Agreement on behalf of the Party for which s/he signs. Each Party represents that it has legal authority to enter into this Agreement and to perform all obligations under this Agreement.

b. *Amendment.* This Agreement may be amended or modified only by a written instrument executed by each of the Parties to this Agreement.

c. *Jurisdiction and Venue.* This Agreement shall be governed by and construed in accordance with the laws of the State of California, except for its conflicts of law rules. Any suit, action, or proceeding brought under the scope of this Agreement shall be brought and maintained to the extent allowed by law in the County of San Bernardino, California.

d. *Headings.* The paragraph headings used in this Agreement are intended for convenience only and shall not be used in interpreting this Agreement or in determining any of the rights or obligations of the Parties to this Agreement.

e. *Construction and Interpretation.* This Agreement has been arrived at through negotiations and each Party has had a full and fair opportunity to revise the terms of this Agreement. As a result, the normal rule of construction that any ambiguities are to be resolved against the drafting Party shall not apply in the construction or interpretation of this Agreement.

f. *Entire Agreement.* This Agreement constitutes the entire agreement of the Parties with respect to the subject matter of this Agreement and supersedes any prior oral or written agreement, understanding, or representation relating to the subject matter of this Agreement.

g. *Partial Invalidity.* If, after the date of execution of this Agreement, any provision of this Agreement is held to be illegal, invalid, or unenforceable under present or future laws effective during the term of this Agreement, such provision shall be

fully severable. However, in lieu thereof, there shall be added a provision as similar in terms to such illegal, invalid or unenforceable provision as may be possible and be legal, valid and enforceable.

h. *Successors and Assigns.* This Agreement shall be binding on and inure to the benefit of the successors and assigns of the respective Parties to this Agreement. No Party may assign its interests in or obligations under this Agreement without the written consent of the other Parties, which consent shall not be unreasonably withheld or delayed.

i. *Waivers.* Waiver of any breach or default hereunder shall not constitute a continuing waiver or a waiver of any subsequent breach either of the same or of another provision of this Agreement and forbearance to enforce one or more of the remedies provided in this Agreement shall not be deemed to be a waiver of that remedy.

j. *Attorneys' Fees and Costs.* The prevailing Party in any litigation or other action to enforce or interpret this Agreement shall be entitled to reasonable attorneys' fees, expert witnesses' fees, costs of suit, and other and necessary disbursements in addition to any other relief deemed appropriate by a court of competent jurisdiction.

k. *Necessary Actions.* Each Party agrees to execute and deliver additional documents and instruments and to take any additional actions as may be reasonably required to carry out the purposes of this Agreement.

l. *Compliance with Law.* In performing their respective obligations under this Agreement, the Parties shall comply with and conform to all applicable laws, rules, regulations and ordinances.

m. *Third Party Beneficiaries.* This Agreement shall not create any right or interest in any non-Party or in any member of the public as a third party beneficiary.

n. *Counterparts.* This Agreement may be executed in one or more counterparts, each of which shall be deemed to be an original, but all of which together shall constitute but one and the same instrument.

o. *Notices.* All notices, requests, demands or other communications required or permitted under this Agreement shall be in writing unless provided otherwise in this Agreement and shall be deemed to have been duly given and received on: (i) the date of service if served personally, by facsimile transmission or by electronic mail on the Party to whom notice is to be given at the address(es) provided below, (ii) on the first day after mailing, if mailed by Federal Express, U.S. Express Mail, or other similar overnight courier service, postage prepaid, and addressed as provided below, or (iii) on the third day after mailing if mailed to the Party to whom notice is to be given by first class mail, registered or certified, postage prepaid, addressed as follows:

CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT

City of San Bernardino Municipal Water Department
300 N. D Street, 5th Floor
San Bernardino California 92418
(909) 384-5141
Attention: General Manager

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT:

San Bernardino Valley Municipal Water District
380 E. Vanderbilt Way
San Bernardino, CA
(909) 387-9200
Attn: General Manager

A Party may change its address for notice by providing thirty days' advance written notice of such change to the other Party.

---------- SIGNATURES ON FOLLOWING PAGE ----------

CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT

By: Stacey Aldstadt
Stacey Aldstadt
General Manager

Dated: Sept. August 9, 2013.

Approved as to form only:

By:
Andrew M. Hitchings
Somach Simmons & Dunn

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: Douglas D. Headrick
Douglas Headrick
General Manager

Dated: Aug. 20, 2013.

Approved as to form only:

By:
David R.E. Aladjem
Downey Brand LLP

C: DWR IRWM Plan Standards Form

IRWM Plan Review Form

(Per 2016 Plan Standards)

IRWM Planning Region: Upper Santa Ana River Watershed

Regional Water Management Group: Upper Santa Ana River Watershed RWMG

Upper Santa Ana River Watershed Integrated Regional Urban

IRWM Plan Title: Watershed Management Plan

DWR Reviewer:

RESULT: PLAN IS SUFFICIENT

IRWM Plan Standard	Overall Standard Sufficient (yes/no)	One or More Requirement(s) Insufficient
Governance	Yes	
Region Description	Yes	
Objectives	Yes	
Resource Management Strategies	Yes	
Integration *	Yes	
Project Review Process	Yes	
Impact and Benefit	Yes	
Plan Performance and Monitoring	Yes	
Data Management	Yes	
Finance	Yes	
Technical Analysis	Yes	
Relation to Local Water Planning	Yes	
Relation to Local Land Use Planning	Yes	
Stakeholder Involvement	Yes	
Coordination	Yes	
Climate Change	Yes	

* If not included as an individual section use Governance, Project Review Process, and Data Management Standards per 2016 Guidelines, p. 52.

Additional Comments:

IRWM Plan Standard: Governance					Overall Standard Sufficient	Yes
Requirement		Included		Evidence of Plan Sufficiency		Sufficient
From IRWM 2016 Guidelines	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.		Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
The RWMG and individual project proponents who adopted the Plan"	37	**y/n**	y	Part 1, Section 1.5 Part 3	All members of the RWMG have adopted the IRWM Plan (Resolutions of adoption are provided in Appendix A). As noted in Section 1.5 of the IRWM Plan, stakeholders may participate in IRWM Planning without adoption of the IRWM Plan. Given the dynamic nature of the IRWM process, it isn't possible to update the IRWM Plan every time a project proponent adopts the IRWM Plan. Proof of adoption is provided as part of grant applications, as needed.	y
A description of the IRWM governance structure including a discussion of whether or how Native American tribes will participate in the RWMG.	37	**y/n**	y	Part 1, Section 1.3.4	Native American tribes are invited to participate in regional planning efforts via the Basin Technical Advisory Committee meetings.	y
A description of how the chosen form of governance addresses and insures:						
Public outreach and involvement processes	37	**y/n/q**	y	Part 1, Sections 1.3.3 and 1.4	BTAC meetings continue to be open to stakeholders to attend and contribute to the regional planning process. Public participation in the Plan update was also encouraged through stakeholder workshops and public comment on the plan.	y

Effective decision making	37	**y/n/q**	y	Part 1, Section 1.3.2	The Region has a distributed governance structure consisting of the BTAC, whose members provide recommendations to their respective governing bodies who then make decisions regarding water resources planning and projects in the Region, and stakeholders who are encouraged to take part in IRUWMP development and implementation. The BTAC strives for consensus when making decisions, and in those cases where consensus cannot be reached, has provided a forum for discussion and early resolution of water issues in the region. If disputes cannot be resolved at this level, they are elevated to the policy level (governing bodies). The policy level is continuously informed by BTAC agencies' staff.	y
Balanced access and opportunity for participation in the IRWM process	37	**y/n/q**	y	Part 1, Sections 1.3.3	The BTAC invited all stakeholders to participate in development of the Plan. BTAC meetings continue to be open to stakeholders to attend and contribute to the regional planning process. Meeting announcements and agendas are emailed out to a comprehensive mailing list that includes both BTAC members and stakeholders.	y
Effective communication – both internal and external to the IRWM region	37	**y/n/q**	y	Part 1, Sections 1.3.3 and 1.4	Meeting announcements and agendas are emailed out to a comprehensive mailing list that includes both BTAC members and stakeholders. Agendas are also posted on Valley District's website in advance so all agencies, other stakeholders, and interested parties can participate throughout the planning process in discussion of the issues in which they were interested. Stakeholder workshops were held to encourge participation in the latest plan update.	y
Long term implementation of the IRWM Plan	37	**y/n/q**	y	Part 1, Section 8.2	The BTAC will continue to manage implemention of the IRWM plan. BTAC agencies have planned for ongoing support of the region's activities as shown in the financing plan.	y

Coordination with neighboring IRWM efforts and State and federal agencies	37	**y/n/q**	y	Part 1, Sections 1.6	The BTAC participates in the overlapping SAWPA region, coordinates with the neighboring Mojave and San Gorgonio IRWM Regions, and also includes State and federal agencies as stakeholders as part of the Region's email list and as part of project planning.	y
The collaborative process(es) used to establish plan objectives	38	**y/n/q**	y	Part 1, Section 1.4.2	The plan objectives were updated through a collaborative stakeholder process initiated by the BTAC.	y
How interim changes and formal changes to the IRWM Plan will be performed	38	**y/n/q**	y	Part 1, Section 8.5	The BTAC will review progress in meeting plan objectives annually and update the plan as-needed according to an adaptive management process.	y
Updating or amending the IRWM Plan	38	**y/n/q**	y	Part 1, Section 8.5.3	The Plan will be updated at least every every 5 years. Any other updates will be discussed among the BTC agencies at regular meetings.	y

IRWM Plan Standard Requirements for 2016 IRWM Guidelines in Addition to Previously Required 2012 IRWM Guideline Requirements. See Appendix H in IRWM 2016 Guidelines.

IRWM Plan Standard: Region Description				Overall Standard Sufficient		Yes
Requirement		Included		Evidence of Plan Sufficiency		Sufficient
From IRWM 2016 Guidelines	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.		Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
If applicable, describe and explain how the plan will help reduce dependence on the Delta supply regionally.	38	**y/n**	y	Part 1, Section 6.2.1.1		y
Describe watersheds and water systems	38	**y/n**	y	Part 1, Chapter 3		y
Describe internal boundaries	38	**y/n**	y	Part 1, Section 2.2		y
Describe water supplies and demands for minimum 20 year planning horizon	38	**y/n**	y	Part 1, Chapters 4, 5		y
Describe social and cultural makeup,including specific information on DACs and tribal communities in the region and their water challenges.	38	**y/n/q**	y	Part 1, Section 2.3.3	Section 2.3.3 describes the social and cultural makeup of the region. The region is experiencing growth in populatin a change in its economic base. The rest of the section touches on DAC's, housing, and employment. Water challenges in DAC areas nd tribal communities are similar to those faced across the Region.	y
Describe major water related objectives and conflicts **(1)**.	38	**y/n/q**	y	Part 1, Chapter 6	Regional issues, focusing on imported water dependence, groundwater supply, water quality, flood management, aquatic/riparian habitat, and sustainability, are identified in the development of planning objectives.	y
Explain how IRWM regional boundary was determined and why region is an appropriate area for IRWM planning.	38	**y/n/q**	y	Part 1, Chapter 2.1	The Region's boundary is defined by the area of the Upper Santa Ana River Watershed that contributes surface runoff to the Riverside Narrows at U.S. Geological Survey (USGS) Gage 11066460. Disputes over the use of water in the SAR led to the subdivision of the watershed into the Upper SAR watershed and Lower SAR watershed just upstream of Prado Dam.	y
Describe neighboring and/or overlapping IRWM efforts	38	**y/n**	y	Part 1, Section 1.6.1		y
Explain how opportunities are maximized (e.g. people at the table, natural features, infrastructure)for integration of water management activities	38	**y/n**	y	Part 1, Sections 8.1 and 6.4.2	The Region takes advantage of the management group already in place, the BTAC, to maximize opportunities for integration of water management activities. In addition, the Region has identified opportunities for integration of water management strategies, interested institutions and geographic coverage.	y

Describe water quality conditions. If the IRWM region has areas of nitrate, arsenic, perchlorate, or hexavalent chromium contamination, the Plan must include a description of location, extent, and impacts of the contamination; actions undertaken to address the contamination, and a description of any additional actions needed to address the contamination **(2)**.	38	**y/n**	y	Part 1, Section 3.10		y
Describe likely Climate Change impacts on their region as determined from the vulnerability assessment.	38	**y/n**	y	Part 1, Section 2.6		y

IRWM Plan Standard Requirements for 2016 IRWM Guidelines in Addition to Previously Required 2012 IRWM Guideline Requirements. See Appendix H in IRWM 2016 Guidelines.

(1) Requirement must be addressed per CWC §10541 (e)(3).

(2) Requirement must be addressed per CWC §10541 (e)(14).

IRWM Plan Standard: Plan Objectives				Overall Standard Sufficient		Yes
Requirement		Included		Evidence of Plan Sufficiency		Sufficient
From IRWM 2016 Guidelines	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.		Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Through the objectives or other areas of the plan, the 7 items on pg 49 of GL are addressed **(1)**.	49	**y/n**	y	Part 1, Chapter 6	All 7 items on pg 49 of the GL are addressed as discussed throughout Ch.6	y
Describe the collaborative process and tools used to establish objectives: - How the objectives were developed - What information was considered (i.e., water management or local land use plans, etc.) - What groups were involved in the process - How the final decision was made and accepted by the IRWM effort	48 - 50	**y/n**	y	Part 1, Sections 6.3.1 and 1.4.2		y
Identify quantitative or qualitative metrics and measureable objectives: Objectives must be measurable - there must be some metric the IRWM region can use to determine if the objective is being met as the IRWM Plan is implemented. Neither quantitative nor qualitative metrics are considered inherently better **(2)**.	49	**y/n/q**	y	Part 1, Sections 6.3.2 through 6.3.6	Quantifiable metrics were developed for each objective and will be tracked on an annual basis.	y
Explain how objectives are prioritized or reason why the objectives are not prioritized	50	**y/n/q**	y	Part 1, Sections 6.3.7	The Region elected not to prioritize the objectives with the understanding that each objective is equally important relative to the others.	y
Reference specific overall goals for the region: RWMGs may choose to use goals as an additional layer for organizing and prioritizing objectives, or they may choose to not use the term at all.	50	**y/n**	y	Part 1, Sections 6.3.1		y
Address adapting to changes in the amount, intensity, timing, quality and variability of runoff and recharge.	39	**y/n**	y	Part 1, Sections 6.3.6.1	Objective 5a is to identify projects to address or manage climate change impacts	y
Consider the effects of sea level rise (SLR) on water supply conditions and identify suitable adaptation measures.	39	**y/n**	y	Part 1, Section 6.2.1.1	Though the Region is not near to coast, potential impacts of SLR on imported water supply were considered. The Region's goal of increasing diversification of the water supply portfolio is intended to help the Region respond to this issue and thus adapt to SLR.	y
Reducing energy consumption, especially the energy embedded in water use, and ultimately reducing GHG emissions.	39	**y/n**	y	Part 1, Section 6.3.6.2	Objective 5b is to implement projects to reduce or offset energy consumption or reduce GHG emissions associated with water or wastewater systems	y
In evaluating different ways to meet IRWM plan objectives, where practical, consider the strategies adopted by CARB in its AB 32 Scoping Plan1.	39	**y/n**	y	Part 1, Section 6.3.6.2		y

Consider options for carbon sequestration and using renewable energy where such options are integrally tied to supporting IRWM Plan objectives.	39	**y/n**	y	Part 1, Section 6.3.6.2		y

IRWM Plan Standard Requirements for 2016 IRWM Guidelines in Addition to Previously Required 2012 IRWM Guideline Requirements. See Appendix H in IRWM 2016 Guidelines.

(1) Requirement must be addressed per CWC §10540 (c).
(2) Requirement must be addressed per CWC §10541 (e).

IRWM Plan Standard: Resource Management Strategies (RMS)				Overall Standard Sufficient		Yes
Requirement		Included		Evidence of Plan Sufficiency		Sufficient
From IRWM 2016 Guidelines	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.		Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Address which RMS will be implemented in achieving IRWM Plan Objectives **(1)**.	39	**y/n**	y	Part 1, Table 6-2		y
Identify RMS incorporated in the IRWM Plan: Consider all California Water Plan (CWP)RMS criteria (29) listed in Table 3 from the CWP Update 2013	39	**y/n**	y	Part 1, 6.4.1	The IRWM Plan considered the RMS listed on the CWP website (https://water.ca.gov/Programs/California-Water-Plan/Water-Resource-Management-Strategies) as of March 2021. According to the website, these were last updated in 2016. A comparison of the website strategies to CWP Update 2013 finds that the strategies are the same.	y
Consideration of climate change effects on the IRWM region must be factored into RMS. Identify and implement, using vulnerability assessments and tools such as those provided in the Climate Change Handbook, RMS and adaptation strategies that address region-specific climate change impacts. •Demonstrate how the effects of climate change on its region are factored into its RMS. •Reducing energy consumption, especially the energy embedded in water use, and ultimately reducing GHG emissions. • An evaluation of RMS and other adaptation strategies and ability of such strategies to eliminate or minimize those vulnerabilities, especially those impacting water infrastructure systems **(2)**.	39	**y/n**	y	Part 1, 6.4.1, Table 6-2	Table 6-2 provides a cross reference of which strategies identified in the IRWM Plan support the Region's objectives, including the goal: Address climate change through adaptation and mitigation.	Y

IRWM Plan Standard Requirements for 2016 IRWM Guidelines in Addition to Previously Required 2012 IRWM Guideline Requirements. See Appendix H in IRWM 2016 Guidelines.

(1) Requirement must be addressed per CWC §10540 (e)(1).

(2) Requirement must be addressed per CWC §10540 (e)(10).

IRWM Plan Standard:Integration					Overall Standard Sufficient	Yes
Requirement		Included		Evidence of Plan Sufficiency		Sufficient
From IRWM 2016 Guidelines	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.		Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Contains structure and processes for developing and fostering integration[1]: - Stakeholder/institutional - Resource - Project implementation	39	y/n/q	y	Part 1, Sections 6.4.2, 8.1, 8.4.1 and 1.3	The Plan discusses how stakeholders are incorporated into the decision making body of the group. Resource integration is described through the RWMG's efforts in involving stakeholders (public hearings, workshops, etc.). Project development and implementation reflects the regional interests of all stakeholders.	y

1. If not included as an individual section use Governance, Project Review Process, and Data Management Standards per 2016 IRWM Guidelines, p. 52.

IRWM Plan Standard: Project Review Process				Overall Standard Sufficient		Yes
Requirement		Included		Evidence of Plan Sufficiency		Sufficient
From IRWM 2016 Guidelines	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.		Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Process for projects included in IRWM plan must address 3 components: - procedures for submitting projects - procedures for reviewing projects - procedures for communicating lists of selected projects	39 - 40	**y/n**	y	Part 1, Sections 7.2 and 7.3		y
Does the project review process in the plan incorporate the following factors:						
How a project contributes to plan objectives	40	**y/n**	y	Part 1, Table 7-1		y
How a project is related to Resource Management Strategies identified in the plan.	40	**y/n**	y	Part 1, Table 7-1		y
The technical feasibility of a project.	40	**y/n**	y	Part 1, Table 7-1		y
A projects specific benefits to a DAC water issue.	40	**y/n**	y	Part 1, Table 7-1		y
Environmental Justice considerations.	40	**y/n**	y	Part 1, Table 7-1		y
Project costs and financing	40	**y/n**	y	Part 1, Table 7-1		y
Address economic feasibility	40	**y/n**	y	Part 1, Table 7-1		y
Project status	40	**y/n**	y	Part 1, Table 7-1		y
Strategic implementation of plan and project merit	40	**y/n**	y	Part 1, Table 7-1		y
Status of the Project Proponent's IRWM plan adoption	40	**y/n**	y	Part 1, Table 7-1		y
Project's contribution to reducing dependence on Delta supply (for IRWM regions receiving water from the Delta).	40	**y/n**	y	Part 1, Table 7-1		y
Project's contribution to climate change adaptation. •Include potential effects of Climate Change on the region and consider if adaptations to the water management system are necessary **(1)**. •Consider the contribution of the project to adapting to identified system vulnerabilities to climate change effects on the region. •Consider changes in the amount, intensity, timing, quality and variability of runoff and recharge. •Consider the effects of SLR on water supply conditions and identify suitable adaptation measures.	40	**y/n**	y	Part 1, Table 7-1		y

Contribution of project in reducing GHGs compared to project alternatives. •Consider the contribution of the project in reducing GHG emissions as compared to project alternatives •Consider a project's ability to help the IRWM region reduce GHG emissions as new projects are implemented over the 20-year planning horizon. •Reducing energy consumption, especially the energy embedded in water use, and ultimately reducing GHG emissions.	40	**y/n**	y	Part 1, Table 7-1		y
Specific benefits to critical water issues for Native American tribal communities.	53	**y/n**	y	Part 1, Table 7-1		y

IRWM Plan Standard Requirements for 2016 IRWM Guidelines in Addition to Previously Required 2012 IRWM Guideline Requirements. See Appendix H in IRWM 2016 Guidelines.

(1) Requirement must be addressed per CWC §10540 (e)(10).

IRWM Plan Standard: Impact and Benefit				Overall Standard Sufficient		Yes
Requirement		Included		Evidence of Plan Sufficiency		Sufficient
IRWM 2016 Guidelines Requirement	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.		Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Discuss potential impacts and benefits of plan implementation within IRWM region, between regions, with DAC/EJ concerns and Native American Tribal communities	40	y/n	y	Part 1, Section 8.4		y
State when a more detailed project-specific impact and benefit analysis will occur (prior to any implementation activity)	55	y/n	y	Part 1, Section 8.5.4		y
Review and update the impacts and benefits section of the plan as part of the normal plan management activities	55 - 56	y/n	y	Part 1, Section 8.5		y

IRWM Plan Standard: Plan Performance and Monitoring				Overall Standard Sufficient		Yes
Requirement		Included		Evidence of Plan Sufficiency		Sufficient
IRWM 2016 Guidelines Requirement	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.		Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Contain performance measures and monitoring methods to ensure that IRWM objectives are met **(1)**.	40	**y/n**	y	Part 1, Section 8.5.1		y
Contain a methodology that the RWMG will use to oversee and evaluate implementation of projects.	40	**y/n**	y	Part 1, Section 8.5.1		y
Each project in the IRWM Plan is monitored to comply with all applicable rules, laws, and permit requirements.	58	**y/n**	y	Part 1, Section 8.5.1.2		y
Contain policies and procedures that promote adaptive management and, as more effects of Climate Change manifest, new tools are developed, and new information becomes available, adjust IRWM plans accordingly.	40	**y/n**	y	Part 1, Section 8.5		y

IRWM Plan Standard Requirements for 2016 IRWM Guidelines in Addition to Previously Required 2012 IRWM Guideline Requirements. See Appendix H in IRWM 2016 Guidelines.

(1) Requirement must be addressed per CWC §10541 (e)(7).

IRWM Plan Standard: Data Management				Overall Standard Sufficient		Yes
Requirement		Included		Evidence of Plan Sufficiency		Sufficient
IRWM 2016 Guidelines Requirement	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.		Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Describe data needs within the IRWM region	59 - 60	**y/n**	y	Section 8.5.2 and Section 6.3 (metrics to measure		y
Describe typical data collection techniques	59 - 60	**y/n**	y	Volume 1, Section 8.5.2		y
Describe stakeholder contributions of data to a data management system	59 - 60	**y/n**	y	Volume 1, Section 8.5.2		y
Describe the entity responsible for maintaining data in the data management system	59 - 60	**y/n**	y	Volume 1, Section 8.5.2		y
Describe the QA/QC measures for data	59 - 60	**y/n**	y	Volume 1, Section 8.5.2		y
Explain how data collected will be transferred or shared between members of the RWMG and other interested parties throughout the IRWM region, including local, State, and federal agencies **(1)**.	59 - 60	**y/n**	y	Volume 1, Section 8.5.2		y
Explain how the Data Management System supports the RWMG's efforts to share collected data	59 - 60	**y/n**	y	Volume 1, Section 8.5.2		y
Outline how data saved in the data management system will be distributed and remain compatible with State databases including CEDEN, Water Data Library (WDL), CASGEM, California Environmental Information Catalog (CEIC), and the California Environmental Resources Evaluation System (CERES).	59 - 60	**y/n**	y	Volume 1, Section 8.5.2		y

(1) Requirement must be addressed per CWC §10541 (e)(12).

IRWM Plan Standard: Finance				Overall Standard Sufficient		Yes
Requirement		Included		Evidence of Plan Sufficiency		Sufficient
IRWM 2016 Guidelines Requirement	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.		Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Include aprogrammatic level (i.e. general) plan for implementation and financing of identified projects and programs **(1)** including the following:	41	**y/n**	y	Part 1, Section 8.2.2		y
List known, as well as, possible funding sources, programs, and grant opportunities for the development and ongoing funding of the IRWM Plan.	41	**y/n**	y	Part 1, Section 8.2.2		y
List the funding mechanisms, including water enterprise funds, rate structures, and private financing options, for projects that implement the IRWM Plan.	41	**y/n**	y	Part 1, Section 8.2.2		y
An explanation of the certainty and longevity of known or potential funding for the IRWM Plan and projects that implement the Plan.	41	**y/n**	y	Part 1, Section 8.2.2		y
An explanation of how operation and maintenance (O&M) costs for projects that implement the IRWM Plan would be covered and the certainty of operation and maintenance funding.	41	**y/n**	y	Part 1, Section 8.2.2		y

(1) Requirement must be addressed per CWC §10541 (e)(8).

IRWM Plan Standard: Technical Analysis					Overall Standard Sufficient	Yes
Requirement		Included		Evidence of Plan Sufficiency		Sufficient
IRWM 2016 Guidelines Requirement	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.		Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Document the data and technical analyses that were used in the development of the plan **(1)**.	41	**y/n**	y	Part 1, Section 1.4.3		y

(1) Requirement must be addressed per CWC §10541 (e)(11).

IRWM Plan Standard: Relation to Local Water Planning					Overall Standard Sufficient	Yes
Requirement		Included		Evidence of Plan Sufficiency		Sufficient
IRWM 2016 Guidelines Requirement	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.		Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Identify a list of local water plans used in the IRWM plan	41	y/n	y	Part 1, Section 1.4.3		y
Describe the dynamics between the IRWM plan and other planning documents	41	y/n	y	Part 1, Section 1.4.3 and 1.6.2		y
Describe how the RWMG will coordinate its water mgmt planning activities	41	y/n	y	Part 1, Section 8.1		y
Discuss how the plan relates to these other planning documents and programs. Same as 2012 GL with the following addition: "It should be noted that Water Code § 10562 (b)(7) requires the development of a stormwater resource plan and compliance with these provisions to receive grants for stormwater and dry weather runoff capture projects. Upon development of the stormwater resource plan, the RWMG shall incorporate it into IRWM plan. The IRWM Plan should discuss the processes that it will use to incorporate such plans." Minor wording differences - e.g. Groundwater Sustainability Plan example in the 2016 Guidelines instead of Groundwater Management Plan in the 2012 Guidelines.	63 - 64	y/n	n	Part 1, Table 1-3 and Section 6.4.2		y
Consider and incorporate water management issues and climate change adaptation and mitigation strategies from local plans into the IRWM Plan.	63 - 64	y/n	y	Part 1, Sections 6.2.1.8, 6.3.6 and 6.4.2		y

IRWM Plan Standard Requirements for 2016 IRWM Guidelines in Addition to Previously Required 2012 IRWM Guideline Requirements. See Appendix H in IRWM 2016 Guidelines.

IRWM Plan Standard: Relation to Local Land Use Planning					Overall Standard Sufficient	Yes
Requirement		Included		Evidence of Plan Sufficiency		Sufficient
IRWM 2016 Guidelines Requirement	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.		Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Document current relationship between local land use planning, regional water issues, and water management objectives	41	y/n	y	Part 1, Section 1.6.2 and Part 2		y
Document future plans to further a collaborative, proactive relationship between land use planners and water managers	41	y/n	y	Part 1, Section 8.1		y
Demonstrate information sharing and collaboration with regional land use planning in order to manage multiple water demands throughout the state, adapt water management systems to climate change, and potentially offset climate change impacts to water supply in California.	41	y/n	y	Part 1, Sections 1.6.2 and 8.1, and Part 2		y

IRWM Plan Standard Requirements for 2016 IRWM Guidelines in Addition to Previously Required 2012 IRWM Guideline Requirements. See Appendix H in IRWM 2016 Guidelines.

IRWM Plan Standard: Stakeholder Involvement				Overall Standard Sufficient		Yes
Requirement		Included		Evidence of Plan Sufficiency		Sufficient
IRWM 2016 Guidelines Requirement	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.		Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Discuss involvement of DACs and tribal communities in the IRWM planning effort	41 - 42	**y/n**	y	Part 1, Sections 1.3.3, 1.3.4, 1.4.1 and 1.4.2		y
Describe decision-making process and roles that stakeholders can occupy	41 - 42	**y/n**	y	Part 1, Sections 1.3.3 and 1.3.4		y
Discuss how stakeholders are necessary to address objectives and RMS	41 - 42	**y/n**	y	Part 1, Sections 1.3.3		y
Discuss how a collaborative process will engage a balance in interest groups	41 - 42	**y/n**	y	Part 1, Sections 1.1 and 1.3		y
Contain a public process that provides outreach and opportunity to participate in the IRWM plan **(1)**. Per 2016 GL: "Native American tribes – It should be noted that tribes are sovereign nations, and as such coordination with tribes is on a government-to-government basis."	41 - 42	**y/n**	y	Part 1, Sections 1.3.3, 1.3.4, 1.4.1 and 1.4.2		y
Identify process to involve and facilitate stakeholders during development and implementation of IRWM plan regardless of ability to pay; include description of any barriers to involvement **(2)**. "Stakeholder Involvement" in the 2012 GL is referred to "Native American Tribe and Stakeholder Involvement" in the 2016 GL and Tribes are referred to specifically.	41 - 42	**y/n**	y	Part 1, Sections 1.3.3, 1.3.4, 1.4.1, 1.4.2 and 8.1		y

IRWM Plan Standard Requirements for 2016 IRWM Guidelines in Addition to Previously Required 2012 IRWM Guideline Requirements. See Appendix H in IRWM 2016 Guidelines.

(1) Requirement must be addressed per CWC §10541 (g).

(2) Requirement must be addressed per CWC §10541 (h)(2).

IRWM Plan Standard: Coordination					Overall Standard Sufficient	Yes
Requirement		Included		Evidence of Plan Sufficiency		Sufficient
IRWM 2016 Guidelines Requirement	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.		Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y
Identify the process to coordinate water management projects and activities of participating local agencies and stakeholders to avoid conflicts and take advantage of efficiencies **(1)**.	42	**y/n**	y	Part 1, Sections 1.3.3 and 8.1		y
Identify neighboring IRWM efforts and ways to cooperate or coordinate, and a discussion of any ongoing water management conflicts with adjacent IRWM efforts	42	**y/n**	y	Part 1, Section 1.6.1		y
Identify areas where a state agency or other agencies may be able to assist in communication or cooperation, or implementation of IRWM Plan components, processes, and projects, or where State or federal regulatory decisions are required before implementing the projects.	42	**y/n**	y	Part 1, Section 1.3		y

(1) Requirement must be addressed per CWC §10541 (e)(13).

IRWM Plan Standard: Climate Change				Overall Standard Sufficient		Yes
Requirement		Included		Evidence of Plan Sufficiency		Sufficient
IRWM 2016 Guidelines Requirement	IRWM 2016 Guidelines Page Number	y/n - Present/Not Present in the IRWM Plan. If y/n/q, qualitative evaluation needed.		Location of Standard in Grantee IRWM Plan	Brief Qualitative Evaluation	y/n
Contain a plan, program, or methodology for further data gathering and analysis of prioritized vulnerabilities.	42 - 44	y/n	y	Part 1, Section 8.5		y
Include climate change as part of the project review process.	42 - 44	y/n	y	Part 1, Table 7-1		y
Evaluate IRWM region's vulnerabilities to climate change and potential adaptation responses based on vulnerabilities assessment in the DWR Climate Change Handbook for Regional Water Planning **(1)**. Addition in 2016 GL - "At a minimum, the vulnerability evaluation must be equivalent to the vulnerability assessment contained in the Climate Change Handbook for Regional Water Planning, Section 4 and Appendix B."	42 - 44	y/n	y	Part 1, Section 6.2.1.8		y
Provide a process that considers GHG emissions when choosing between project alternatives **(1)**. Addition in 2016 GL - "At a minimum, that process must determine a project's ability to help the IRWM region reduce GHG emissions as new projects are implemented over a 20-year planning horizon and consider energy efficiency and reduction of GHG emissions when choosing between project alternatives."	42 - 44	y/n	y	Part 1, Table 7-1	The Region's project review process incorporates GHG reduction under its "Sustainability" criteria shown in Table 5-1 through the question: "Does the project mitigate against or help adapt to climate change?" Projects that contribute towards climate change mitigation are expected to reduce GHGs, and are awarded higher scores. The information used to make this determination is gathered using the project nomination form that allows project sponsors to quantify the estimated decrease in GHG emissions a project will provide.	y
Include a list of prioritized vulnerabilities based on the vulnerability assessment and the IRWM's decision making process. Addition in 2016 GL - "A list of prioritized vulnerabilities which includes a determination regarding the feasibility for the RWMG to address the priority vulnerabilities."	42 - 44	y/n	y	Part 1, Section 6.2.1.8	The region identified primary concerns stemming from the Vulnerability Assessment Checklist located in Appendix XX of Part 3.	y

Address adapting to changes in the amount, intensity, timing, quality, and variability of runoff and recharge.	42 - 44	**y/n**	y	Part 1, Sections 2.6.2 and 2.6.3, Table 7-1, and Section 6.3.6	The Region identified the set of vulnerabilities found in Part 3 based on climate change impacts to amount, intensity, timing, quality and variability of runoff and recharge. To respond to the effects of climate change and identified vulnerabilities, the Region identified the Objective to "Adapt to and mitigate against climate change by promoting adaptation strategies adn reducing wtaer related GHG emissions". Additionally, all of the objectives included in the IRWM Plan either directly or indirectly will help to respond to climate change. Finally, the Region has also included climate change as part of its project review process.	y
Areas of the State that receive water imported from the Sacramento-San Joaquin River Delta, the area within the Delta, and areas served by coastal aquifers must also consider the effects of sea level rise (SLR) on water supply conditions and identify suitable adaptation measures.	42 - 44	**y/n**	y	Part 1, Section 2.6.3 and Table 6-3	The Region currently receives imported water from the Delta, and therefore identified decreased imported water supply as a vulnerability issue. To help adapt to this vulnerability, the Region identified objectives to reduce regional potable water consumption and increase local supply development. In addition, the Region also set the objective to adapt to and mitigate against climate change by proimoting adaptation strategies and reducing water and wastewater related GHG emissions.	y

IRWM Plan Standard Requirements for 2016 IRWM Guidelines in Addition to Previously Required 2012 Guideline Requirements. See Appendix H in IRWM 2016 Guidelines.

(1) Requirement must be addressed per CWC §10541 (e)(9).

D: San Bernardino County USARW Stormwater Resource Plan

SAN BERNARDINO COUNTY PUBLIC WORKS

SAN BERNARDINO COUNTY
SANTA ANA RIVER WATERSHED
STORMWATER RESOURCE PLAN

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San Bernardino County
Santa Ana River Watershed
Stormwater Resource Plan

FINAL

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Acronyms

AES	Advanced Engineering Software
AF	Acre-Feet
AFY	Acre-Feet per Year
AGR	Agricultural Supply
ASBI	Area of Special Biological Importance
ASBS	Areas of Special Biological Significance
BBL	Big Bear Lake
BBLN	Big Bear Lake Nutrient and Nuisance Aquatic Plants
BBMWD	Big Bear Municipal Water District
BMP	Best Management Practice
BPA	Basin Plan Amendment
BVMWC	Bear Valley Mutual Water Company
CASQA	California Stormwater Quality Association
CBRP	Comprehensive Bacteria Reduction Plan
CBWCD	Chino Basin Water Conservation District
CBWM	Chino Basin Watermaster
CDFW	California Department of Fish and Wildlife
CDS	Continuous Deflection Separator
CEDEN	California Environmental Data Exchange Network
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGP	Construction General Permit
COLD	Cold Freshwater Habitat
CRAM	California Rapid Assessment Methods
CTR	California Toxics Rule
CWA	Clean Water Act
DAC	Disadvantaged Community
DDT	Dichlorodiphenyltrichloroethane
EIR	Environmental Impact Report
ESA	Endangered Species Act
EVWD	East Valley Water District
FCS	Full Capture Systems
GAC	Granular Activated Carbon
GIS	Geographic Information System
GWR	Groundwater Recharge
HEC-HMS	Hydrologic Engineering Center – Hydrologic Modeling System
HEC-RAS	Hydrologic Engineering Center – River Analysis System
HSPF	Hydrological Simulation Program – Fortran
IEUA	Inland Empire Utilities Agency
IGP	Industrial General Permit
IRWM	Integrated Regional Water Management

IRWMP	Integrated Regional Water Management Plan
IS	Initial Study
ISWEBE	Inland Surface Waters, Enclosed Bays, and Estuaries
LA	Load Allocation
MCL	Maximum Contaminant Level
MND	Mitigated Negative Declaration
MS4	Municipal Separate Storm Sewer System
MSAR	Middle Santa Ana River
MUN	Municipal and Domestic Water Supply
MWD	Metropolitan Water District of Southern California
MZ	Management Zones
ND	Negative Declaration
NGO	Non-Governmental Organization
NL	Notification Level
NPDES	National Pollutant Discharge Elimination System
OAL	Office of Administrative Law
OCWD	Orange County Water District
OWOW	One Water, One Watershed
OWTS	Onsite Wastewater Treatment Systems
PCB	Polychlorinated biphenyl
PCE	Tetrachloroethylene
POTW	Publicly-Owned Treatment Works
POW	Hydropower Generation
QAPP	Quality Assurance Program Plan
RARE	Rare, Threatened, or Endangered Species
RCP	Reinforced Concrete Pipe
REC1	Water Contact Recreation
REC2	Water Non-contact Recreation
RHWC	Riverside Highland Water Company
ROWD	Report of Waste Discharge
SANBAG	San Bernardino Associated Governments
SARW	Santa Ana River Watershed
SARWQCB	Santa Ana Regional Water Quality Control Board
SAWPA	Santa Ana Watershed Project Authority
SB	Senate Bill
SBC	San Bernardino County
SBCDPW	San Bernardino County Department of Public Works
SBCFCD	San Bernardino County Flood Control District
SBMWD	San Bernardino Municipal Water District
SBPAT	Structural Best Management Practice Prioritization and Analysis Tool
SBVMWD	San Bernardino Valley Municipal Water District
SBVWCD	San Bernardino Valley Water Conservation District
SCS	Soil Conservation Service
SDWA	Safe Drinking Water Act

SPOEEP	Stakeholder and Public Outreach, Education, and Engagement Plan
SPWN	Spawning, Reproduction, and Development
SUSTAIN	System for Urban Stormwater Treatment and Analysis Integration
SWAMP	Surface Water Ambient Monitoring Program
SWMM	Stormwater Management Model
SWRCB	State Water Resources Control Board
SWRP	Stormwater Resource Plan
TAC	Technical Advisory Committee
TCE	Trichloroethylene
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
UA	Unincorporated Areas
UAA	Use Attainability Analyses
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UWMP	Urban Water Management Plan
VOCs	Volatile Organic Compounds
WARM	Warm Freshwater Habitat
WEI	Wildermuth Environmental, Inc.
WILD	Wildlife Habitat
WLA	Waste Load Allocation
WLAM	Wasteload Allocation Model
WMS	Watershed Modeling System
WMWD	Western Municipal Water District
WQO	Water Quality Objective
WSPG	Water Surface Pressure Gradient
WWTP	Wastewater Treatment Plant
WVWD	West Valley Water District
YVWD	Yucaipa Valley Water District

Executive Summary

This Stormwater Resource Plan (SWRP) was prepared to develop a regional, watershed-based plan for management and improvement of stormwater resources within the Santa Ana River Watershed (SARW) portion of San Bernardino County (SBC). This SWRP is a document that complies with the requirements and guidelines set forth by the State Water Resources Control Board (SWRCB) mandated by Senate Bill 985 (SB 985), passed by the California State Legislature and signed into law by Governor Jerry Brown on September 25, 2014.

The intent of the SWRP is to develop a regional plan of stormwater resources to maximize benefits within the SBC portion of the SARW, an area of 1,015 square miles and home to nearly 2 million people, or about 80% of the overall population of the county. The SBC SARW contains the headwaters of the Santa Ana River and the headwaters of many of its tributaries draining from the San Bernardino and San Gabriel Mountains. The SWRP establishes stormwater and dry-weather runoff goals and objectives for the entire SBC SARW to provide water quality, water supply, flood management, environmental, and community benefits. The intention of this SWRP is not to preclude a stakeholder from fulfilling their agency's primary mission, but to identify and prioritize multi-benefit projects when feasible.

The SBC SARW SWRP includes a section on the water quality objectives within the watershed. Meeting existing water quality objectives is an important component of the SWRP. Existing planning efforts have been identified, as the intent of the SWRP is not to replace existing efforts, but rather to work in conjunction with existing goals already defined in regulations and planning efforts. Stakeholders were identified, along with a process for collaborating with organizations, stakeholders, and the public.

The SWRP contains a number of potential stormwater and dry-weather runoff projects. The types of projects include low-flow capture, infiltration basins, channel improvements, bioretention projects, habitat remediation, public use areas, and green streets projects. Each project included provides multiple benefits to the community and contributes towards the achievement of stormwater goals and objectives. The multiple benefits are quantified and projects are prioritized based on an integrated metrics-based analysis. An implementation strategy and a rough estimation of a schedule for each project is included in the plan.

The SWRP was prepared with community and stakeholder involvement at each step of the process. The outreach, collaboration, and educational components are summarized within the SWRP. The SWRP is a living document which can be used for many years and will be adaptively managed based on the changing needs and resource goals within the SBC SARW. The SWRP will be submitted to the Santa Ana Watershed Protection Authority (SAWPA) for inclusion in their One Water, One Watershed (OWOW) Plan.

1. Introduction

California voters passed the Water Quality, Supply, and Infrastructure Improvement Act of 2014 (Proposition 1) during the general election of November 4, 2014. As a precursor to the passage of Proposition 1, the California State Legislature adopted Senate Bill (SB) 985 entitled the Stormwater Resource Planning Act (SB 985), requiring the development of a Stormwater Resource Plan (SWRP) to be eligible to receive grants from a bond act approved after January 1, 2014, for stormwater and dry-weather runoff capture projects. A SWRP is a stormwater management document developed on a watershed basis that identifies a prioritized list of projects to address stormwater and dry-weather runoff, while also providing multiple benefits, such as water supply, flood management, and environmental and community enhancements. The State Water Resources Control Board (SWRCB) developed Stormwater Resource Plan Guidelines (2015) to facilitate the preparation of SWRPs or equivalent documents. Proposition 1 includes numerous project categories to be funded, one being the Stormwater Grant Program. Planning and implementation grants were included in the Stormwater Grant Program. Planning grants were used for developing SWRPs and/or conducting studies prior to project implementation while the implementation grants were used to fund projects identified in a SWRP or equivalent document.

The San Bernardino County Flood Control District (SBCFCD) was awarded Proposition 1 planning grant funds through the Stormwater Grant Program for the development of the San Bernardino County Santa Ana River Watershed (SBC SARW) SWRP (Grant Agreement No. D1612627). The SBC SARW area encompasses the upper limits of the SARW that lies within the San Bernardino County jurisdictional boundary and is comprised of 14 subwatersheds associated with major tributaries to the Santa Ana River. The SBC SARW SWRP has been developed with funding provided by this planning grant program based on the conditions of the grant agreement.

The following subsections provide background information on the history of stormwater management legislation in California, the intended use of this SWRP, and the existing regulations and planning efforts that this SWRP will complement. **Section 1.5** introduces the stormwater management objectives addressed by the SBC SARW SWRP, and **Section 1.6** outlines the structure of this document.

1.1 Background

Stormwater and dry-weather runoff are resources that must be managed on a regional scale to maximize benefits. The California State Legislature found that "improved management of stormwater and dry-weather runoff, including capture, treatment, and reuse by using the natural functions of soils and plants, can improve water quality, reduce localized flooding, and increase water supplies for beneficial uses and the environment." That finding was included with the passage of SB 985 in 2014, the Stormwater Management Planning Act.

Historically, stormwater management focused on the conveyance of stormwater offsite as quickly as possible. The conveyance of stormwater has been generally regarded as separate from the concept of water supply infrastructure and water quality management. Conveyance of stormwater through Municipal Separate Storm Sewer Systems (MS4s) and flood control infrastructure was combined with water quality regulations in California with the passage of the Porter-Cologne Water Quality Control Act of 1969, followed soon thereafter nationally by the Clean Water Act (CWA) of 1972. The CWA prohibited any entity from discharging pollutants through a point source into a water of the United States unless

that entity had a National Pollutant Discharge Elimination System (NPDES) permit. Through these regulations, water quality became a priority for municipalities on par with flood control management.

The traditional approach to stormwater management as a flood control and water quality issue did not address projects that could attain multiple benefits, such as the augmentation of the water supply or protection of the local ecology. In general, the conveyance of stormwater through storm drains and channels reduced the ability of the environment to capture runoff and treat it through natural hydrology and watershed processes. Municipalities sacrificed opportunities to use stormwater runoff to augment water supply by favoring the quick conveyance of stormwater runoff downstream rather than capturing the runoff and storing it. As a result, municipalities are forced to import costly water from the California State Water Project and deplete local groundwater basins to meet water demands.

The California State Legislature passed the Integrated Regional Water Management (IRWM) Planning Act of 2002, which encouraged the establishment of regional water management groups, which would then prepare a regional plan to address the quantity, quality, and reliability of water supplies. The Act established the idea of creating a regional planning document, an Integrated Regional Water Management Plan (IRWMP), as a framework for integrating various programs and projects with the primary goal of enhancing water supplies, but with a secondary goal of providing flood protection, improving water quality, and undertaking environmental restoration or enhancement. Since the Act passed in 2002, various bond acts approved by California voters have provided over $1.5 billion in funding to support multi-benefit regional projects (DWR, 2018).

By 2009, the State of California had established funding for projects to encourage water supply through the IRWM groups, and requirements for projects to enhance water quality. The existing programs did not encourage the implementation of multi-benefit stormwater projects. In response, the California State Legislature passed SB 790, the Stormwater Resource Planning Act, authored by Senator Fran Pavley, which introduced the concept of a SWRP. SB 790 authorized a city, county, or special district to develop, jointly or individually, a SWRP. The purpose of a SWRP was to identify, on a watershed basis, projects and programs that could augment local water supplies, control pollution, enhance habitat, and provide other multiple community benefits. The Stormwater Resource Planning Act "change[d] perspective on stormwater from being a water quality problem to recognizing that stormwater could be a source of water supply for a variety of purposes," according to Pavley (2009).

In 2014, the Stormwater Resource Planning Act was amended by SB 985, also authored by Pavley, which expanded the standards to include dry-weather runoff and made the development of a SWRP a prerequisite for receiving money from any bond act approved by California voters after January 1, 2014. One such bond act, known as the Water Quality, Supply, and Infrastructure Improvement Act of 2014 (Proposition 1), was approved by voters in November of 2014. Proposition 1 authorized $7.545 billion in general obligation bonds to fund ecosystems and watershed protection and restoration, water supply infrastructure projects (including surface and groundwater storage), and drinking water protection.

SB 985 required the State of California to establish guidelines for the development of SWRPs. The SWRCB published the SWRP Guidelines in December of 2015 to establish guidance for public agencies interested in developing SWRPs. The SWRP Guidelines "serve as a guide for the State Water Board and other bond fund-dispensing agencies to use in determining whether an adequate Stormwater Resource Plan has been prepared prior to the granting of funds for stormwater and dry-weather runoff capture projects." This SWRP has been developed in consideration of the SWRP Guidelines.

1.2 Intended Use of the SWRP

The purpose of the SBC SARW SWRP is to create a plan that characterizes the SBC SARW, provides a template for interagency coordination and outreach, quantifies potential solutions to achieve stormwater management goals and objectives, and outlines a strategy for implementation. The intent is not to create a plan that replaces objectives that already exist within the SBC SARW but rather to work in conjunction with existing goals already defined in regulations and planning efforts.

1.3 Consistency with Applicable Regulations

Effective stormwater planning and management on a watershed level basis requires agreement of applicable water quality provisions developed and implemented by the United States Environmental Protection Agency (USEPA), SWRCB, Santa Ana Regional Water Quality Control Board (SARWQCB), and local agencies and stakeholders. Projects identified within this SWRP are consistent with applicable requirements of the provisions outlined in subsequent sections.

1.3.1 California Environmental Quality Act

Stormwater related projects proposed for the study area by public agencies must comply with the California Environmental Quality Act (CEQA) statute, California Public Resources Code § 21000 et seq., purposed to disclose to the public the significant environmental effects of proposed discretionary projects, through the preparation of an Initial Study (IS) and Negative Declaration (ND), Mitigated Negative Declaration (MND), or Environmental Impact Report (EIR). CEQA requires that any impacts determined to be significant must be mitigated to a level of non-significance.

Each project and/or program identified in this SWRP will be reviewed and documentation will be prepared in accordance with CEQA requirements prior to implementation of the project/program. The agency responsible for implementation will also be responsible for the CEQA requirements.

1.3.2 Clean Water Act

The CWA established the structure for regulating point source discharges of pollutants into the waters of the United States and water quality standards for surface waters. Under the CWA, USEPA has implemented pollution control programs and set water quality standards for contaminants in surface waters. One program that ties water quality standards and surface waters is the 303(d) listing of impaired waters. The list serves as a tracking system for water bodies and associated pollutants causing impairments. Waste discharge requirements regulate discharge water quality through the assignment of Total Maximum Daily Loads (TMDLs), based on the severity of the pollution and sensitivity of the beneficial uses to be protected. Water bodies currently on the 303(d) list within the SBC SARW are identified in **Section 3.1**.

The Porter-Cologne Water Quality Control Act, also known as the California Water Code, Section 7, was established to protect water quality as well as its beneficial uses and consists of three elements: beneficial uses, water quality objectives, and an implementation program. The Regional Water Quality Control Boards implement the applicable Basin Plan(s) by issuing and enforcing waste discharge requirements to individuals, municipalities, and/or businesses whose point source or non-point source waste discharges can impact water quality.

1.3.2.1 NPDES MS4 Permit Order No R8-2010-0036

The NPDES Permit and Waste Discharge Requirements for the SBCFCD, the County of San Bernardino, and the Incorporated Cities of San Bernardino County within the Santa Ana Region, Order No. R8-2010-0036 (MS4 Permit) was adopted on January 29, 2010, and expired on January 29, 2015. The MS4 Permit was administratively extended until a new permit is issued. The MS4 Permit regulates the discharge of pollutants from anthropogenic sources from MS4s. Among many things, the MS4 Permit outlines the responsibilities of the Permittees, defines discharge prohibitions and receiving water limitations, and identifies programs that must be implemented in an effort to minimize pollutant discharges. The MS4 Permit requires that Permittees establish legal authority for inspections, enforcement, prohibition of waste discharge, and other actions necessary to uphold the MS4 Permit requirements. Although the expiration date has passed, the MS4 Permit must be abided by until a new MS4 Permit is adopted by the SARWQCB. The MS4 Permit applies to the SBC SARW area and the SWRP was developed to be consistent with the requirements contained within it.

1.3.2.2 Report of Waste Discharge: Application for Renewal of the Municipal NPDES Stormwater Permit (NPDES Permit No. CAS618036)

The Report of Waste Discharge (ROWD) was prepared as part of the MS4 Permit renewal application process, which will result in the development and adoption of a fifth-term MS4 Permit by the SARWQCB. The ROWD was submitted August 1, 2014, to the SARWQCB. The ROWD identifies the accomplishments of the San Bernardino County Areawide Stormwater Program (Areawide Program), which implements the shared requirements set forth by the MS4 Permit, and develops priorities for the watershed area. The ROWD presents iterative Best Management Practice (BMP) approaches that continue to be successful. The data and findings included within the ROWD were referenced throughout the SWRP development and are used to support approaches taken to address the SWRP Guidelines (2015).

1.3.2.3 Clean Water Act, Section 401

Section 401 of the CWA requires that any person applying for a federal permit or license, which may result in the discharge of pollutants into waters of the United States, must obtain a state water quality certification that the activity complies with all water quality standards, limitations, and restrictions. Certification or a waiver under Section 401 is required prior to other federal agency certifications or licenses. This certification is required prior to construction and is only applicable during construction activities. The authority to certify projects has been delegated to local Regional Water Quality Control Boards, which in this case is the SARWQCB. Several projects included in this SWRP are located within open conveyances and will need to comply with Section 401 requirements. The projects will be designed to preserve beneficial uses, satisfy water quality objectives, and be consistent with the Antidegradation Policy according to CWA 40 Code of Federal Regulations (CFR) 131. The agency responsible for a project's implementation is also responsible for compliance with Section 401.

1.3.2.4 Clean Water Act, Section 404

Section 404 of the CWA establishes a program that requires a permit to be obtained prior to construction to regulate the discharge of dredged or fill material into the waters of the United States. The basic premise of the program is that no discharge of dredged or fill material may be permitted if a practicable alternative exists that is less damaging to the aquatic environment or the nation's waters would be significantly degraded. When applying for a permit, it must be clear that steps have been taken to

minimize potential impacts and that compensation will be provided for all remaining unavoidable impacts. Individual permits are reviewed by the United States Army Corps of Engineers (USACE) and applications are evaluated under public interest review as well as Section 404 guidelines. For most discharges that will have only minimal adverse effects, a general permit may be suitable. General permits are issued on a nationwide, regional, or state basis for particular categories of activities. Several projects included in this SWRP are located within open conveyances and will need to comply with Section 404 requirements. The agency responsible for a project's implementation is also responsible for compliance with Section 404.

1.3.3 Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) gives the USEPA authority to set drinking water standards. Projects that have been identified in the SBC SARW SWRP have no components foreseen to be applicable to the SDWA.

1.3.4 Water Rights Permits

An entity must have a water right to capture or divert stream flows from natural streams, including flows incurred during peak storm events, to artificially recharge groundwater aquifers. Except where the storage and beneficial use are authorized under an existing appropriative right or a change in an existing right, this will require filing an application with the SWRCB to obtain a water right permit. Exceptions to acquiring water rights exist for flood control projects, those designed and used solely for flood protection and not for beneficial use. Exceptions also exist for pre-1914 rights, projects diverting water under a valid pre-1914 appropriative right.

The type of application required for a given project is dependent upon the duration of operation and urgency of water needs. The two types are outlined below:

- Temporary Permits – expire within 180 days of issuance and are typically appropriate for short-term or infrequent diversions where an urgent need may exist.
- Standard Permits – appropriate for long-term projects and may take several years to issue.

1.3.5 Areas of Special Biological Significance

Areas of Special Biological Significance (ASBS) are important areas outlined in the California Ocean Plan for which additional water quality protection may be necessary. State regulations mandate that "waste shall not be discharged to designated Areas of Special Biological Significance…" Currently, there are no ASBSs applicable to the projects identified in this SWRP.

1.3.6 Total Maximum Daily Loads

TMDLs are developed for water bodies on the CWA 303(d) List and define how much of a pollutant can be present in a water body and still meet water quality standards and protect beneficial uses. There are two TMDLs in the SBC SARW: Big Bear Lake Nutrients and Nuisance Aquatic Plants TMDL and the Middle Santa Ana River Bacterial Indicator TMDL. Additional details pertaining to these TMDLs are provided in **Section 3**.

1.3.7 Other Federal and/or State Laws, Regulations, and Permits

In addition to federal and state laws, regulations, and permits described above, compliance will be demonstrated for the following programs as listed below.

1.3.7.1 United States Fish and Wildlife Service

The United States Fish and Wildlife Service (USFWS) governs the Endangered Species Act (ESA), which directs all Federal agencies to conserve endangered and threatened species and use their authorities to further the purpose of the Act. Section 7 of the Act, called "Interagency Cooperation," is the mechanism by which Federal agencies ensure the actions they take, including those they fund or authorize, do not jeopardize the existence of any listed species. Based on preliminary review, endangered and/or threatened species exist in the SBC SARW and projects may need to comply with these requirements on a project by project basis. The agency responsible for project implementation is responsible for complying with these requirements, as applicable.

Under Section 7, Federal agencies must consult with the USFWS when they carry out any action, funds, or authorizations (such as through a permit) which may affect a listed endangered or threatened species. This process usually begins as an informal consultation, as the Federal agency approaches the USFWS in the early stages of a project to discuss the types of listed species that may be in the project area and what effect the project may have on those species. If the Federal agency and the USFWS determine that the proposed project is not likely to affect any listed species in the project area, the informal consultation is complete and the proposed project can move forward. If it appears that the project may affect a listed species, the Federal agency will coordinate with the applicant to prepare a biological assessment to assist in the determination of the project's effect on the species.

1.3.7.2 California Department of Fish and Wildlife Code Section 1602

The Fish and Game Code Section 1602 requires an entity to notify the California Department of Fish and Wildlife (CDFW) prior to the commencement of any activity that may do one or more of the following:

1. Substantially divert or obstruct the natural flow of any river, stream, or lake;
2. Substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or
3. Deposit or dispose of debris, waste, or other materials containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

The Notification of Lake or Streambed Alteration form must be completed and submitted along with the applicable fee to the Central Region (Region 4) to notify the CDFW regarding the project once it is scheduled to be implemented. Applicable special status studies, biological assessments, and hydrological studies must be included in the submittal package. When there is a potential for endangered and/or threatened species to exist in the project vicinity, then these requirements must be complied with. Special status studies and biological assessments will be required for these species plus any other endangered and/or threatened species known in the area. The agency responsible for implementation of a given project must also evaluate the applicability of these requirements and conform as necessary.

1.3.7.3 Mosquito Abatement and Vector Control District Law

The Mosquito Abatement Act of 1915 allows municipalities and counties to create Mosquito Abatement Districts. Projects identified in the SBC SARW SWRP will comply with requirements of the local mosquito abatement district. The San Bernardino County Department of Public Health, Division of Environmental Health Services, Mosquito and Vector Control Program provide mosquito abatement services within the San Bernardino County Region. Vector control is applicable to projects that have the potential for standing water. The agency responsible for a project's implementation is also responsible for coordination pertaining to vector control.

1.4 Existing Planning Efforts

Various local plans currently exist and are in effect within the SBC SARW related to water management. The intent of the SBC SARW SWRP is not to supersede these plans, but to improve water management objectives in the SBC SARW in conjunction with already existing efforts. Current planning efforts in the region that were considered throughout the development of this SWRP are described in detail in the Annotated List of Data and Reports Technical Memorandum (**Attachment A**) and **Section 4.2**. One major existing planning effort that is referenced throughout the SWRP is the Santa Ana Watershed Project Authority's (SAWPA's) One Water, One Watershed (OWOW) 2.0 Plan (2014). The OWOW Plan is the IRWMP for the SARW.

1.5 Stormwater Management Objectives

Stormwater management objectives have been identified for the SBC SARW to guide project/program identification, prioritization, and implementation within the watershed. The SWRP Guidelines (2015) state that plans must "discuss how the various stormwater management objectives within the watershed will protect or improve water quality, water supply reliability, and/or achieve other objectives."

1.5.1 Objectives Specific to the SBC SARW SWRP

The stormwater management objectives for the SBC SARW SWRP are spread across five categories of stormwater management goals. These goals are as follows, while **Table 1-1** summarizes the specific stormwater objectives:

1. Enhance water quality
2. Maximize water supply
3. Improve flood management
4. Protect the environment
5. Provide community benefits

Table 1-1 Stormwater Management Objectives

Goal	Objective	Description of Objective
Enhance Water Quality	Pollutant Load Reduction	Reduce the pollutant load from the contributing drainage area to achieve water quality objectives in downstream receiving waters, focusing on the water quality priorities identified in **Section 3.4**.
	Stormwater Runoff Reduction	Reduce volume of stormwater runoff from the project tributary area to downstream receiving waters to improve water quality by reducing the discharge of polluted runoff.
Maximize Water Supply	Stormwater Recharge	Increase the amount of stormwater runoff captured and infiltrated into groundwater basins.
	Recycled Water Recharge	Increase the amount of recycled water captured and infiltrated into groundwater basins.
Improve Flood Management	Runoff Rate Reduction	Reduce the peak runoff rate for the 100-year storm event, such that flooding is reduced.
	Runoff Volume Reduction	Reduce the volume of floodwaters reaching downstream conveyances, such that additional capacity is available downstream and flooding is reduced.
	Flood Elevation Reduction	Reduce flood elevation (water surface elevation) of the 100-year flood in conveyances downstream, which reduces the risk to property damage or loss caused by flooding.
	Removal of Parcels/ Structures from the Floodplain	Remove parcels/structures from the 100-year floodplain, decreasing the risk of losing property or human life due to flooding.
	Property Value Saved	Decrease property losses due to flooding.
Protect the Environment	Wetlands Enhancement/ Creation	Enhance/create wetlands to protect and improve habitat for species dependent on aquatic habitats for survival. Wetlands enhancement/creation replaces wetland habitat lost due to the process of urbanization.
	Riparian Area Enhancement	Riparian area enhancement helps protect and improve riparian habitat, which is important to protecting biodiversity, maintaining/improving water quality, and protecting channel slopes, among other benefits.
	Streambed Restoration	Restore or enhance natural streambeds for the protection of fish and wildlife habitat. Streambed restoration can also stimulate the natural scour and sedimentation processes essential to creating coarse sandy loam habitat for the endangered San Bernardino kangaroo rat.
	Increased Urban Green Space	Increase urban green space by providing trees, shrubs, and grasses that can filter pollution from air, water, and soils. Urban green space also provides community benefits of increased access to spaces for recreation, exercise, communing with nature, neighborhood cohesion, and intangible social benefits associated with lower crime rates and improved property values.

Goal	Objective	Description of Objective
Provide Community Benefits	Provide Employment Opportunities	Increase the number of jobs for members of the community.
	Increase Public Education	Increase public education associated with stormwater quality and multi-benefit project implementation, such that the public's understanding of water quality protection results in water quality improvements.
	Increase Community Involvement	Enhance public participation in the design phase of a project. Project buy-in can occur when designers have taken the time to involve the community, which yields long-term community cohesion benefits.
	Recreational Path Enhancement/ Creation	Enhance/create walking paths, sidewalks, and bike trails, which provide community benefits by increasing connectivity, supporting multi-modal transportation, and encouraging a healthy community.
	Public Use Area Enhancement/ Creation	Provide space for communities to gather and recreate, especially within disadvantaged communities, which have been neglected historically in terms of the development of public spaces. Enhancing/creating certain types of public use areas may result in health and social benefits.

The stormwater management objectives will be met through the implementation of the projects and programs described in this SWRP. An evaluation of these stormwater management objectives is included in **Section 6.4**.

1.5.2 Compatibility with IRWMP Goals

The SBC SARW SWRP will be submitted to SAWPA for incorporation into the local IRWMP (OWOW Plan) and the objectives included in this SWRP are consistent with those identified in the OWOW Plan, as shown below. **Table 1-2** lists the goals enumerated in the OWOW 2.0 Plan and the SBC SARW SWRP watershed management objectives that address these goals. Each stormwater management objective specific to the SBC SARW SWRP furthers at least one goal from the OWOW 2.0 Plan.

Table 1-2 Compatibility with IRWMP Goals

OWOW 2.0 Plan Goals	SBC SARW SWRP Objectives
Maintain reliable and resilient water supplies and reduce dependency on imported water	➢ Stormwater Recharge ➢ Recycled Water Recharge
Manage at the watershed scale for preservation and enhancement of the natural hydrology to benefit human and natural communities	➢ Wetlands Enhancement/Creation ➢ Riparian Area Enhancement ➢ Streambed Restoration
Preserve and enhance the ecosystem services provided by open space and habitat within the watershed	➢ Wetlands Enhancement/Creation ➢ Riparian Area Enhancement ➢ Streambed Restoration ➢ Increased Urban Green Space

OWOW 2.0 Plan Goals	SBC SARW SWRP Objectives
Protect beneficial uses to ensure high quality water for human and natural communities	➢ Pollutant Load Reduction ➢ Stormwater Runoff Reduction
Accomplish effective, equitable, and collaborative integrated watershed management	➢ Pollutant Load Reduction ➢ Stormwater Runoff Reduction ➢ Stormwater Recharge ➢ Recycled Water Recharge ➢ Runoff Rate Reduction ➢ Runoff Volume Reduction ➢ Flood Elevation Reduction ➢ Removal of Parcels/Structures from the Floodplain ➢ Property Value Saved ➢ Provide Employment Opportunities ➢ Increase Public Education ➢ Increase Community Involvement ➢ Recreational Paths Enhancement/Creation ➢ Public Use Area Enhancement/Creation

1.6 Elements of the SWRP

The SWRP consists of the following sections:

- **Section 2 – Watershed Identification**

  Internal boundaries within the SBC SARW area are defined and include the following boundaries: watershed and subwatersheds, planning areas, public agency, water utility, and surface and groundwater resources. This section includes the characterization of land use and natural/open space. Identification of the watershed and its characteristics sets the stage for project partners and stakeholder identification, water quality derivations, and potential regional projects.

- **Section 3 – Water Quality**

  Data from existing monitoring programs was compiled from various sources. Existing TMDLs and CWA 303(d) listed impairments are identified for receiving waters within the SBC SARW along with applicable Water Quality Objectives (WQOs). Data was analyzed to determine the exceedance frequency for each of the receiving waters to identify water quality priorities. The identified water quality priorities help guide the implementation efforts for the quantification of project benefits. Water quality data was also used to establish baseline water quality conditions in the SARW area.

- **Section 4 – Organizations, Coordination, and Collaboration**

  Stakeholders, the public, regulators, and Non-Governmental Organizations (NGOs) were solicited for input throughout the development of the SWRP. This section describes the coordination and collaboration that occurred and how it impacted the final SWRP.

- **Section 5 – Quantitative Methods**

  The water management objectives for the SBC SARW will be met through various multi-benefit stormwater management projects located within the SBC SARW. This section presents the approach taken to develop quantitative methodologies for integrated identification, prioritization, and analysis of multi-benefit projects and programs. Existing hydrologic/hydraulic models, water quality models, and other Geographic Information System (GIS) and spreadsheet-based decision support tools were reviewed to determine if they could be used to support the metric-based benefit analysis and prioritization of projects. A weighted scoring approach to conduct the metric-based analysis was established and is described in this section.

- **Section 6 – Project Identification and Prioritization**

  The approach described in the previous section was used to quantify benefits and prioritize projects. This section summarizes the results of the analysis and includes an assessment of the stormwater management objectives.

- **Section 7 – Implementation Strategy and Schedule**

  The implementation strategy is described in this section for future implementation of the projects/programs identified in the previous sections. The implementation approach, resources, schedule, funding, adaptive management, and performance assessments are described in detail. The information contained in this section supports the next steps following the SWRP approval.

- **Section 8 – Education, Outreach, and Public Participation**

  This section discusses the education/outreach materials and strategies used to engage the public and stakeholders. The approach, implementation, and outcomes are detailed to demonstrate how the community and stakeholders impacted the SWRP development.

2. Watershed Identification

This section identifies and describes the SBC SARW, its surface water and groundwater resources, and its internal boundaries, including public agency (jurisdictional), water and wastewater services, groundwater basin, and land use boundaries. This section includes a description of the native habitats, parks, and open spaces within the watershed. In total, the SBC SARW area is 1,015 square miles, or 649,513 acres, with a population of just under two million. The SBC SARW is further subdivided into 14 subwatersheds. The watershed characteristics presented in this section were considered as part of the project and program identification, quantification, and prioritization further described in this SWRP.

2.1 San Bernardino County Santa Ana River Watershed

The SARW encompasses nearly 2,650 square miles of mountains, foothills, and valleys, and is home to more than six million people. The watershed contains portions of Los Angeles, Orange, Riverside, and San Bernardino Counties, as depicted in **Figure 2-1**.

The SARW is characterized by the flat, arid basin of southwestern San Bernardino and western Riverside Counties and the coastal plain of north-central Orange County, and is bisected by the Santa Ana Mountains, which runs northwest to southeast, nearly perpendicular to the Santa Ana River. The Santa Ana River begins in the San Bernardino Mountains, upstream of Seven Oaks Dam, and drains into the Pacific Ocean in the City of Huntington Beach. There are over 50 major tributaries to the once free-flowing and perennial river, some of which are identified in **Figure 2-2**. Ancient igneous, metamorphic, and sedimentary rock underlies and forms the geologic base of the Santa Ana River. Most of the strata in the flat valleys and basins of the watershed are underlain by thousands of feet of sediment deposited by transient seas during climate changes and erosion (Mitchell, 2006).

Diverse and complex faulting and geologic instability have shaped the SARW. The San Andreas Fault runs across the northern section of the watershed and is responsible for causing the uplift of the San Bernardino Mountains, part of the Transverse Ranges of Southern California. The Elsinore–Whittier Fault Zone crosses the Santa Ana River further downstream, near the Orange County/Riverside County boundary. This fault caused the rising of the Santa Ana Mountains, Puente Hills, East Orange Hills, Chino Hills, Loma Ridge, and the other mountain ranges and ridges that run northwest-southeast across the lower section of the watershed, comprising the coastal Peninsular Ranges. While the larger San Andreas Fault allowed the Transverse Ranges to rise to above 10,000 feet in many places, the Peninsular Ranges are only about half that height.

The SBC SARW boundary, as illustrated in **Figure 2-2**, encompasses the upper limits or the headwaters of the Santa Ana River, with the SBC jurisdictional boundary as the southern limit. The jurisdictional boundary is utilized for the SWRP area instead of the hydrologic boundary. This approach was taken in an effort to have a more centralized analysis and planning study as compared to the efforts of the local IRWM (SAWPA) with the OWOW Plan, which encompasses the full SARW.

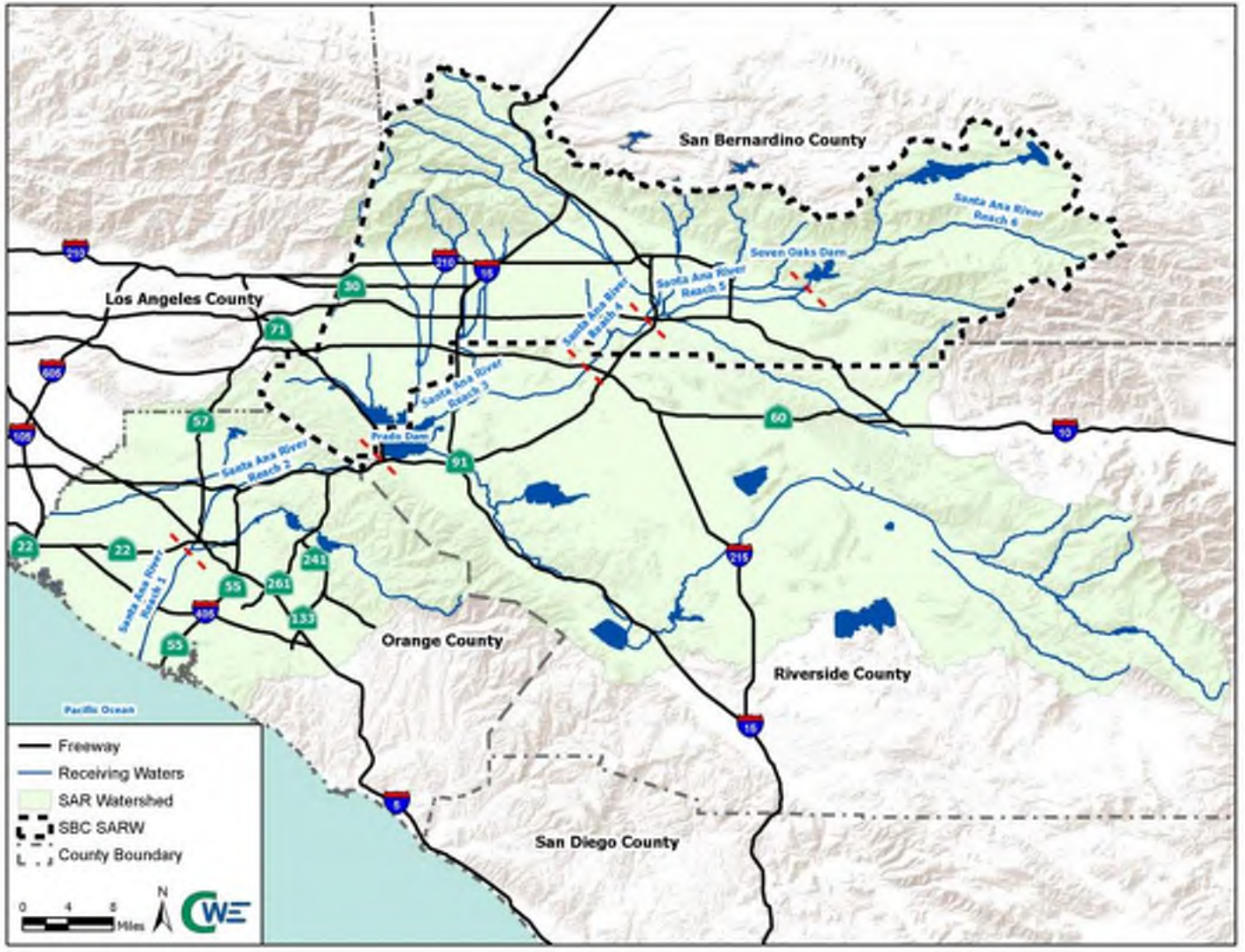


Figure 2-1 Santa Ana River Watershed

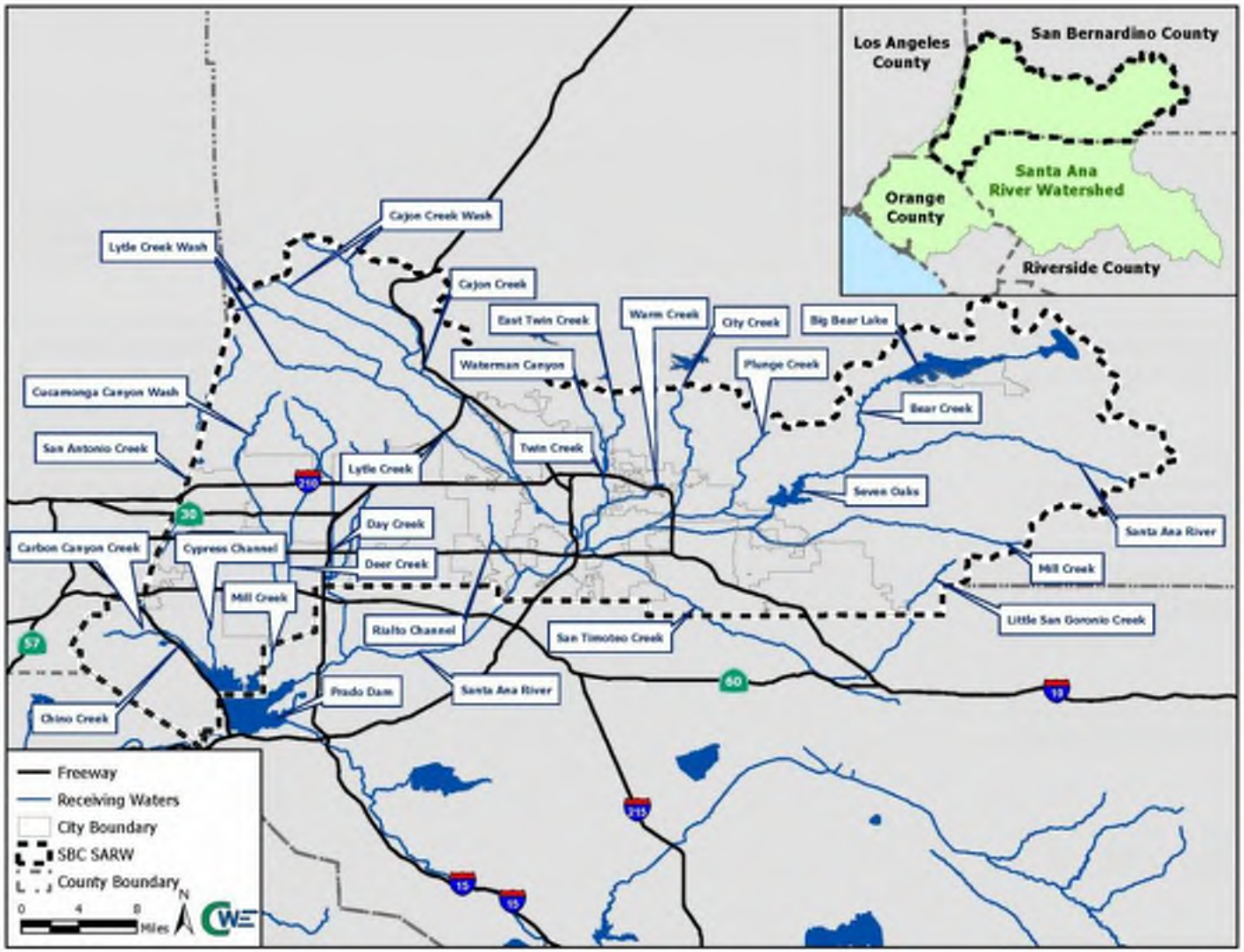


Figure 2-2 San Bernardino County Portion of the Santa Ana River Watershed

2.1.1 Internal Boundaries

The SBC SARW area encompasses several boundaries such as public agency (jurisdictional), water service, wastewater service, groundwater basin, and land use boundaries. The following subsections describe these boundaries within the SBC SARW.

2.1.1.1 Jurisdictional Boundaries

Sixteen cities encompass the SBC SARW area as well as Unincorporated Areas (UA) of SBC as shown in **Figure 2-3**. The City of San Bernardino is the largest city, followed by the Cities of Ontario, Chino Hills, Fontana, Rancho Cucamonga, Redlands, Chino, Yucaipa, Rialto, Highland, Colton, Upland, Loma Linda, Big Bear Lake, Montclair, and Grand Terrace. **Table 2-1** provides a summary of the area from each jurisdiction that makes up the SBC SARW.

Table 2-1 Jurisdictional Areas within SBC SARW

Jurisdiction	Area (Acres)	Percent (%)
Big Bear Lake	4,181	0.6
Chino	18,978	2.9
Chino Hills	28,640	4.4
Colton	10,265	1.6
Fontana	27,156	4.2
Grand Terrace	2,241	0.4
Highland	12,089	1.9
Loma Linda	4,811	0.7
Montclair	3,531	0.5
Ontario	32,005	4.9
Rancho Cucamonga	25,517	3.9
Redlands	23,313	3.6
Rialto	14,314	2.2
San Bernardino	38,171	5.9
Upland	10,016	1.5
Yucaipa	17,852	2.8
SBC UA	376,433	58.0
Total:	**649,513**	**100**

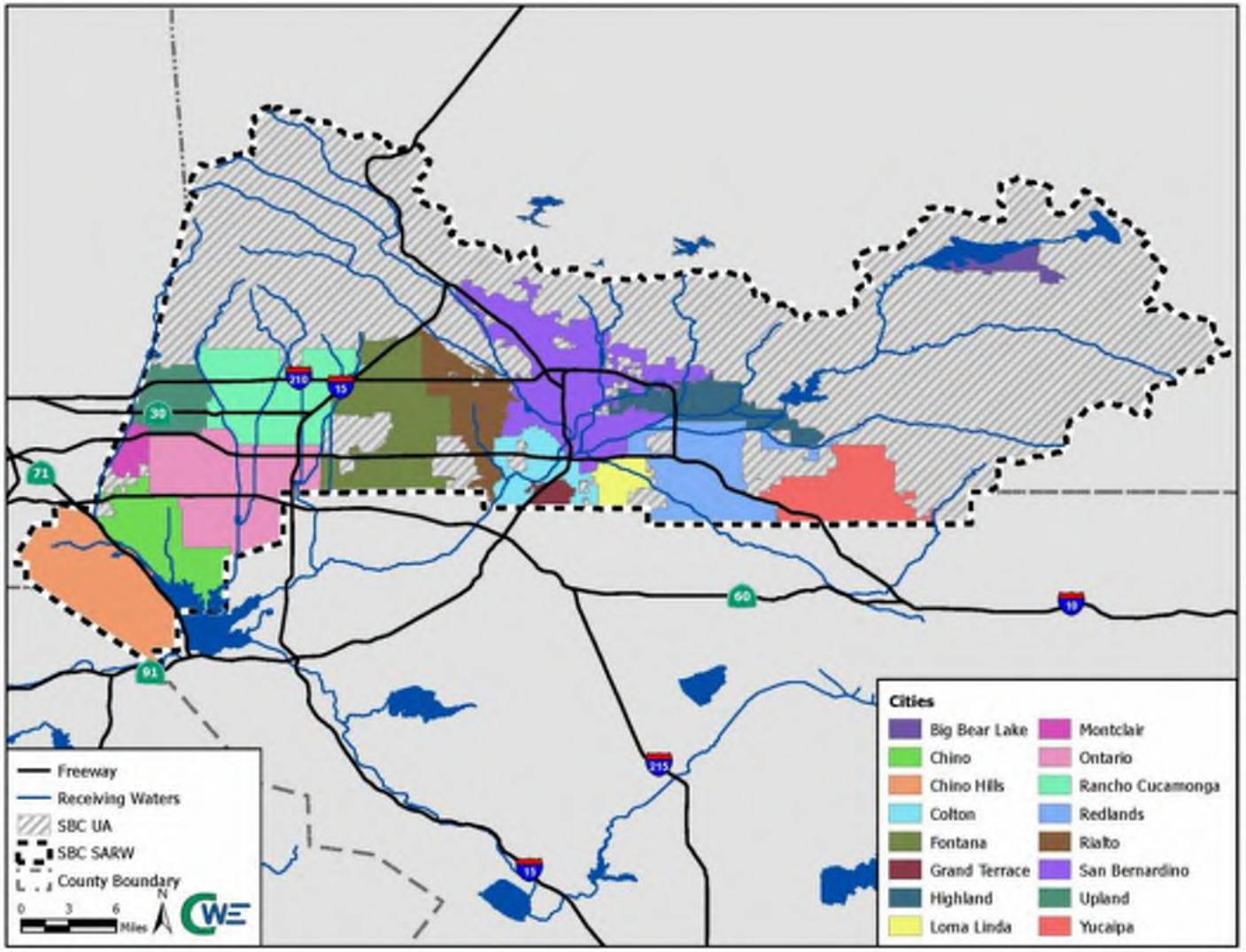


Figure 2-3 Jurisdictional Boundaries within the SBC SARW Area

2.1.1.2 Water and Wastewater Service Areas

There are three main water suppliers, San Bernardino Valley Municipal Water District (SBVMWD), Inland Empire Utilities Agency (IEUA), and Big Bear Municipal Water District (BBMWD) located within the SBC SARW area, as presented in **Figure 2-4**. **Table 2-2** summarizes the estimated total annual water demands associated with these water suppliers based on their Urban Water Management Plans (UWMPs).

Table 2-2 Projected Water Demands from the Water Suppliers

Water Supplier	Total Water Demands (AF)				
	2020	2025	2030	2035	2040
SBVMWD[a]	250,027	260,542	270,747	281,697	289,821
IEUA	210,588	225,923	242,732	254,721	278,017
BBMWD	6,500	6,500	6,500	6,500	6,500

[a] Includes water supplied on BBMWD's behalf for in-lieu of Big Bear Lake releases to Bear Valley Mutual Water Company (BVMWC).

SBVMWD was formed in 1954, under the Municipal Water District Act of 1911, as a regional agency to plan for long-range water supply in the San Bernardino Valley. SBVMWD covers approximately 221,820 acres within the SBC SARW. SBVMWD spans the eastern two-thirds of the San Bernardino Valley, and includes a portion of Yucaipa Valley. SBVMWD is responsible for long-range water supply management which includes local groundwater basins and replenishing these groundwater basins with imported water from the California State Water Project. SBVMWD has specific responsibilities for monitoring groundwater supplies in the San Bernardino Basin Area and Rialto-Colton Subbasin, and for a portion of the minimum Santa Ana River flow required at the Riverside Narrows (SBVMWD, 2016).

IEUA was formed in 1950 as the Chino Basin Municipal Water District. The same year, the agency joined the Metropolitan Water District (MWD) of Southern California. In 1998, the agency changed its name to IEUA. IEUA covers approximately 152,800 acres within the SBC SARW area. IEUA is focused on providing four key services: 1) treating wastewater; 2) developing recycled water, local water resources, and water use efficiency programs that will reduce the region's dependence on imported water supplies and drought-proof the service area; 3) converting biosolids and waste products into a high quality compost made from recycled materials; and 4) generating electrical energy from renewable sources (IEUA, 2016b).

BBMWD was formed in 1964 and is responsible for the overall management of Big Bear Lake (BBL). The primary goals of the BBMWD are the stabilization of the water level at BBL, given the availability of water and financing; maintaining the surrounding lake environment; and maintaining the irrigation interest of downstream communities. Through a judgment executed in 1977, BBMWD purchased from BVMWC the BBL bottom, Bear Valley Dam, and the right to utilize and manage the surface of BBL for recreation and wildlife. In return, deliveries to reduce the amount of lake releases to BVMWC were capped at 65,000 acre-feet in any ten-year period. These deliveries are made in the form of lake releases or other sources "in-lieu" of lake releases (in-lieu water deliveries) (SBVMWD, 2016).

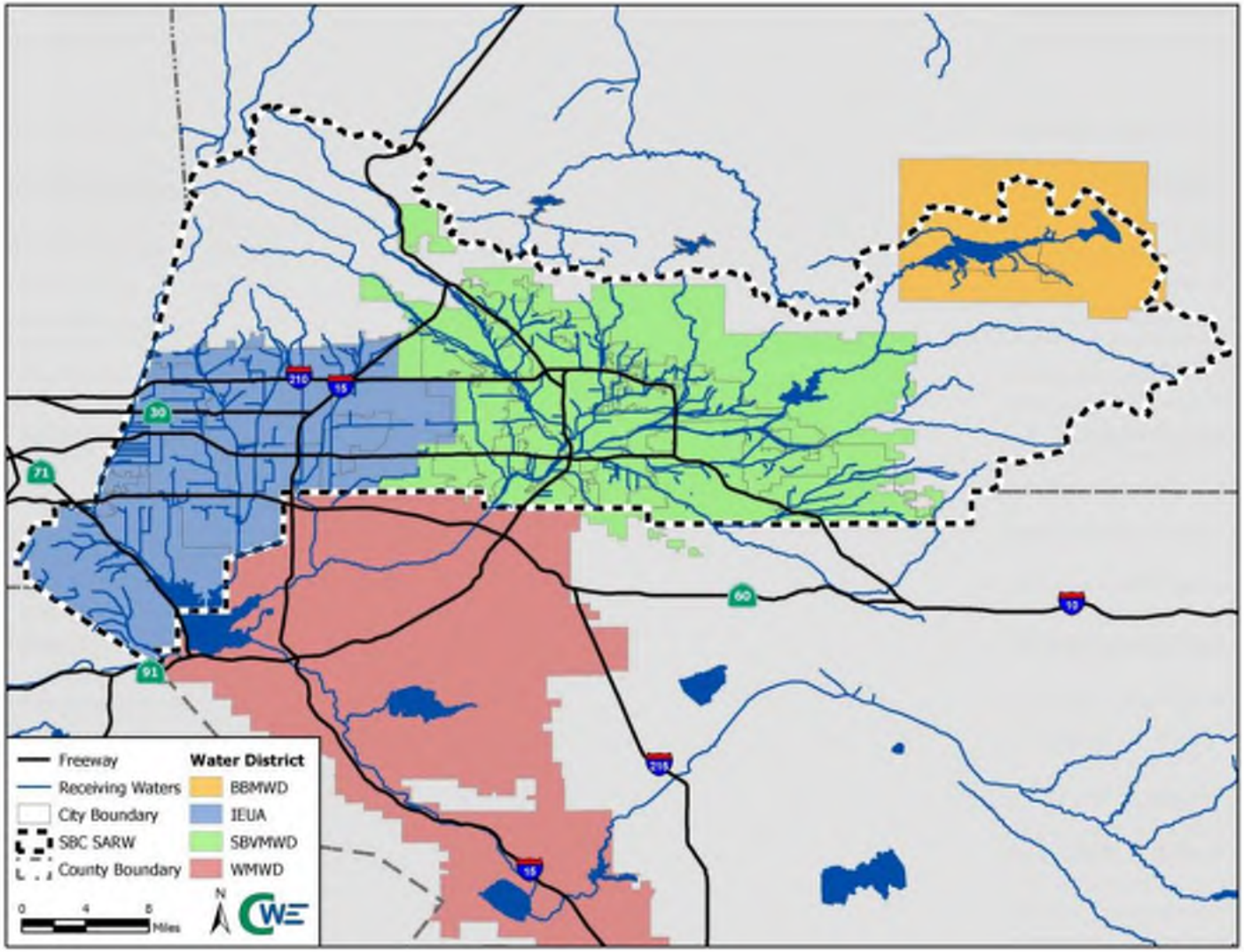


Figure 2-4 Water Supplier Boundaries within the SBC SARW Area

Western Municipal Water District (WMWD) is located beyond the boundary of the SBC SARW; however, WMWD has groundwater rights within the SBC SARW area. The water pumped out from the SBC SARW area is transported into WMWD's Riverside Division through an agreement with the City of Riverside.

Thirty-one water purveyors are located within the SBC SARW, as summarized in **Table 2-3**. The table summarizes the estimated volume of potable water supplied in acre-feet (AF) in 2015.

Table 2-3 Water Supplied through Water Purveyors in 2015

Water Purveyor	Population Served	Potable and Drinking Water Supplied (AF)
SBVMWD (based on individual reports/Annual Reports by each purveyor)		
City of Colton	45,496	9,008
City of Loma Linda	23,298	4,682
City of Redlands	85,276	21,290
City of Rialto	54,453	8,771
East Valley Water District (EVWD)	104,457	16,942
Marygold Mutual Water Company	6,818	--
Muscoy Mutual Water Company	13,255	--
Riverside Highland Water Company (RHWC)	16,007	2,964
San Bernardino Municipal Water District (SBMWD)	199,657	36,035
San Bernardino Valley Conservation District	--	--
South Mesa Water Company	4,830	--
Terrace Water Company	2,200	--
West Valley Water District (WVWD)	80,161	17,131
Western Heights Water Company	7,120	--
Yucaipa Valley Water District (YVWD)	44,745	9,595
Subtotal:	**687,773**	**126,418**
IEUA (based on Fiscal Year 2015-16 data presented in the Annual Water Use Report)		
City of Chino	74,000	20,163
City of Chino Hills	77,600	12,993
City of Ontario	168,780	36,096
City of Upland	75,790	16,807
Crawford Canyon Municipal Water Company	10	--
Cucamonga Valley Water District	200,460	40,166
Fontana Water Company	215,500	32,681
Monte Vista Water District	54,200	8,012
San Antonio Water Company	3,150	1,882
Subtotal:	**869,490**	**168,800**
BBMWD		
BVMWC	--	--
Outside of Agency Areas (based on individual reports/Annual Reports by each purveyor)		
City of BBL Water Department	15,520	2,166
Big Bear City Community Service District	11,528	890
Fallsvale Service Company	959	200

Water Purveyor	Population Served	Potable and Drinking Water Supplied (AF)
Lake Arrowhead Community Services District	7,183	1,600
Lytle Creek Springs Water Company	475	--
Running Springs Water District	4,806	350
Total:	**1,597,734**	**300,424**

-- Information not available at this time

Sixteen out of the 31 water purveyors also provide wastewater services along with the SBC Special Districts Department, which only provides wastewater services and is not a water purveyor. The water agencies that also provide wastewater services are the Cities of Colton, Fontana, Grand Terrace, Loma Linda, Rancho Cucamonga, Redlands, and Rialto, Big Bear Area Regional Wastewater Agency, Big Bear City Community Services District, EVWD, IEUA, Lake Arrowhead Community Services District, Lytle Creek Community Services District, Running Springs Water District, SBMWD, and YVWD. In addition, approximately 2,300 parcels within the SBC SARW area utilize Onsite Wastewater Treatment Systems (OWTS or septic systems). **Figure 2-5** depicts the locations of the OWTS within the SBC SARW area.

2.1.1.3 Groundwater Basin Boundaries

Six groundwater basins are located within the SBC SARW area totaling approximately 340,412 acres, all of which are located within the South Coast Hydrologic Region. The six basins included Bear Valley, Big Meadows Valley, Coastal Plain of Orange County, San Gabriel Valley, Seven Oaks Valley, and Upper Santa Ana Valley, as shown in **Figure 2-6**. The largest groundwater basin, as summarized in **Table 2-4**, is the Upper Santa Ana Valley basin covering approximately 46 percent of the SBC SARW area. The Upper Santa Ana Valley basin is further divided into eight subbasins which are Bunker Hill, Cajon, Chino, Cucamonga, Rialto-Colton, Riverside-Arlington, San Timoteo, and Yucaipa, as illustrated in **Figure 2-7**. Existing groundwater quality data is summarized in **Section 3.2**.

Table 2-4 Groundwater Basins within the SBC SARW

Groundwater Basin	Area (Acres)	Percent of SBC SARW (%)
Bear Valley	18,573	2.9
Big Meadows Valley	14,162	2.2
Coastal Plain of Orange County	134	< 0.1
San Gabriel Valley	2,756	0.4
Seven Oaks Valley	4,075	0.6
Upper Santa Ana Valley	300,712	46.3
Total:	**340,412**	**52.4**

The groundwater basins do not line up exactly with the surface watersheds described in **Section 2.2**. Surface watersheds are based on surface topography and manmade structures (storm conveyances, basins, pumps, etc.). Groundwater basin delineation is dependent on hydraulic properties of an aquifer, input and outflow, and geological factors. Surficial aquifers (water table) generally mimic surface watersheds and their flow does not cross surface boundaries. Deeper (confined) aquifers are less likely to conform to surface watersheds. Some of the groundwater basins/subbasins depicted below are confined and do not line up with the surface watersheds (DNR, 2018).

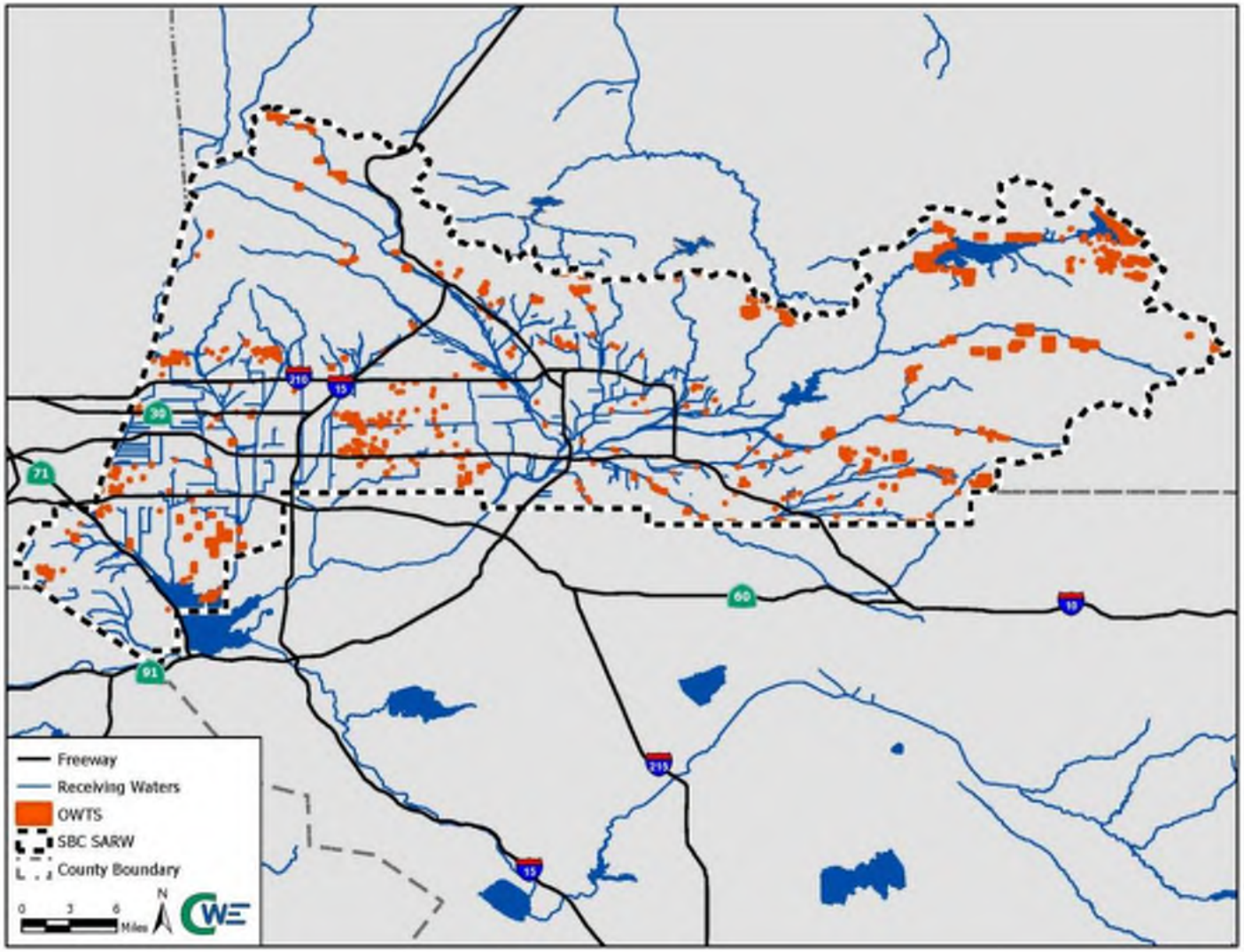


Figure 2-5 Onsite Wastewater Treatment Systems within the SBC SARW Area

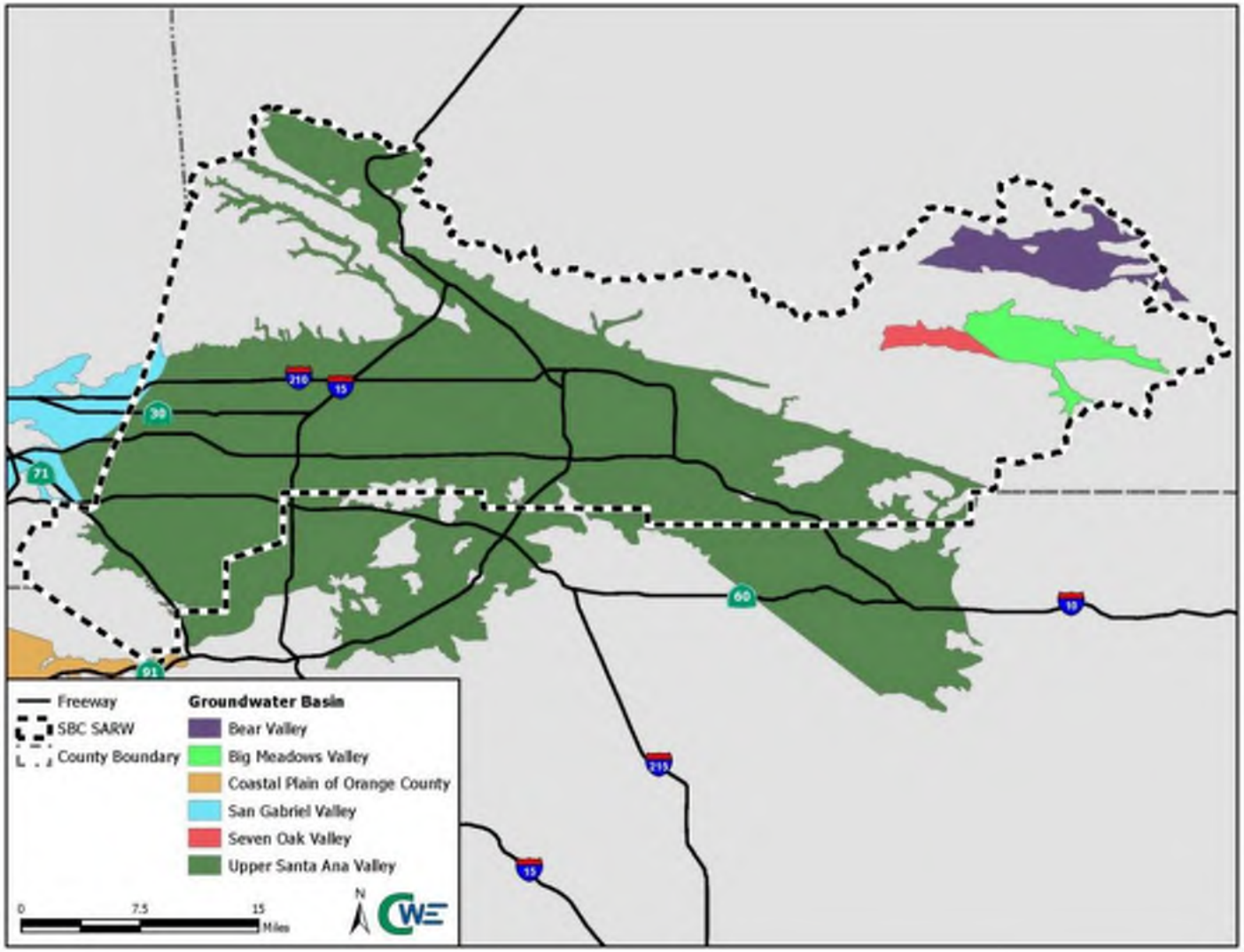


Figure 2-6 Groundwater Basins within the SBC SARW Area

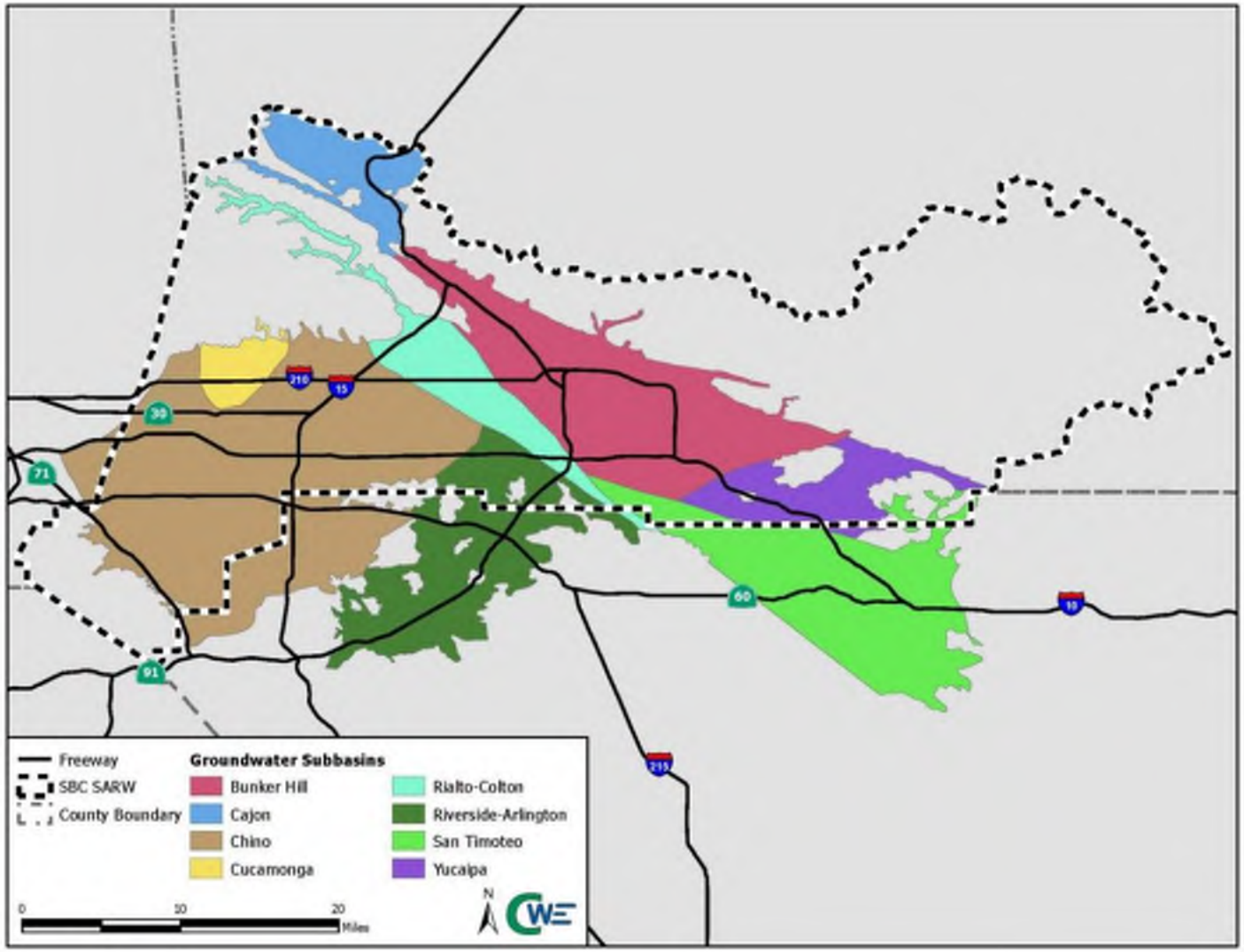


Figure 2-7 Upper Santa Ana Valley Groundwater Subbasins within the SBC SARW Area

2.1.1.4 Land Use

Land use within the SBC SARW area is shown in **Figure 2-8.** General Plan land use (2013) information from the San Bernardino Associated Governments (SANBAG) was used to categorize land use within the SBC SARW area. The General Plan land use represents the projected future built out land use, rather than the existing. This is more appropriate for planning purposes as compared to existing land use. The 2013 SANBAG General Plan land use data includes a total of 22 land use descriptions. The land use descriptions were re-categorized into seven land use categories which include agriculture, commercial, education, industrial, residential, transportation, and vacant. **Attachment B** provides the list of land use descriptions and the assigned land use category. The predominant land use category is vacant land, as tabulated in **Table 2-5**, which is reflective of the large mountainous areas within the SBC SARW. Of the planned urbanized area, the residential land use is the largest area covering 162,877 acres or 25.1 percent of the total SBC SARW area, while the education land use category makes up the lowest percentage.

Table 2-5 Categorized Land Use of Total SBC SARW Area

Land Use	Area (Acres)	Percent (%)
Agriculture	9,307	1.4
Commercial	45,933	7.1
Education	6,371	1.0
Industrial	42,094	6.5
Residential	162,877	25.1
Transportation	8,359	1.3
Vacant	374,572	57.6
Total:	**649,513**	**100.0**

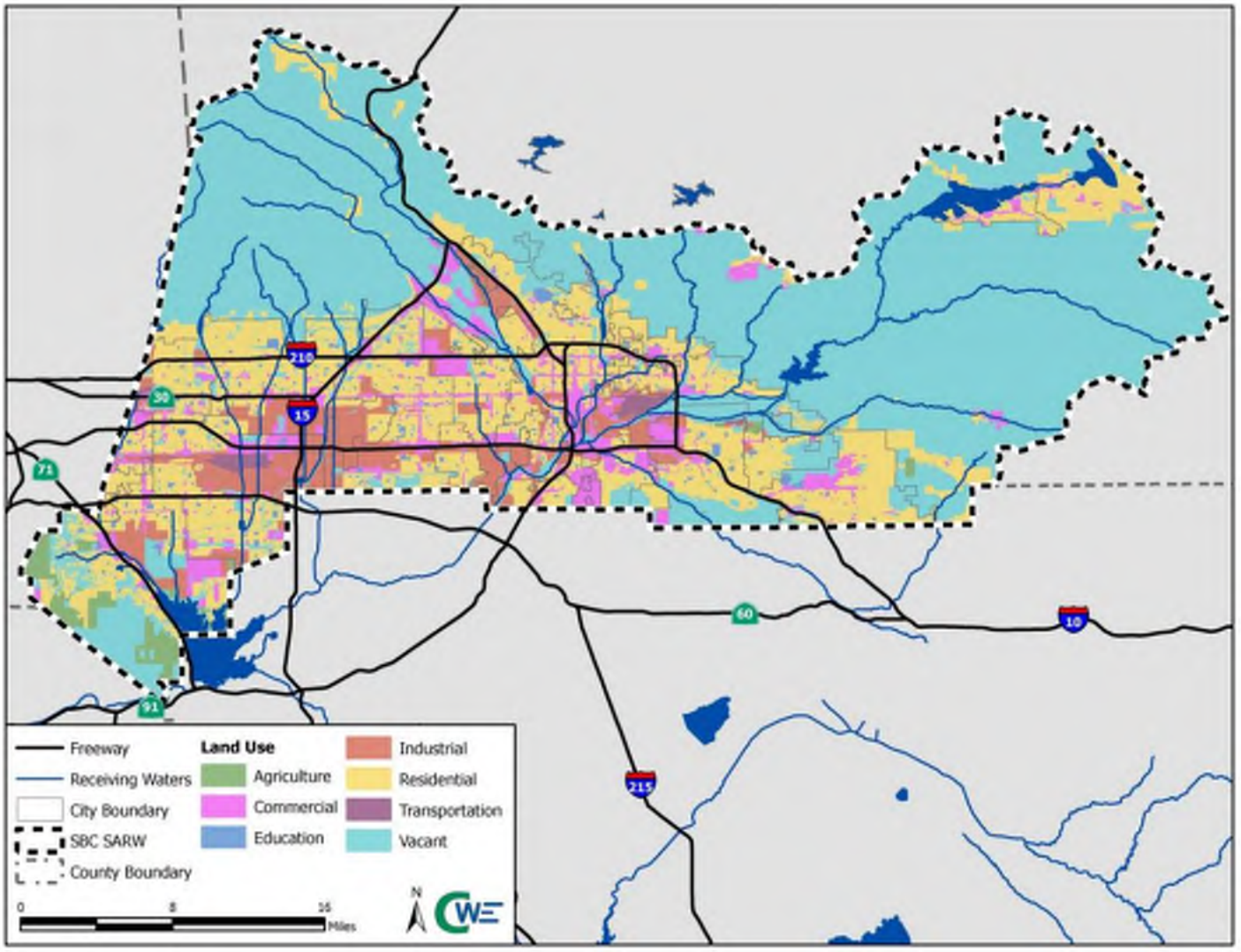


Figure 2-8 General Plan Land Use within the SBC SARW Area

2.1.2 Surface Water

The Santa Ana River is 96 miles long and divided into six reaches. The river starts upstream of Seven Oaks Dam and discharges into the Pacific Ocean, as seen in **Figure 2-1**. The Santa Ana River begins in Santa Ana Canyon in the Southern San Bernardino Mountains, on the northern flank of San Gorgonio Mountain. The river initially flows west through a broad and deep gorge, and receives its first major tributary, Bear Creek, which flows southwest from BBL. Flows from this portion of the Santa Ana River consist mostly of snowmelt and storm runoff in undeveloped mountainous area, resulting in good water quality. The river turns south, passing westward towards Seven Oaks Dam and the City of San Bernardino. As it passes through to the urban areas, it receives flow from City Creek and enters a flood control channel flanked by earthen levees on both sides. Not long after the confluence with City Creek, Lytle Creek connects with the Santa Ana River. Lytle Creek is one of the largest tributaries of the Santa Ana River, rising in three forks of the San Gabriel Mountains and flowing southeast, becoming the Lytle Creek Wash before discharging into the main stem. From there, the Santa Ana River flows southwest, where the Rialto Channel confluences inside the SBC boundary, continuing on to Riverside County. Further downstream, flows from Day Creek join the main stem before discharging into the flood control reservoir formed by Prado Dam. Within the SBC SARW, three other major tributaries of the river join the reservoir area (Prado Dam): Chino Creek, Cypress Channel, and Mill Creek (Prado Area). After flowing out of the Prado Dam, the Santa Ana River flows between the northern Santa Ana Mountains and Chino Hills, crosses into Orange County and discharges into the Pacific Ocean. Details on the surface water quality are included in **Section 3**.

2.1.3 Native Habitats, Parks, and Open Space

SBC consists of three sub-regions: valley, mountain, and desert regions. The SBC SARW area is within two of these regions: valley and mountain regions. These two regions contain diverse habitats, differing in climates and geography which in turn sustain differing biological environments.

2.1.3.1 Valley Region

The valley region is urbanized with few existing natural open space areas (SBC, 2007b). The habitats within the undeveloped areas of the valley are alluvial sage scrub, chaparral, coastal sage scrub, deciduous woodlands, grasslands, riverine, and wetlands (SBC, 2007b). Vegetation in urbanized areas consists primarily of introduced landscape species. The most sensitive vegetation types found within the study area are wetlands, including riparian woodland, riparian scrub, and freshwater marsh. The valley region provides habitat to several sensitive species such as burrowing owl, California bedstraw, coastal California gnatcatcher, least bell's vireo, Los Angeles pocket mouse, northwestern San Diego pocket mouse, rufous-crowned sparrow, San Bernardino kangaroo rat, San Diego horned lizard, Stephens' kangaroo rat, southwestern willow flycatcher, and western yellow-billed cuckoo (SBC, 2007b). Natural preserves and parks found within the valley region are illustrated in **Figure 2-9** and further detailed below.

- **Chino Hills State Park** – Chino Hills State Park is an open-space area in the hills of Santa Ana Canyon (SBC, 2017d). The State Park is a critical link in the Puente-Chino Hills biological corridor. It encompasses stands of oaks and sycamores, Riversidean sage scrub, and grassy hills that stretch nearly 31 miles, from the Santa Ana Mountains to the Whittier Hills. The Riversidean sage scrub community supports a sensitive bird species, the coastal California gnatcatcher.

- **Cucamonga-Guasti Regional Park** – Cucamonga-Guasti Regional Park is a 150-acre park located in the City of Ontario. It offers a wide range of activities, including two lakes for fishing, a swim complex with water slides, zero depth water play park, picnic tables, and group picnic shelters (SBC, 2017d).
- **Glen Helen Regional Park** – Glen Helen Regional Park is located at the base of the chaparral covered hills of the Cajon Pass, the park offers scenic views of both the San Gabriel and San Bernardino Mountains. The 1,340-acre park offers recreational activities which include two lakes for fishing, a swim complex with pool, sandy area, dual water slides, zero depth water play park, large group shelter picnic areas, and amphitheater (SBC, 2017d).
- **North Etiwanda Preserve** – The preserve encompasses 763 acres primarily of a unique Riversidean alluvial fan sage scrub habitat that also contains a water marsh (SBC, 2007b). The area was acquired in 1998 by SANBAG, as mitigation for the Interstate 215 Freeway extension. It was later assigned to SBC for management in conjunction with the CDFW and an advisory committee. Ongoing conservation efforts have enabled expansion of the Preserve to over 1,200 acres.
- **Prado Basin Mitigation Area** – An agreement in 1995 between the Orange County Water District (OCWD), USACE, and USFWS, resulted in the water level behind Prado Dam to be raised, doubling the amount of water stored behind the dam. The agreement between the agencies resulted in cooperative efforts to enhance the water conservation and environmental values of Prado Basin, and to also enhance the breeding grounds of the endangered least bell's vireo. The OCWD owns 2,150 acres behind Prado Dam in Riverside County. There are nearly 465 acres of constructed wetlands within the OCWD property and adjacent lands, which have effectively demonstrated the ability to reduce nitrogen levels in the Santa Ana River.
- **Prado Regional Park** – Prado Regional Park is in the Chino Valley Basin where San Bernardino, Riverside, Orange, and Los Angeles Counties connect. The name Prado is derived from California's early Spanish days when the countryside was known as a "prado" or meadow. This park offers a number of recreational activities which include fishing, camping, hiking, biking nature trails, meeting room, disc golf, and picnic facilities.
- **Santa Ana Wooly Star and Slender-Horned Spine Flower Mitigation Lands in the Upper Santa Ana Wash** – The 760-acre wooly star preserve was established by the USACE along the Santa Ana River Wash as mitigation for the Seven Oaks Dam project.
- **Vulcan Materials Alluvial Fan Sage Scrub Mitigation Bank** – Vulcan Materials established a 1,378-acre habitat conservation management area along a six mile stretch of Cajon Creek (SBC, 2007b). Enclosed within this sage and scrub community are 24 sensitive species, including numerous wildflowers, the coastal California gnatcatcher, and the endangered San Bernardino kangaroo rat.
- **Yucaipa Regional Park** – The Yucaipa Regional Park is located near Oak Glen, Redlands, and mountain communities. It includes a wide range of outdoor recreation such as fishing in three lakes, a swim complex with water slides, sandy beach area, and picnic shelters (SBC, 2017d).

2.1.3.2 Mountain Region

The mountain region lies in the southwestern portion of SBC and contains the San Bernardino Mountains and the eastern end of the San Gabriel Mountains. The major habitats found in the region include chaparral, conifer forest, sage shrubs, oak woodlands, wetlands (including woodlands, scrub, marsh,

meadows, and riverine), and the relic pavement plains (SBC, 2007c). There are 71 threatened or endangered wildlife species inhabiting the forest. The mountain region provide habitat to several sensitive species such as the California bald eagle, mountain yellow-legged frogs, southern rubber boa, peregrine falcons, bighorn sheep, and many endangered plants (SBC, 2007c). Bear Creek is a CDFW designated wild trout stream and contains high quality riparian resources. Low-elevation riparian resources include cottonwood-willow, sycamore/coast live oak, and white alder communities. Locally rare riparian resources include the aspen groves in the San Bernardino Mountains.

The CDFW recognizes 14 Areas of Special Biological Importance (ASBIs) within the mountain region of SBC. Key areas are identified among the ASBIs that support herds of both resident and seasonally migratory mule deer. Good deer fawning areas, generally located near wet meadows and riparian thickets, occur from Manzanita Flat to Plunge Creek in the Alder Creek area and near Keller Meadows and the forks of Plunge Creek, east of Harrison Mountain. Deer winter ranges occur north of Barton Flats and summer ranges occur northwest of Delamar Mountain. The CDFW also recognizes principal wintering area for waterfowl migrating along the Pacific Flyway. Waterfowl have been observed at Baldwin Lake and BBL within the mountain region. The lake areas also provide wintering habitat for the bald eagle, and recognized by the CDFW as ASBIs. Natural preserves and parks found within the region are illustrated in **Figure 2-10** and further detailed below.

- **Baldwin Lake Ecological Reserve** – The 156-acre Baldwin Lake Ecological Reserve includes a unique pebble plain plant community as well as vernal wet meadow habitat. The site is also significant for its wintering population of bald eagles. The CDFW purchased the property from the Natural Conservancy in 1989, and designated it as an ecological reserve in 1991. It was acquired to protect existing populations of rare and endangered plants.
- **Bluff Lake Reserve** – The Bluff Lake Reserve is an ecological reserve with towering pines, a 20-acre lake and meadow, and majestic outcrops of quartz monzonite. The reserve includes Southern California's finest intact mountain marsh and meadow complex that contains the federally threatened Bear Valley bluegrass, the federally endangered Big Bear checkerbloom, and California dandelion. Botanically, the meadow is remarkable with 16 species of sedges, eight species of wire grass, and 14 species of native grass. Mature forests of lodgepole pine, Jeffrey pine, and white fir surround the meadow.
- **Castle Glen Bald Eagle Preserve** – The 125-acre preserve is situated in the Castle Glen area of BBL and was set aside as habitat for the bald eagle. Bald eagles have been known to migrate here during winter, from frigid nesting grounds in the Pacific Northwest, to roost in scraggly pine trees and hunt for fish and waterfowl in the lake. Many bald eagles gather at Baker Pond, a shallow waterfowl refuge at the eastern end of the 15-mile-long lake where plentiful tall pine trees provide the federally endangered birds with a commanding view of hunting grounds below.
- **Cucamonga Wilderness Area** – The Cucamonga Wilderness Area is composed of 12,781 acres along the boundaries of the Angeles National Forest – San Gabriel Mountains National Monument and the San Bernardino National Forest (USDA, 2017a). This wilderness consists of a sub-alpine setting, which is primarily composed of mixed conifers ranging in age class such as Ponderosa, Jeffrey, and Douglas-fir pines. Numerous wildlife species do well in the area, including deer, bear, mountain lions, and Nelson bighorn sheep (USDA, 2017a).

- **San Gorgonio Wilderness Area** – The 56,749-acre area is located in the eastern San Bernardino Mountains (USDA, 2017b). San Gorgonio Wilderness Area is the largest established wilderness area in Southern California and one of the most publicly used within the nation. The wilderness is part of the eastern slope of the San Bernardino Mountains, with topography rapidly changing from low rolling foothills and canyons to steep rugged mountains. The wilderness reflects a transition between desert, coastal, and mountain environments, including the different types of vegetation representative of each elevation due to the elevation gradient (USDA, 2017b).
- **Wildland Park, Pebble Plain Preserve** – Pebble Plain geologic formation only occurs in Big Bear and Holcomb Valley and nowhere else in the world. As a result, the flora and fauna growing on the Pebble Plain are unique to the areas and interested groups have joined together to ensure plants and insects will be forever protected.

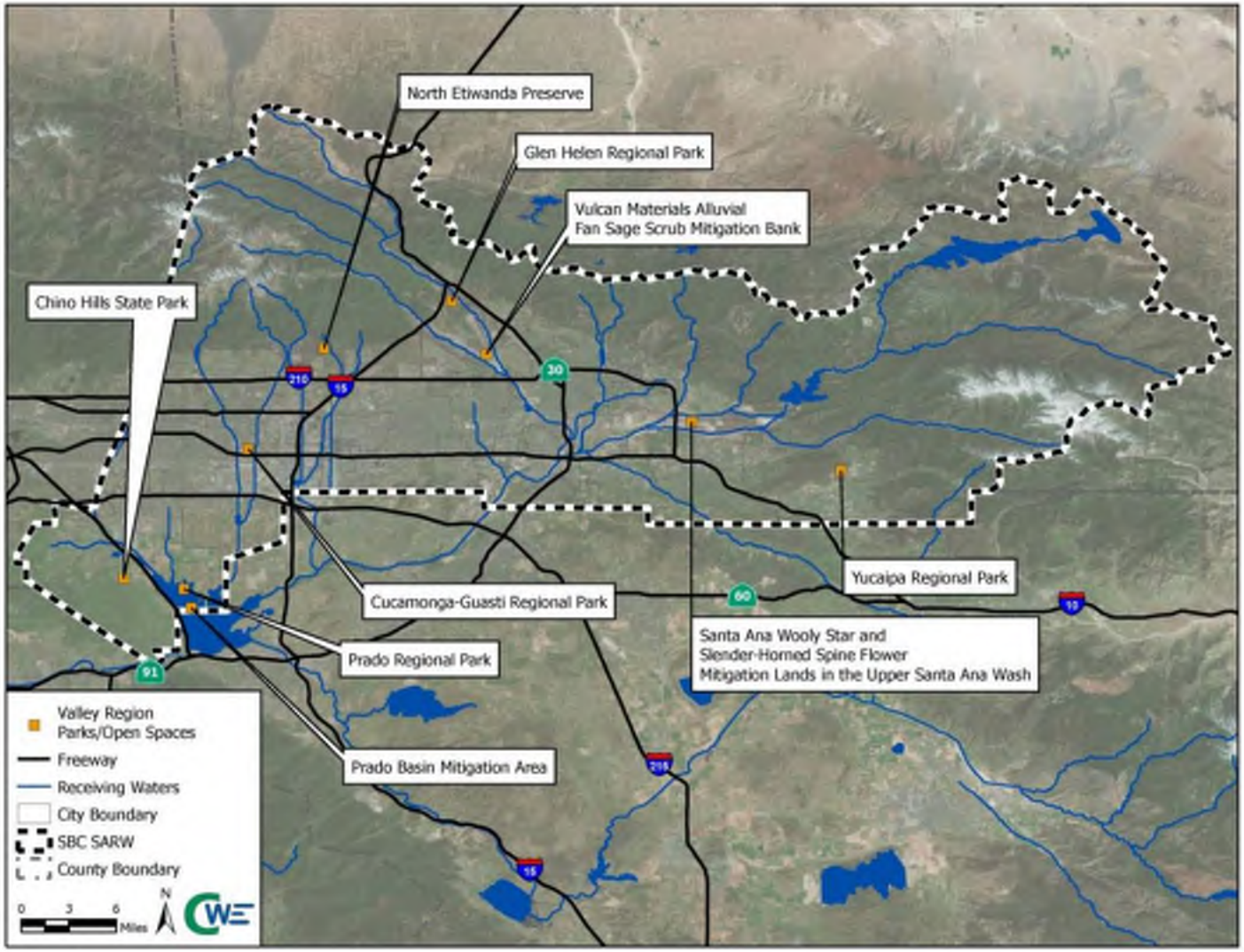


Figure 2-9 Native Habitats, Parks, and Open Space within the SBC SARW Valley Region

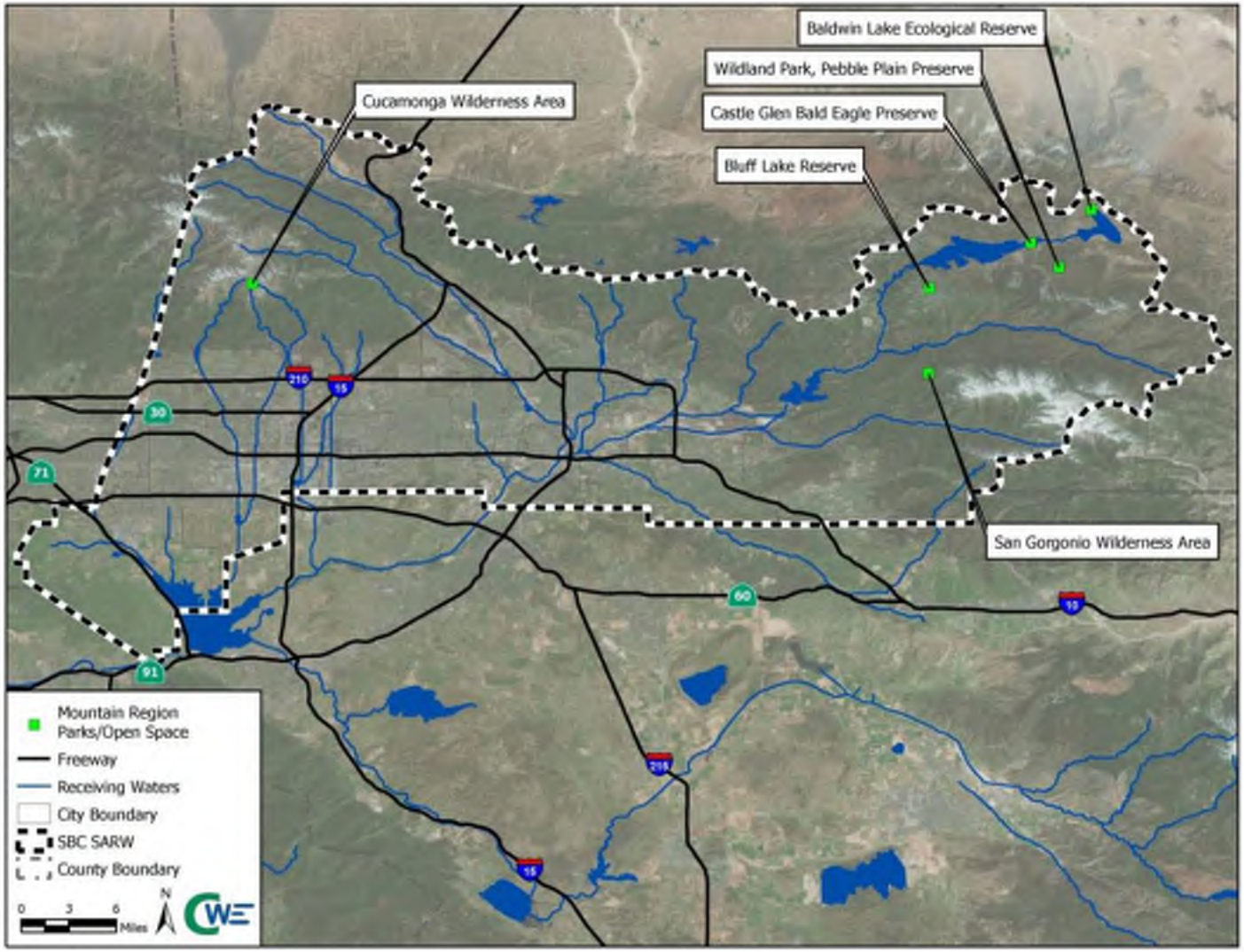


Figure 2-10 Native Habitats, Parks, and Open Space within the SBC SARW Mountain Region

2.1.4 Natural Watershed Processes

Before human activity created developed land in the San Bernardino Valley, water quality in receiving waters was maintained through natural watershed processes. The specific processes varied spatially and temporally because of the semi-arid climate and the seasonal distribution of rainfall. Processes involving the movement of sediment and the interface between surface water and groundwater were prevalent within natural stream channels. Permanent wetlands were not common within San Bernardino County, where the Santa Ana River and its tributaries only flowed during storm events. Outside of natural stream channels, the watershed processes of overland flow, groundwater recharge, interflow, and evapotranspiration dominated.

Pre-development water quality in the San Bernardino Valley was maintained through biological and chemical processes that were transient in nature due to the temporary nature of flows. The vast open scrublands and grasslands soaked up rainfall from high-frequency low-runoff storm events. Stormwater runoff from larger storms would drain in an uncontrolled manner to the channels, scouring and depositing sediments as it flowed downstream and creating habitat for native species.

San Bernardino Valley became more and more developed over time. Lands that had previously been able to absorb rain from most storms were paved over so that runoff was directed into engineered stormwater channels. Channels were dammed and diverted, thus eliminating the watershed's ability to dissipate energy through natural sedimentation and deposition.

The sections below provide in more detail an identification of the natural watershed processes that occur within the SBC SARW and a description of how they have been disrupted over time. The processes identified include overland flow, groundwater recharge, interflow, evapotranspiration, sedimentation, and chemical and biological transformation. The SBC SARW SWRP seeks to restore some of these identified natural watershed processes as a way of achieving the stormwater management objectives of the SBC SARW.

The processes identified below are described qualitatively rather than quantitatively. Most natural watershed processes described below are difficult to define quantitatively because they represent different flow paths of stormwater other than what can be measured with flow meters in channels. The task becomes even more difficult when comparing present natural watershed processes to natural watershed processes from the past, where no possibility exists for monitoring of flow processes. However, the processes can be qualitatively described, and in most cases urban development has led to the incidental impairment of natural watershed processes.

2.1.4.1 Overland Flow

Precipitation reaching the ground surface that does not immediately infiltrate runs off as overland flow. Most uncompacted vegetated soils have infiltration capacities of one to several inches per hour at the ground surface, which exceeds the rainfall intensity of even unusually intense storms. In contrast, pavement and hard surfaces reduce the effective infiltration capacity of the ground surface to zero, ensuring overland flow regardless of the meteorological attributes of a storm.

Most precipitation that fell to earth in the SARW prior to development either became groundwater or evaporated. The predominant hydrologic soil group in the San Bernardino Valley is type A, typified by low overland flow rates and high infiltration rates. The inverse is true in the mountainous regions of the

SARW where the hydrologic soil group is most commonly type D, featuring high potential for overland flow and stormwater runoff into canyons and valleys. The overland flow in mountainous regions has largely remained unchanged with time, but the overland flow in the San Bernardino Valley has increased with increasing urban development.

2.1.4.2 Groundwater Recharge and Infiltration

Groundwater recharge and infiltration are closely-linked hydrologic processes that are dominant across much of California's intact landscapes. Infiltration of rainfall into the soil prior to development was widespread on virtually any geologic material and on all but the steepest slopes. Urbanization covered the land with more impervious surfaces and reduced the watershed's natural ability to improve water quality through infiltration.

The effect of urbanization has also had an effect on the natural stream channels of the SBC SARW. The capacity of streams and riverbeds to recharge the underground aquifers decreased as urbanization occurred. Many tributaries within the SBC SARW were diverted, channelized, and paved over with concrete. **Figure 2-11** shows how streambed infiltration from four channels from within IEUA's service area that travel from the San Gabriel Mountains to the Santa Ana River has been sharply reduced over time. **Figure 2-11** was created using groundwater model data from the Chino Basin Watermaster and was included in IEUA's 2016 Chino Basin Stormwater Resource Plan. Additional studies would be necessary to evaluate additional streams, which are not included as part of this SWRP.

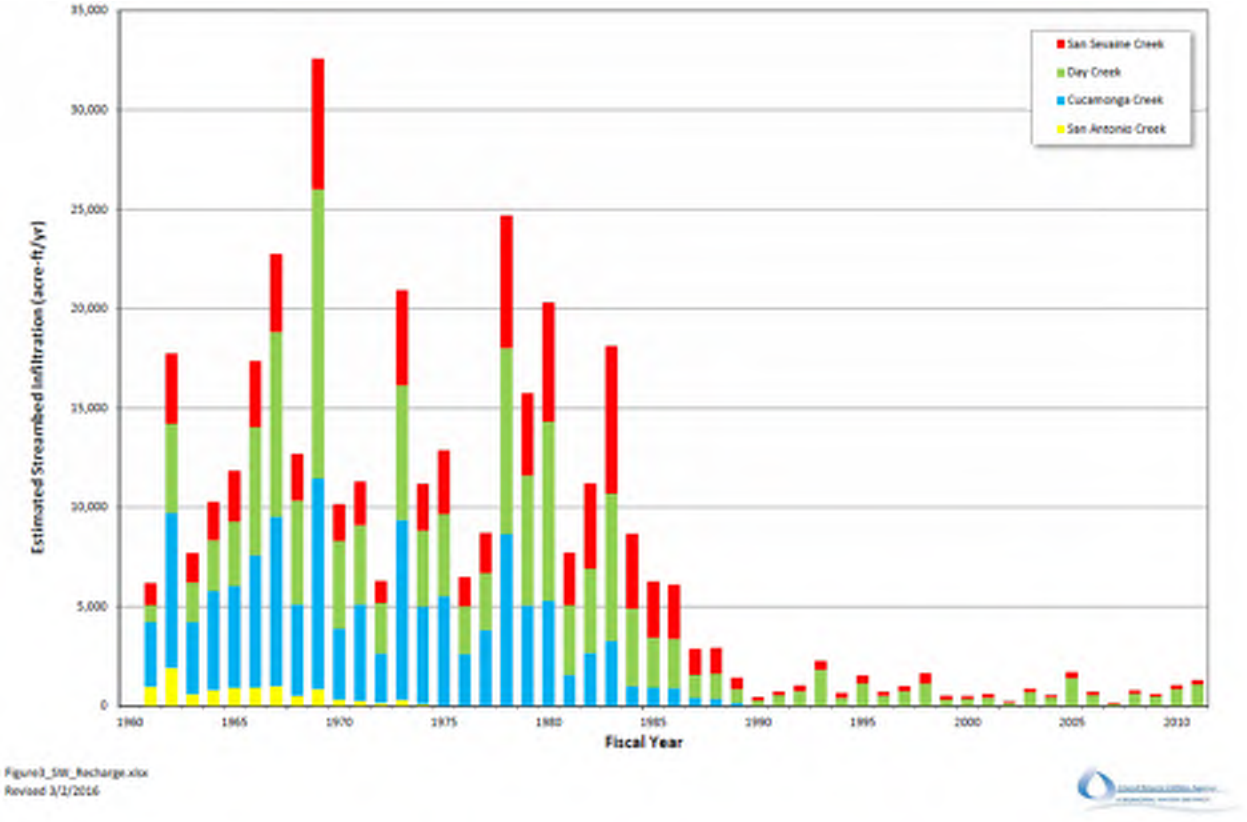


Figure 2-11 Groundwater Recharge from Streambeds (from 2016 Chino Basin SWRP)

2.1.4.3 Interflow

Interflow takes place following storm events as shallow subsurface flow (usually within three to six feet of the surface) occurring in a more permeable soil layer above a less permeable substrate. During a rainfall event, some of the water leaves the area as surface runoff, and some infiltrates to a shallow subsurface soil layer. If the shallow layer is more permeable than the layers underneath, water will tend to flow laterally underground rather than percolate to deeper soil layers. This lateral movement of shallow groundwater is interflow. The process of interflow can flatten and elongate the hydrograph of a watershed in certain locations, which can reduce velocities and flood flow rates during a storm. The magnitude of the effect can be quite pronounced in some geologic settings but small to negligible in others.

Urban development reduces infiltration and thus interflow, as well as reducing the footprint of the area supporting interflow volume. Larger acreages of impervious area along with development of underground storm drains and the paving and straightening of open drainage channels have reduced the capacity for vadose zone movements of water. As the SBC SARW has continued to develop, more precipitation that centuries ago would have become interflow and groundwater have now become overland flow and surface runoff.

2.1.4.4 Evapotranspiration

In undisturbed humid-region watersheds, the process of returning water to the atmosphere by direct evaporation from soil and vegetation surfaces, and by the active transpiration by plants, can account for nearly one-half of the total annual water balance. This fraction can be even higher in more arid regions. While evaporation is related to characteristics of meteorology such as heat, humidity, and wind, transpiration is related to plant types and the amount of moisture in the soil. Native plants are often replaced with turf, which requires additional irrigated water, especially throughout the summer months.

Though the capacity of the atmosphere to reduce the volume of standing water through evapotranspiration has remained relatively unchanged over time, evapotranspiration throughout the SBC SARW has likely increased due to land development and the introduction of non-native plant species. Non-native plant species tend to use more water and be less tolerant of droughts. The introduction of plant species that require more water has likely removed a higher volume of water from the soil column than in pre-development times.

2.1.4.5 Sedimentation

Sediment delivery into the channel network is a critical process for the maintenance of various habitat features in fluvial systems, including in the SBC SARW. Endangered species adapted to a particular natural sedimentation process. Continued development of the SBC SARW has changed this natural process.

Urban development has led to a measurable decrease in sediment flows in the Santa Ana River over time. **Figure 2-12**, from Warrick and Rubin (2007), shows how suspended sediment concentrations, while still related to total stormwater discharge in the Santa Ana River, decreased over time between 1967 and 2001.

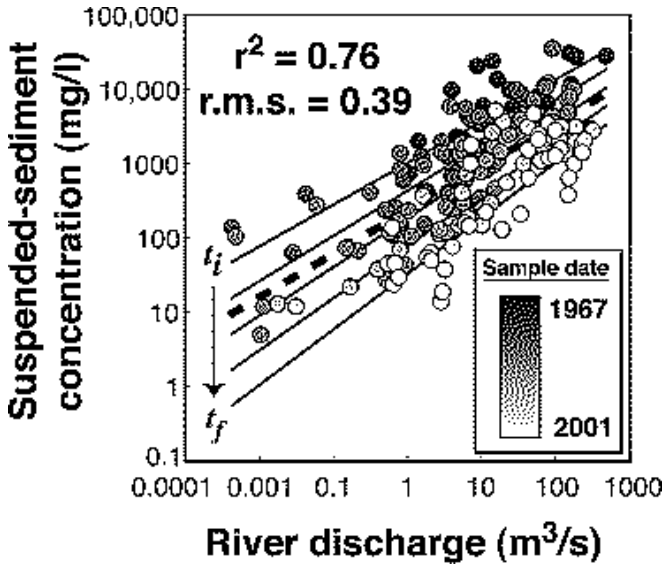


Figure 2-12 Suspended Sediment Concentration in the Santa Ana River Over Time

Delivery of both organic and inorganic sediment to the Santa Ana River tributaries upstream of Prado Dam has been disrupted by the decrease in erodible land through development, and by the addition of debris basins and groundwater recharge basins in the tributaries of the SBC SARW.

2.1.4.6 Chemical and Biological Transformation

Chemical and biological transformation encompasses the suite of watershed processes that alter the chemical composition of water as it passes through the soil column on its path to, and following entry into, a receiving water. The conversion of subsurface flow to overland flow in a developed landscape eliminates much of the opportunity for attenuation and transformations within the soil column, and this is commonly expressed as degraded water quality. The dependency of these processes on watershed conditions is complex in detail, but in general, a greater residence time of stormwater in the soil is correlated with greater activity for this group of processes.

The residence time of stormwater within the soil has decreased within the SBC SARW when compared to historic conditions. The urbanization of the watershed has led to more impervious area preventing stormwater infiltration, thereby disrupting chemical and biological transformation processes. Storm drains and concrete lined channels have further reduced the watershed's natural ability to treat stormwater through chemical and biological processes.

2.2 San Bernardino County Santa Ana River Subwatersheds

The SBC SARW is comprised of 14 subwatersheds as shown in **Figure 2-13**. The subwatersheds are associated with major tributaries to the Santa Ana River within the SBC SARW area. **Table 2-6** shows the percentage of each subwatershed within the SBC SARW by acreage. The largest subwatershed is the Santa Ana River subwatershed, which makes up just over 35 percent of the SBC SARW area. The Santa Ana River subwatersheds represent areas that are directly tributary to the river. The smallest subwatershed is Little San Gorgonio Creek which covers less than one percent of the SBC SARW area. The subwatershed water quality and characteristics were considered as part of the project quantification and may be used to prioritize future implementation, as discussed in **Section 7**. These subwatersheds

are appropriate for use in assessing projects/programs that manage stormwater and provide multiple benefits.

Table 2-6 Summary of Subwatershed Percentages within the SBC SARW

Subwatershed	Area (Acres)	Percent (%)
BBL	46,104	7.1
Cucamonga Channel	66,486	10.2
Cypress Channel	5,670	0.9
Day Creek Channel	12,931	2.0
Little San Gorgonio Creek	5,005	0.8
Lytle-Cajon Creek Channel	111,867	17.2
Mill Creek	34,758	5.4
Rialto Channel	12,180	1.9
San Antonio Channel	27,505	4.2
San Sevaine Channel	42,108	6.5
San Timoteo Creek	34,014	5.2
Santa Ana River	198,144	30.5
Upper San Antonio Channel	11,147	1.7
Warm Channel	41,594	6.4
Total:	**649,513**	**100.0**

The SBC SARW is composed of 16 cities and the UA of SBC, as mentioned in **Section 2.1.1.1**. **Table 2-7** provides a breakdown of the corresponding jurisdictions within each subwatershed. The Santa Ana River subwatershed includes 12 jurisdictions, the largest number of jurisdictions among the subwatersheds. Upper San Antonio subwatershed is composed of the least with just the UA of SBC within the subwatershed area.

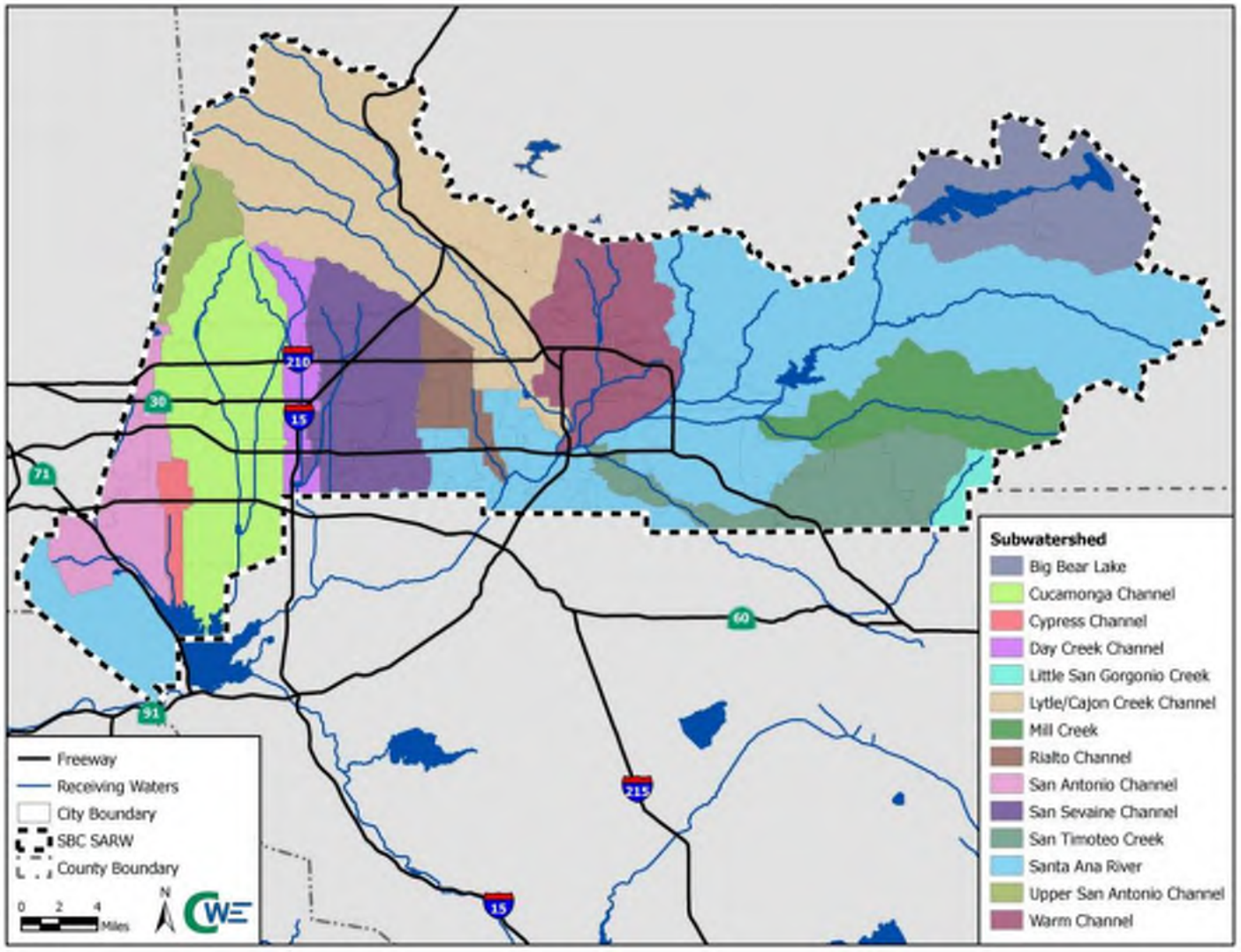


Figure 2-13 SBC SARW Subwatersheds

Table 2-7 Jurisdictional Areas within SBC SARW Subwatersheds

Jurisdictions	Subwatersheds													
	BBL	Cucamonga Channel	Cypress Channel	Day Creek Channel	Little San Gorgonio Creek	Lytle-Cajon Creek Channel	Mill Creek	Rialto Channel	San Antonio Channel	San Sevaine Channel	San Timoteo Creek	Santa Ana River	Upper San Antonio Channel	Warm Channel
BBL	X													
Chino		X	X						X			X		
Chino Hills		X							X			X		
Colton						X		X				X		X
Fontana						X		X		X		X		
Grand Terrace												X		
Highland							X					X		X
Loma Linda											X	X		
Montclair									X					
Ontario		X	X	X					X	X				
Rancho Cucamonga		X		X						X				
Redlands							X				X	X		X
Rialto						X		X		X		X		
San Bernardino						X					X	X		X
Upland		X							X					
Yucaipa					X		X				X	X		
UA SBC	X	X		X	X	X	X	X	X	X	X	X	X	X

Similarly, land use categories associated with each subwatershed are presented in **Table 2-8**. Land use categories vary from subwatershed to subwatershed, and similar to the whole of the SBC SARW, the residential and vacant land use categories have the largest area for all of the 14 subwatersheds (six subwatersheds have residential as the largest category and eight have vacant). **Attachment C** includes several figures depicting the jurisdictional boundaries, land use categories, and water storage facilities (basins) within each of the 14 subwatersheds.

Table 2-8 Land Use Composition within SBC SARW Subwatersheds

Subwatershed	Land Use Category (%)						
	Agriculture	Commercial	Education	Industrial	Residential	Transportation	Vacant
BBL	0.0	3.7	0.0	0.1	25.0	0.0	71.2
Cucamonga Channel	1.0	10.9	2.0	12.7	41.0	3.5	28.9
Cypress Channel	2.2	4.8	2.1	15.6	58.5	1.2	15.6
Day Creek Channel	0.0	7.8	1.0	24.7	18.0	3.4	45.1
Little San Gorgonio Creek	0.0	0.1	0.0	0.0	40.0	0.0	59.9
Lytle-Cajon Creek Channel	0.0	4.4	0.5	3.5	12.9	0.5	78.2
Mill Creek	0.0	1.4	<0.1	0.0	5.2	0.0	93.4
Rialto Channel	0.0	23.4	2.6	19.6	50.2	0.1	4.1
San Antonio Channel	1.6	14.5	2.7	14.9	46.3	2.5	17.5
San Sevaine Channel	0.0	8.8	2.2	21.7	38.2	2.6	26.5
San Timoteo Creek	1.0	11.3	1.0	0.4	45.4	0.4	40.5
Santa Ana River	3.8	5.3	0.6	3.8	16.8	0.6	69.1
Upper San Antonio Channel	0.0	0.5	0.0	0.0	0.0	0.0	99.5
Warm Channel	0.0	12.6	2.0	5.5	39.6	4.4	35.9

3. Water Quality Priorities

The SARWQCB Basin Plan contains the region's water quality regulations and implementation programs designed to preserve and enhance water quality and protect the beneficial uses of waters within the region. Specifically, the Basin Plan:

1. Identifies beneficial uses for surface and ground waters;
2. Includes the narrative and numerical WQOs that must be attained or maintained to protect the designated beneficial uses and conform to the State's anti-degradation policy; and
3. Describes implementation programs and other actions that are necessary to achieve the WQOs established in the Basin Plan.

In combination, beneficial uses and their corresponding WQOs are called Water Quality Standards. A beneficial use is one of the various ways that water can be used for the benefit of people and/or wildlife. A water body is placed on the CWA 303(d) impaired waters list due to exceedances of Basin Plan WQOs of the beneficial uses for that water body. If the pollutant is identified to be causing the impairment, then the water body is assigned a priority for the development of a TMDL, based on the severity of the pollution and the sensitivity of the uses to be made of the waters.

Existing TMDLs and impaired water bodies identified in the 2016 Clean Water Act Section 303(d) List Integrated Report (2016 CWA 303(d) List) were considered as water quality priorities within the SBC SARW which are further discussed in **Section 3.1** to **Section 3.3**. Monitoring data from the Areawide Program was compared to applicable WQOs for each of the receiving waters to further identify priority pollutants in **Section 3.4**. Water quality data from the Areawide Program was also used to establish baseline water quality conditions in the SARW area. The identified priority pollutants from monitoring data, along with TMDL and 303(d) listed impairments, is one aspect that guides the implementation efforts for quantification and prioritization of potential multi-benefit stormwater management projects discussed in **Section 6.1**.

3.1 Existing Surface Water Impairments

The Basin Plan identifies beneficial uses for the Santa Ana River and associated tributaries within the SBC SARW. Water bodies within the SBC SARW support beneficial uses such as:

- Municipal and domestic water supply (MUN)
- Agricultural supply (AGR)
- Groundwater recharge (GWR)
- Hydropower generation (POW)
- Water contact and non-contact recreation (REC1 and REC2)
- Warm freshwater habitat (WARM)
- Cold freshwater habitat (COLD)
- Wildlife habitat (WILD)

- Rare, threatened, or endangered species (RARE)
- Spawning, reproduction, and development (SPWN)

Table 3-1 presents the beneficial uses of the Santa Ana River Reaches within the SBC SARW (illustrated in **Figure 2-1**). Narrative and numerical WQOs are set within the Basin Plan to protect the designated beneficial uses and conform to the State's Anti-Degradation Policy. In addition to the WQOs in the Basin Plan, the California Toxics Rule (CTR) is often referenced as a source of water quality assessment criteria to identify water body impairments, especially those developed through the Federal CWA 303(d) listing process (Federal Register, 2000).

Table 3-1 Santa Ana River Reach 6 through 3 Beneficial Uses

Reach	MUN	AGR	GWR	POW	REC1	REC2	WARM	COLD	WILD	RARE	SPWN
6	X	X	X	X	X	X		X	X		X
5	X*	X	X		X[1]	X	X		X	X	
4	+		X		X[1]	X	X		X	X	X
3	+	X	X		X	X	X		X	X	X

X Existing or Potential Beneficial Use
+ Excepted from MUN
* **MUN** applies upstream of Orange Avenue (Redlands); downstream, water is excepted from MUN
[1] Access prohibited in some portions per agency with jurisdiction

The following sections describe the relevant CWA 303(d) List impaired water bodies and TMDLs within the SBC SARW. Impairments of the beneficial uses identified above exist in nine water bodies, as described in **Section 3.1.1**. TMDLs have been developed for BBL for Noxious Aquatic Plants Nutrients and Middle Santa Ana River (MSAR) for Indicator Bacteria as further discussed in **Section 3.1.2**. Water quality priorities within the SBC SARW are based on the TMDL listings, while considering the impaired water bodies identified in the 2016 CWA 303(d) List.

3.1.1 CWA 303(d) List

The CWA required the State of California to prepare, and then periodically update, a list of impaired water bodies, including those pollutants or conditions causing the impairment and supporting information such as assessment criteria. The current 2016 CWA 303(d) List of water body impairments within the SBC SARW are presented in **Table 3-2** and **Figure 3-1** (SWRCB, 2017a).

On April 28, 2017, the SARWQCB adopted Order No. R8-2017-0013, *Approval of Recommendations for the Federal Clean Water Act Section 303(d) List* (2016 CWA 303(d) List) (SARWQCB, 2017). The SWRCB evaluated the data submitted as part of Order No. R8-2017-0013, for completeness and consistency with the *Water Quality Control Policy for Developing California's CWA Section 303(d) List* (Listing Policy) (SWRCB, 2004). On June 9, 2017, the SWRCB issued the draft *2014 and 2016 California Integrated Report Clean Water Act Sections 303(d) and 305(b)* (2014 and 2016 Integrated Report) outlining the findings from the SWRCB's assessment and recommendations for new listing and delisting to the CWA 303(d) List (SWRCB, 2017a). The 2014 and 2016 Integrated Report recommended delisting a number of water body-pollutant combinations noted in the 2016 CWA 303(d) List. New listing and delisting per the 2016 CWA 303(d) List and SWRCB 2014 and 2016 Integrated Report are noted in **Table 3-2**. The 2016 list obtained final approval from the Office of Administrative Law (OAL) and the USEPA on April 6, 2018, and was utilized in water quality data analysis in **Section 3.3**.

Table 3-2 2016 CWA 303(d) List of Impairments within SBC SARW

Water Body	2016 CWA 303(d) List of Impairments
BBL	Mercury, PCBs, Noxious (Nuisance) Aquatic Plants, Nutrients, Chlordane, DDT (Dichlorodiphenyltrichloroethane)
Chino Creek Reach 1A	Nutrients, Indicator Bacteria
Chino Creek Reach 1B	COD, Nutrients, Indicator Bacteria
Chino Creek Reach 2	pH, Indicator Bacteria
Cucamonga Creek Reach 1	Cadmium, Copper, Lead, Zinc, Indicator Bacteria
Cucamonga Creek Reach 2	pH
Grout Creek	Nutrients
Knickerbocker Creek	Indicator Bacteria
Lytle Creek	None
Mill Creek (Prado Area)	Nutrients, Indicator Bacteria, TSS
Mill Creek Reach 1	Indicator Bacteria
Mill Creek Reach 2	None
Mountain Home Creek	Indicator Bacteria
Mountain Home Creek, East Fork	Indicator Bacteria
Prado Park Lake	Nutrients, Indicator Bacteria
Prado Flood Control Basin	pH
Rathbone (Rathbun) Creek	Cadmium, Copper, Nutrients, Sedimentation/Siltation
San Antonio Creek	pH
Santa Ana River Reach 3	Copper, Lead, Indicator Bacteria
Santa Ana River Reach 4	Indicator Bacteria
Santa Ana River Reach 6	Cadmium, Copper, Lead
Summit Creek	Nutrients

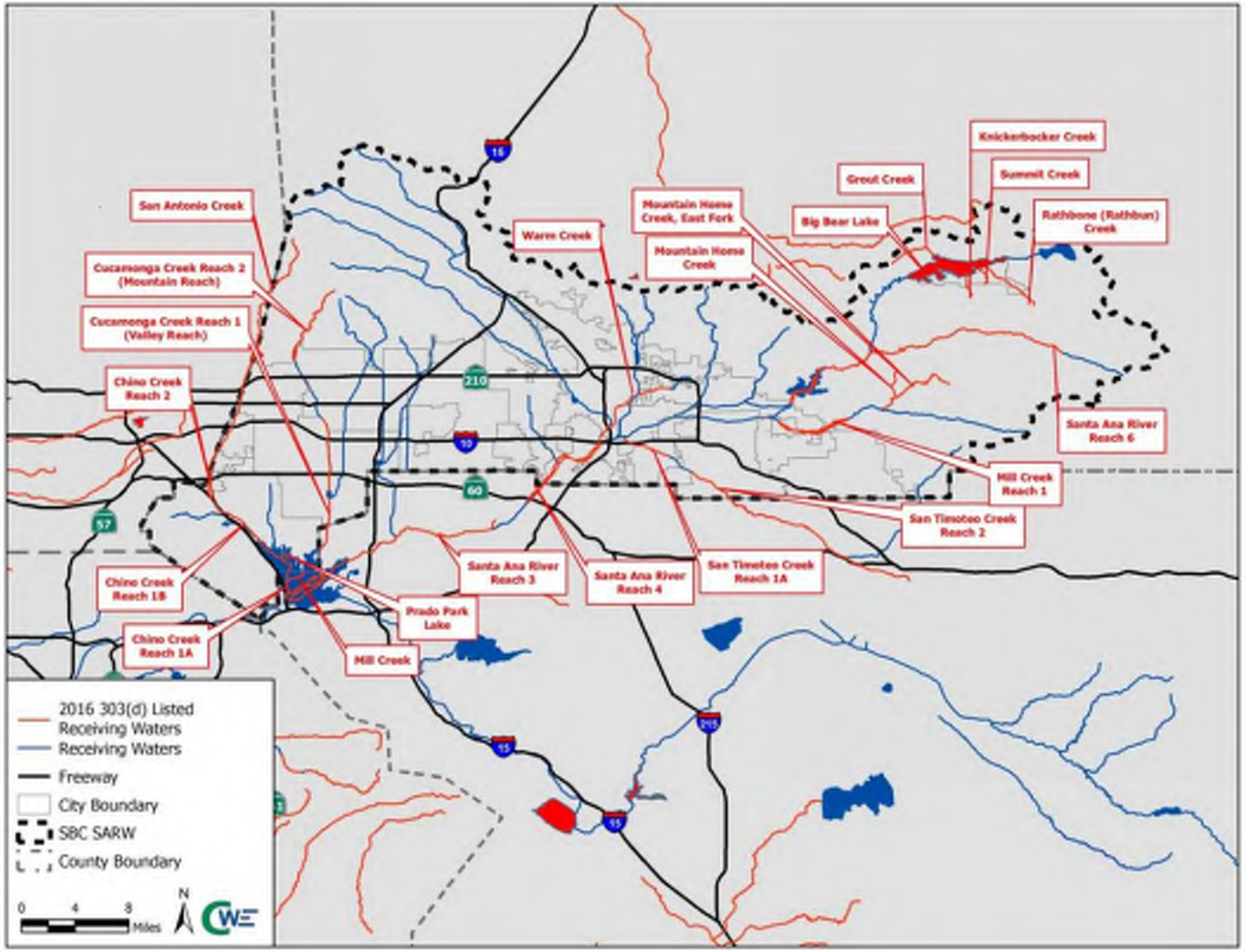


Figure 3-1 2016 CWA 303(d) List of Impaired Water Bodies within SBC SARW

3.1.2 Total Maximum Daily Loads

A TMDL must be developed for water bodies placed on the CWA 303(d) List. For water bodies needing a TMDL or alternative planning tool, a completion schedule is developed by the SARWQCB as outlined in the Listing Policy (SWRCB, 2017a). A TMDL defines how much of a pollutant can be present in a water body and still meet water quality standards and protect beneficial uses. Each TMDL must account for contributions from point and non-point sources and provide a Waste Load Allocation (WLA) and Load Allocation (LA), respectively. **Table 3-3** lists two applicable TMDLs in the SBC SARW and subsections below present additional details regarding these TMDLs.

Table 3-3 TMDLs Developed within the SBC SARW

Water Body(ies)	TMDL
BBL	Nutrients and Nuisance Aquatic Plants
MSAR – Chino Creek Reach 1, Chino Creek Reach 2, Cucamonga Creek Reach 1, Mill Creek (Prado Area), Prado Park Lake, Santa Ana River Reach 3	Indicator Bacteria

3.1.2.1 Big Bear Lake Nutrients and Nuisance Aquatic Plants TMDL

Proliferation of nuisance (also referred to as noxious) aquatic plants has been recorded in BBL since the 1970s and nutrient discharges have helped promote the growth of nuisance aquatic plants. These nuisance aquatic plants serve as both a sink and source of nutrients. BBL's designated beneficial uses impacted by low dissolved oxygen levels, caused by excess nutrients and nuisance aquatic plants, include COLD, REC1, REC2, WARM, WILD, and RARE. As a result, BBL is on the CWA 303(d) List and a TMDL was developed to limit nutrient loading. The Big Bear Lake Nutrient (BBLN) TMDL was adopted by the SARWQCB in April 2006, and approved by the USEPA on September 25, 2007. The BBLN TMDL numeric targets are shown in **Table 3-4** (SARWQCB, 2006). BBLN TMDL numeric targets during dry hydrologic conditions are required as of 2015 and all other conditions by 2020. In addition, BBLN TMDL WLA and LA established for total phosphorus during dry hydrological conditions are presented in **Table 3-5** (SARWQCB, 2006).

Table 3-4 Big Bear Lake Nutrient TMDL Numeric Targets

Parameter	Target Values	Compliance Date[a]	
		Interim – Dry Hydro Conditions	Final – All Other Conditions
Total Phosphorus	35 µg/L (annual average[b])	2015	2020[c]
Macrophyte Coverage	30-40% on a total lake area basis		2020[c,d]
Percentage of Nuisance Aquatic Vascular Plant Species	95% eradication on a total area basis of Eurasian Watermilfoil and any other invasive aquatic plant species		2020[c,d]
Chlorophyll *a*	14 µg/L (growing season[e] average)		2020[c]

[a] Compliance with the targets to be achieved as soon as possible, but no later than the date specified.
[b] Annual average determined by the following methodology: the nutrient data from both the photic composite and discrete bottom samples are averaged by station number and month; a calendar year average is obtained for each sampling location by averaging the average of each month; and finally, the separate annual averages for each location are averaged to determine the lake-wide average.
[c] Compliance date for wet and/or average hydrological conditions may change in response to approved TMDLs for wet/average hydrological conditions.
[d] Calculated as a 5-year running average based on measurements taken at peak macrophyte growth as determined in the Aquatic Plant Management Plan.
[e] Growing season is the period from May 1 through October 31 of each year. The chlorophyll *a* data from the photic samples are averaged by station number and month; a growing season average is obtained for each sampling location by averaging the average of each month; and finally, the separate growing season averages for each location are averaged to determine the lake-wide average.

Table 3-5 Phosphorus WLAs and LAs for Dry Hydrological Conditions

Big Bear Lake Nutrient TMDL for Dry Hydrological Conditions	Total Phosphorus Load Allocation (lbs/yr)[a,b]
WLA	**475**
Urban	475
LA	**25,537**
Internal Sediment	8,555
Internal macrophyte	15,700
Atmospheric Deposition	1,074
Forest	175
Resort	33
TMDL	**26,012**

[a] Allocation compliance to be achieved as soon as possible, but no later than December 31, 2015.
[b] Specified as an annual average for dry hydrological conditions only.

3.1.2.2 Middle Santa Ana River Bacterial Indicator TMDL

Water bodies within the MSAR Watershed portion of the SBC SARW, in the MSAR Bacterial Indicator TMDL were identified as follows (SARWQCB, 2005c):

- Chino Creek, Reach 1
- Chino Creek, Reach 2

- Cucamonga Creek, Reach 1
- Mill Creek (Prado Area)
- Prado Park Lake
- Santa Ana River, Reach 3

Elevated fecal coliform densities adversely affecting REC1 designated beneficial uses were identified within the MSAR water bodies. As a result, the MSAR water bodies were placed on the CWA 303(d) List and a TMDL was developed to address the impairment. The MSAR Bacterial Indicator TMDL was adopted by the SARWQCB on August 26, 2005, and approved by the USEPA on May 16, 2007 (SARWQCB, 2005c). The MSAR Bacterial Indicator TMDL establishes WLAs, LAs, and compliance targets for fecal coliform and *E. coli* during the wet and dry season. **Table 3-6** identifies the MSAR Bacterial Indicator WLAs, LAs, and TMDL requirements applicable to the SBC SARW area. It is important to note that the targets identified in the table below are associated with the original TMDL requirements. The Basin Plan WQO for *E. coli* (126 organisms/100 milliliters for a 5-day/30-day geomean) is used to assess compliance based on the discussion below.

Table 3-6 TMDLs, WLAs, and LAs for Bacterial Indicators in MSAR Water Bodies

Indicator	Original Compliance Target[a,b,c]
Fecal coliform	5-sample/30-day Logarithmic Mean less than 180 organisms/100mL, and not more than 10% of the samples exceed 360 organisms/100mL for any 30-day period.
E. coli	5-sample/30-day Logarithmic Mean less than 113 organisms/100mL, and not more than 10% of the samples exceed 212 organisms/100mL for any 30-day period.

[a] To be achieved as soon as possible, but no later than December 31, 2015, for both dry summer and wet winter conditions.
[b] Compliance target include a 10% margin of safety.
[c] The fecal coliform compliance target has become ineffective upon the replacement of the REC1 fecal coliform objectives in the Basin Plan by approved REC1 objectives based on *E. coli*. SARWQCB Resolution: R8-2012-0001, June 15, 2012 (SARWQCB, 2012b).

On June 15, 2012, the SARWQCB adopted the Basin Plan Amendment (BPA) Resolution R8-2012-0001, to Revise Recreation Standards for Inland Freshwaters in the Santa Ana Region (SARWQCB, 2012b). This BPA resulted in the following key modifications to the Basin Plan:

- Addition of "Primary Contact Recreation" as an alternative name for the REC1 (water contact recreation) beneficial use;
- Addition of narrative text clarifying the nature of REC1 activities and the bacteria objectives established to protect these activities;
- Differentiation of inland surface REC1 waters on the basis of frequency of use and other characteristics for the purposes of assigning applicable single sample maximum values;
- Revision of REC1/REC2 (non-contact water recreation) designations for specific inland surface waters based on the results of completed Use Attainability Analyses (UAA) (SARWQCB, 2012a and 2013);
- Revised water quality objectives to protect the REC1 use of inland freshwaters; and

- Identification of criteria for temporary suspension of recreation use designations and objectives (high flow suspension).

The BPA Resolution R8-2012-0001 was approved by the SWRCB on January 21, 2014, and the OAL on July 2, 2014. The USEPA issued its letter of approval/disapproval on April 8, 2015, and provided a letter of clarification on August 3, 2015. Upon USEPA approval of the BPA Resolution R8-2012-0001 the compliance target for fecal coliform, as indicated in **Table 3-6**, is ineffective, as *E. coli* is the only compliance target for bacterial indicators.

3.1.3 Trash Amendments

Trash generated by human activities frequently end up in waterways. The presence of trash in waterways adversely affects beneficial uses and threatens aquatic life, wildlife, and public health. On April 7, 2015, the SWRCB adopted Resolution No. 2015-0019 which approved *Amendment to the Water Quality Control Plan for Ocean Waters of California (Ocean Plan) to Control Trash* and *Part 1 Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries* (ISWEBE Plan), collectively referred to as the Trash Amendments (2015a). The USEPA approved the Trash Amendments on January 12, 2016, which applies to all surface waters within the State of California, except waters within the jurisdiction of the Los Angeles Region where trash or debris TMDLs are in effect prior to the effective date of the Trash Amendments. The narrative WQO for the Trash Amendments are as follows:

- For the Ocean Plan: Trash shall not be present in ocean waters, along shorelines or adjacent areas in amounts that adversely affect beneficial uses or cause nuisance.
- For the ISWEBE Plan: Trash shall not be present in inland surface waters, enclosed bays, estuaries, and along shorelines or adjacent areas in amounts that adversely affect beneficial uses or cause nuisance.

The Trash Amendments requirements are to be incorporated into Phase I and II MS4 Permits, Industrial General Permit (IGP), Construction General Permit (CGP), and the California Department of Transportation (Caltrans) NPDES Permit. NPDES Permittees with regulatory authority over land uses are to prohibit the discharge of trash under a dual alternative compliance approach or "Tracks" through the implementation defined by either Track 1 or Track 2. Both Tracks require Permittees to focus their trash control efforts on priority land uses, as outlined in **Table 3-7**. The priority land uses are defined as developed land uses that are high density residential, industrial, commercial, mixed urban, and public transportation stations.

Table 3-7 Overview of Proposed Compliance Tracks for NPDES Stormwater Permits

Element	Track 1	Track 2
NPDES Stormwater Permit	Phase I and II MS4 IGP/CGP[a]	Phase I and II MS4 Caltrans IGP/CGP[a]
Plan of Implementation	Install, operate, and maintain Full Capture Systems (FCSs) in storm drains that capture runoff from one or more of the priority land uses/facility/site.	Implement a plan with a combination of FCSs, multi-benefit projects, institutional controls, and/or other treatment controls to achieve FCSs equivalency.
Time Schedule	10 years from first implementing permit but no later than 15 years from the effective date of the Trash Amendments.[b]	
Monitoring and Reporting	Demonstrate installation, operation, and maintenance of FCSs and provide mapped location and drainage area served by FCSs.[c]	Develop and implement set of monitoring objectives that demonstrate effectiveness of the selected combination of controls and compliance with FCS equivalency.[c]

[a] IGP/CGP Permittees would first demonstrate inability to comply with the outright prohibition of discharge of trash.

[b] Where a permitting authority makes a determination that a specific land use or location generates a substantial amount of trash, the permitting authority has the discretion to determine a time schedule with a maximum of ten years. IGP/CGP Permittees would demonstrate full compliance with deadlines contained in the first implementing permit.

[c] No trash monitoring requirements for IGP/CGP; however, IGP/CGP Permittees would be required to report trash controls.

3.2 Existing Groundwater Quality

Groundwater accounts for a majority of the domestic water supply in the SBC SARW. Groundwater quality varies among the region's groundwater basins, as they cover a large geographic area. Various agencies throughout the SBC SARW participate in regional efforts to monitor groundwater quality. This section summarizes groundwater quality data based on past monitoring efforts.

3.2.1 Chino Groundwater Basin

The Chino Groundwater Basin (illustrated in **Figure 2-7**) comprises an area of approximately 235 square miles that extends from the Prado Basin in the southwestern corner, bounded by the Chino Hills and Puente Hills to the west, the San Jose and Red Hill Faults along the San Gabriel Mountains to the northwest, the Rialto-Colton Fault to the northeast, and the Jurupa Mountains and La Sierra Hills to the southeast. The Chino Groundwater Basin consists of five Management Zones (MZ) and four basin delineations – Chino North comprised of MZ1, MZ2, MZ3 with about 90 percent in San Bernardino County; Chino-East (MZ4); Chino-South (MZ5); Prado Basin (parts of MZ1, MZ2, MZ3, and MZ5); and MZ4 and MZ5 are in Riverside County.

The Chino Groundwater Basin is administered by the Chino Basin Watermaster (CBWM) which prepares a Maximum Benefit Annual Report (2018) and a State of the Basin Report (2017) that tabulates the findings of the monitoring effort in the Chino Groundwater Basin. The monitoring program consists of two main components: groundwater-level monitoring and groundwater-quality monitoring. Groundwater-quality is the focus of this section. The CBWM initiated a comprehensive monitoring program to perform

systematic sampling of wells. Details of the monitoring programs as of fiscal year 2015-2016 are as follows:

- **Chino Basin Data Collection –** the CBWM routinely collects groundwater quality data from well owners, municipal producers, and government agencies. Data is also collected as part of special studies and monitoring taken under orders from the RWQCB, e.g., landfills, groundwater quality investigations, Department of Toxic Substances, United State Geological Survey (USGS), and others. Data is typically collected twice a year. In 2016, data was collected for over 780 wells as part of the Chino Basin Data Collection.
- **CBWM Field Groundwater Quality Monitoring Programs –** continued sampling of privately owned wells and its own monitoring wells on a routine basis as follows:
  - **Private Wells** – approximately 109 private wells, mostly located in the southern portion of the Chino Groundwater Basin, are sampled at various frequencies depending on their proximity to known point source contamination plumes. Eighty-nine wells are sampled on a triennial basis, and 20 wells near contaminant plumes are sampled annually.
  - **CBWM Monitoring Wells** – approximately 22 multi-nested monitoring wells including nine Hydraulic Control Monitoring Program wells, nine Prado Basin Habitat Sustainability Program wells, and four wells near contaminant plumes in MZ3.
  - **Other wells** – four near-river wells, Archibald 1 and Archibald 2 (USGS), and two SAR Water Company wells (9 and 11).

Groundwater quality data is checked by CBWM staff and uploaded to a centralized database management system accessed online through HydroDaVE. The data is used to comply with two maximum benefit salinity management commitments, prepare the biennial State of the Basin Report, support groundwater modeling, characterize non-point source contamination and plumes associated with point source discharges, and characterize long-term trends in water quality.

The State of the Basin Report (2017) includes groundwater quality data for a five year period from July 2011 to June 2016. Groundwater quality is characterized with respect to constituents where groundwater exceeds Primary or Secondary California Maximum Contaminant Levels (MCLs) or Notification Levels (NLs). Wells with constituent concentrations greater than a Primary MCL represent areas of concern and the spatial distribution of these wells indicates areas in the Basin where groundwater may be impaired from a beneficial use standpoint.

The following is a list of the regulatory and voluntary groundwater quality contamination monitoring efforts in the Chino Basin that are tracked by CBWM:

- Alumax Aluminum Recycling Facility - Constituents of Concern: Total Dissolved Solids (TDS), sulfate, nitrate, chloride.
  Order: RWQCB Cleanup and Abatement Order 99-38
- Alger Manufacturing Co. - Constituents of Concern: Volatile Organic Compounds (VOCs).
  Order: Voluntary Cleanup and Monitoring
- Chino Airport - Constituents of Concern: VOCs.
  Order: RWQCB Cleanup and Abatement Order 90-134
- California Institute for Men (No Further Action status) - Constituents of Concern: VOCs.
  Order: Voluntary Cleanup and Monitoring

- Former Crown Coach International Facility - Constituents of Concern: VOCs and solvents.
  Order: Voluntary Cleanup and Monitoring
- General Electric Flatiron Facility - Constituents of Concern: VOCs and hexavalent chromium.
  Order: Voluntary Cleanup and Monitoring
- General Electric Test Cell Facility - Constituents of Concern: VOCs.
  Order: Voluntary Cleanup and Monitoring
- Former Kaiser Steel Mill - Constituents of Concern: TDS, total organic carbon (TOC), VOCs.
  Order: RWQCB Order 91-40 Closed. Kaiser granted capacity to the Chino II Desalter to remediate.
- Former Kaiser Steel Mill – CCG Property - Constituents of Concern: chromium, hexavalent chromium, other metals, VOCs.
  Order: DTSC Consent Order 00/01-001
- Milliken Sanitary Landfill - Constituents of Concern: VOCs.
  Order: RWQCB Order 81-003
- Upland Sanitary Landfill - Constituents of Concern: VOCs.
  Order: RWQCB Order No 98-99-07
- South Archibald Plume - Constituents of Concern: VOCs.
  Order: This plume is currently being voluntarily investigated by a group of potentially responsible parties per seven Draft Cleanup and Abatement Orders
- Stringfellow NPL Site - Constituents of Concern: VOCs, perchlorate, Nitrosodimethylamine (NDMA), trace metals.
  Order: The Stringfellow Site is the subject of USEPA Records of Decision: EPA/ROD/R09-84/007, EPA/ROD/R09-83/005, EPA/ROD/R09-87/016, and EPA/ROD/R09-90/048.

There were a total of 1,358 wells within the Chino Basin where water quality data was available from July 2011 to June 2016. **Table 3-8** includes a tabulation of the findings of the program for that period specified by the number of wells that exceeded the MCL for the constituents of concern. Of these, 828 wells were sampled in Fiscal Year 2016.

Table 3-8 Groundwater Quality in the Chino Groundwater Basin (CBWM, 2017)

Analyte	California MCL	No. of Wells Exceeding MCL
Primary Contaminant		
1,1,2-Trichloroethane	5 µg/L	1
1,1-Dichloroethane	5 µg/L	2
1,1-Dichloroethene (1,1-DCE)	6 µg/L	16
1,2,4-Trichlorobenzene	5 µg/L	34
1,2-Dibromo-3-chloropropane	0.2 µg/L	5
1,2-Dichlorobenzene	600 µg/L	47
1,2-Dichloroethane	0.5 µg/L	64
1,2-Dichloropropane	5 µg/L	2
1,4-Dichlorobenzene	5 µg/L	110
Aluminum	1 mg/L	94

Analyte	California MCL	No. of Wells Exceeding MCL
Antimony	6 µg/L	1
Arsenic	10 µg/L	71
Barium	1 mg/L	13
Benzene	1 µg/L	98
Beryllium	4 µg/L	21
Bromate	10 µg/L	9
Cadmium	5 µg/L	57
Carbon Tetrachloride	0.5 µg/L	12
Chlorobenzene	70 µg/L	73
Chromium (VI)	10 µg/L	91
Chromium	50 µg/L	193
cis-1,2-Dichloroethene	6 µg/L	61
Copper	1.3 mg/L	20
Cyanide	150 µg/L	2
Di(2-ethylhexyl)phthalate	4 µg/L	28
Dichloromethane (Freon 30)	5 µg/L	108
Ethylbenzene	300 µg/L	51
Fluoride	2 mg/L	53
Gross Alpha	15 pCi/L	12
Heptachlor	0.01 µg/L	1
Hepthachlor Epoxide	0.01 µg/L	2
Lead	15 µg/L	27
Mercury	2 µg/L	3
Methyl Tert-Butyl Ether (MTBE)	13 µg/L	76
Nickel	0.1 µg/L	65
Nitrate-Nitrogen	10 mg/L	606
Nitrite-Nitrogen	1 mg/L	26
Pentachlorophenol	1 µg/L	1
Perchlorate	6 µg/L	457
Ra 226 + Ra 228	5 pCi/L	1
Selenium	50 µg/L	9
Tetrachloroethene (PCE)	5 µg/L	110
Thallium	2 µg/L	7
Toluene	150 µg/L	38
Total Xylene	1750 µg/L	24
Trichloroethylene (TCE)	5 µg/L	285
Uranium	20 pCi/L	1
Vinyl Chloride	0.5 µg/L	6
Secondary Contaminant		
Aluminum	1 mg/L	121
Chloride	500 mg/L	6

Analyte	California MCL	No. of Wells Exceeding MCL
Copper	1.3 mg/L	22
Iron	0.3 mg/L	344
Manganese	50 µg/L	287
Methyl Tert-Butyl Ether (MTBE)	13 µg/L	98
Odor	3 TON	2
Specific Conductance	1600 µS/cm	120
Sulfate	250 mg/l	134
TDS	1000 MG/l	122
Turbidity	5 NTU	59
Zinc	5 mg/L	30

The CBWM defines constituents of potential concern as the following. Findings from July 2011 to June 2016 related to each constituent of concern is further discussed in the 2016 State of the Basin Report (CBWM, 2017)

- Constituents associated with salt and nutrient management planning (i.e., TDS and nitrate).
- Constituents where a primary MCL was exceeded in twenty or more wells from July 2011 to June 2016 and where the majority of wells with exceedances are not primarily exclusive to known point source contamination plumes (i.e., the Stringfellow NPL Site, Milliken Landfill, etc.). These constituents include nitrate, perchlorate, total chromium, hexavalent chromium, arsenic, TCE, and PCE.
- Constituents for which the California Division of Drinking Water is in the process of developing an MCL that may impact future beneficial uses of groundwater. This includes 1,2,3-trichloropropane (1,2,3-TCP), which currently is monitored under a NL.

3.2.2 San Bernardino Valley Municipal Water District

SBVMWD conducts a groundwater monitoring program, which is further described in this subsection. Details pertaining to the monitoring program are summarized in the Upper SARW IRWMP (SBVMWD, 2015). The approach to the groundwater monitoring program is somewhat different than in the Chino Groundwater Basin. Instead of an overall listing of contaminants and the number of wells exceeding the MCLs for any particular constituent, the SBVMWD groups the findings into separate groundwater basins with the number of wells sampled and the number of wells exceeding the respective MCL. The findings are truncated to seven water quality constituents with groupings of:

1. Inorganics (primary)
2. Radiological
3. Nitrates
4. Pesticides
5. VOCs and SOCs
6. Inorganics (secondary)
7. Perchlorate

Primary inorganics include: arsenic, barium, beryllium, borate, cadmium, chromium, copper, cyanide, flouride, lead, mercury, nickel, selenium, and thallium. Secondary inorganics include: aluminum, chlorine, iron, manganese, silver, sodium, and zinc. VOCs include benzene, carbon tetrachloride, TCE, PCE, and others.

In addition to the above listed constituents, TDS concentrations are published in a range from minimum to maximum detected with a cumulative average for each individual groundwater basin (if detected).

The SBVMWD service area groundwater basins/subbasins are adjacent to and east of the Chino Groundwater Basin. There are nine groundwater subbasins in the SBVMWD service area/upper SAR region, as illustrated in **Figure 2-7** (with the exception of those noted below, which are illustrated in the Upper SARW IRWMP [SBVMWD, 2015]):

1. San Bernardino Basin Area – Bunker Hill Subbasin
2. Rialto-Colton Subbasin
3. Cajon Subbasin
4. Riverside-Arlington Subbasin
5. San Timoteo Subbasin
6. Yucaipa Subbasin
7. Bear Valley Subbasin (located near Big Bear Lake – not illustrated in **Figure 2-7**)
8. Big Meadows Valley Subbasin (located south of Big Bear Lake – not illustrated in **Figure 2-7**)
9. Seven Oaks Valley Subbasin (located west of Big Meadows Valley – not illustrated in **Figure 2-7**)

The Bear Valley, Big Meadows Valley, and Seven Oaks Valley Subbasins are not within the SBVMWD service area but are within the Upper SAR Watershed and are reported in California's Groundwater Bulletin 118.

Table 3-9 summarizes groundwater quality data reported in the Upper SARW IRWMP (SBVMWD, 2015). Additional discussion pertaining to these result are included in the referenced report, while the table below represents a summary.

Table 3-9 Groundwater Quality Reported in the Upper SARW IRWMP (SBVMWD, 2015)

Analyte	No. Wells Sampled	No. of Wells Exceeding MCL
San Bernardino Basin Area		
Inorganics (primary)	212	13
Radiological	207	34
Nitrates	214	34
Pesticides	211	20
VOCs and SOCs	211	32
Inorganics (secondary)	212	25
Perchlorate	369	156[1]
Rialto-Colton Subbasin		
Inorganics (primary)	38	0

Analyte	No. Wells Sampled	No. of Wells Exceeding MCL
Radiological	40	0
Nitrates	38	2
Pesticides	40	0
VOCs and SOCs	40	3
Inorganics (secondary)	38	3
Perchlorate	38	7
Cajon Subbasin		
No recorded exceedances of MCL at two wells sampled		
Riverside-Arlington Subbasin		
Inorganics (primary)	48	2
Radiological	48	11
Nitrates	51	21
Pesticides	50	19
VOCs and SOCs	50	8
Inorganics (secondary)	38	3
San Timoteo Subbasin		
Only one of the 27 wells sampled had secondary inorganics exceeding the MCL		
Yucaipa Subbasin		
Inorganics (primary)	43	1
Radiological	44	1
Nitrates	46	12
Pesticides	43	4
VOCs and SOCs	44	1
Inorganics (secondary)	43	4
Bear Valley Groundwater Basin		
Inorganics (primary)	33	7
Radiological	37	0
Nitrates	32	0
Pesticides	20	0
VOCs and SOCs	31	0
Inorganics (secondary)	33	5
Big Meadows Valley Basin		
No recorded exceedances of MCL		
Seven Oaks Valley Basin		
No data available		

3.2.3 Plumes

Several plumes are identified within the SBC SARW area. **Figure 3-2** illustrates the plume locations based on GIS data available in the Watershed Action Plan Geodatabase prepared by the Areawide Program. The following plumes are detailed in the Upper SARW IRWMP (SBVMWD, 2015).

- Crafton-Redlands plume: contaminated with TCE and lower levels of PCE, debromochloropropane (DBCP), and perchlorate
- Norton Air Force Base: TCE and PCE plume, which stretches 2.5 miles from its source and contaminates 100,000 acre-feet of groundwater
- Newmark-Muscoy plume: near the Shandon Hills, which is a Superfund site with TCE and PCE
- Santa Fe plume: contaminated with PCE, TCE, and 1,2 dichloroethylene (1,2-DCE)

The Crafton-Redlands plume consists of two intermingled plumes impacting water supply wells owned by the Cities of Riverside, Redlands, and Loma Linda. One plume has TCE measured at >100 μg/L (MCL= 6 μg/L), while the other has perchlorate to 77 μg/L (MCL=4 μg/L). TCE is treated with Granular Activated Carbon (GAC) treatment units, and perchlorate is treated by ion-exchange units. The Newark-Muscoy plumes are also treated by GAC.

The Norton Air Force Base plume is a major contaminant plume consisting mainly of PCE and TCE and is treated by soil gas extraction, soil removal, and groundwater treatment (GAC and ion-exchange). The treatment units are currently on standby mode (SBVMWD, 2015).

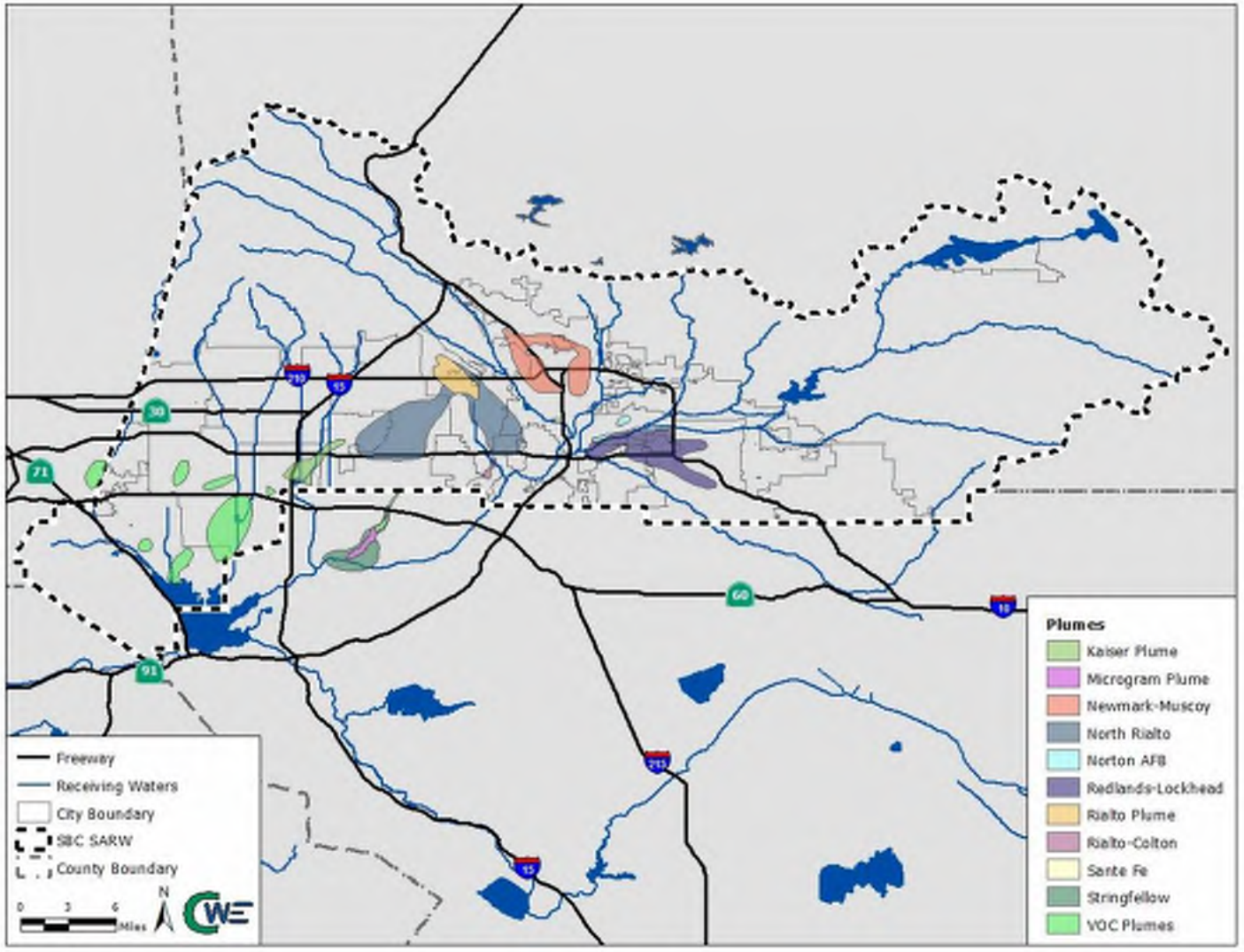


Figure 3-2 Plumes within the SBC SARW Area

3.3 Existing Water Quality Data Sources

Water quality monitoring data, from 2006 to 2016, was collected from numerous sources, but the most useful and highest quality data relevant to the SBC SARW were obtained from SBC Areawide Stormwater Monitoring Programs, which include the following:

- Core and Urban Discharge Mass Emission Monitoring Program (Core Monitoring)
- BBLN TMDL Monitoring:
  - BBL Watershed-Wide Nutrient Monitoring
  - BBL In-Lake Monitoring
- MSAR Bacterial Indicator TMDL/WLA Monitoring

The SBC Areawide Stormwater Monitoring Programs were implemented to fulfill the MS4 Permit requirements. **Table 3-10** summarizes the data availability and utilization for the analysis further detailed in **Section 3.4**. Monitoring locations from these sources are located throughout the SBC SARW area, as illustrated in **Figure 3-3** through **Figure 3-5**. Monitoring data associated with the implementation of these monitoring programs was analyzed to evaluate water quality priorities. This data was utilized to assess the need for projects/programs at key locations within the SBC SARW and quantify benefits related to water quality improvements through load reductions.

The monitoring data from the programs listed above was utilized to assess the baseline water quality of the water bodies within the SBC SARW for which data is available. Core Monitoring sites include permanent and rotating sites, which are organized within the SBCFCD Zones 1, 2, and 3, as shown in **Figure 3-3**. Additional details of the Core Monitoring sites are summarized in **Table 3-11**, BBLN TMDL Monitoring in **Table 3-12**, and MSAR Bacterial Indicator TMDL Monitoring in **Table 3-13**.

Table 3-10 Monitoring Data Availability and Use

Monitoring Program	Dry-Weather		Wet-Weather	
	Data Available	Data Utilized	Data Available	Data Utilized
Core Monitoring				
Permanent Sites	2006-2016[a]	2006-2016[a]	1993-2016	2006-2016
Rotating Sites	2012-2016	2012-2016	2012-2016	2012-2016
BBLN TMDL Monitoring				
BBL Watershed-Wide Nutrient Monitoring	2009-2016	2009-2016	2009-2016	2009-2016
BBL In-Lake Monitoring	2009-2016	2009-2016	2009-2016	2009-2016
MSAR Bacterial Indicator TMDL/WLA Monitoring	2008-2016	2008-2016	2008-2016	2008-2016

[a] Only for Permanent Site 2. Data from 2012-2016 available and utilized for all other Permanent Sites.

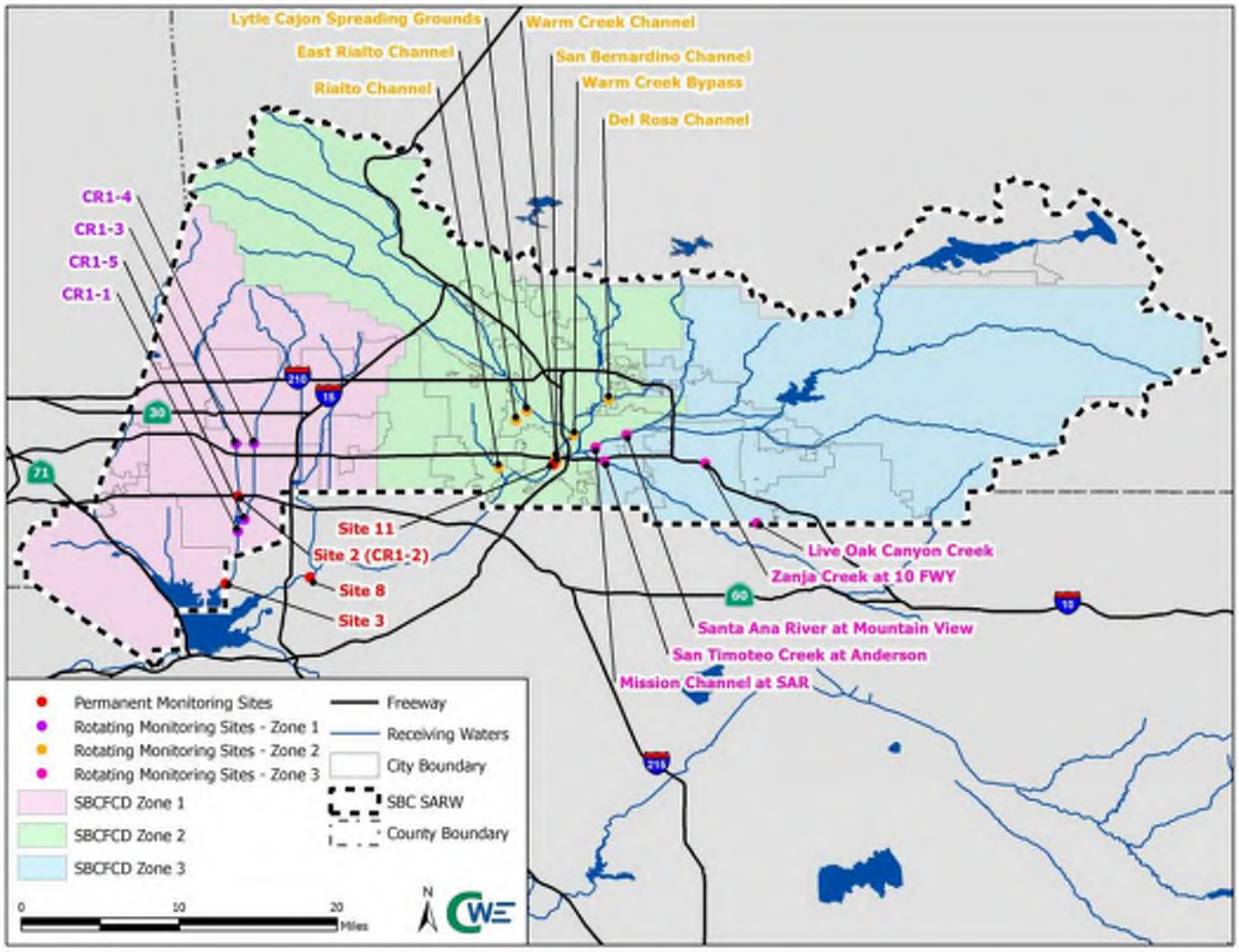


Figure 3-3 Core and Urban Discharge Mass Emission Monitoring Sites

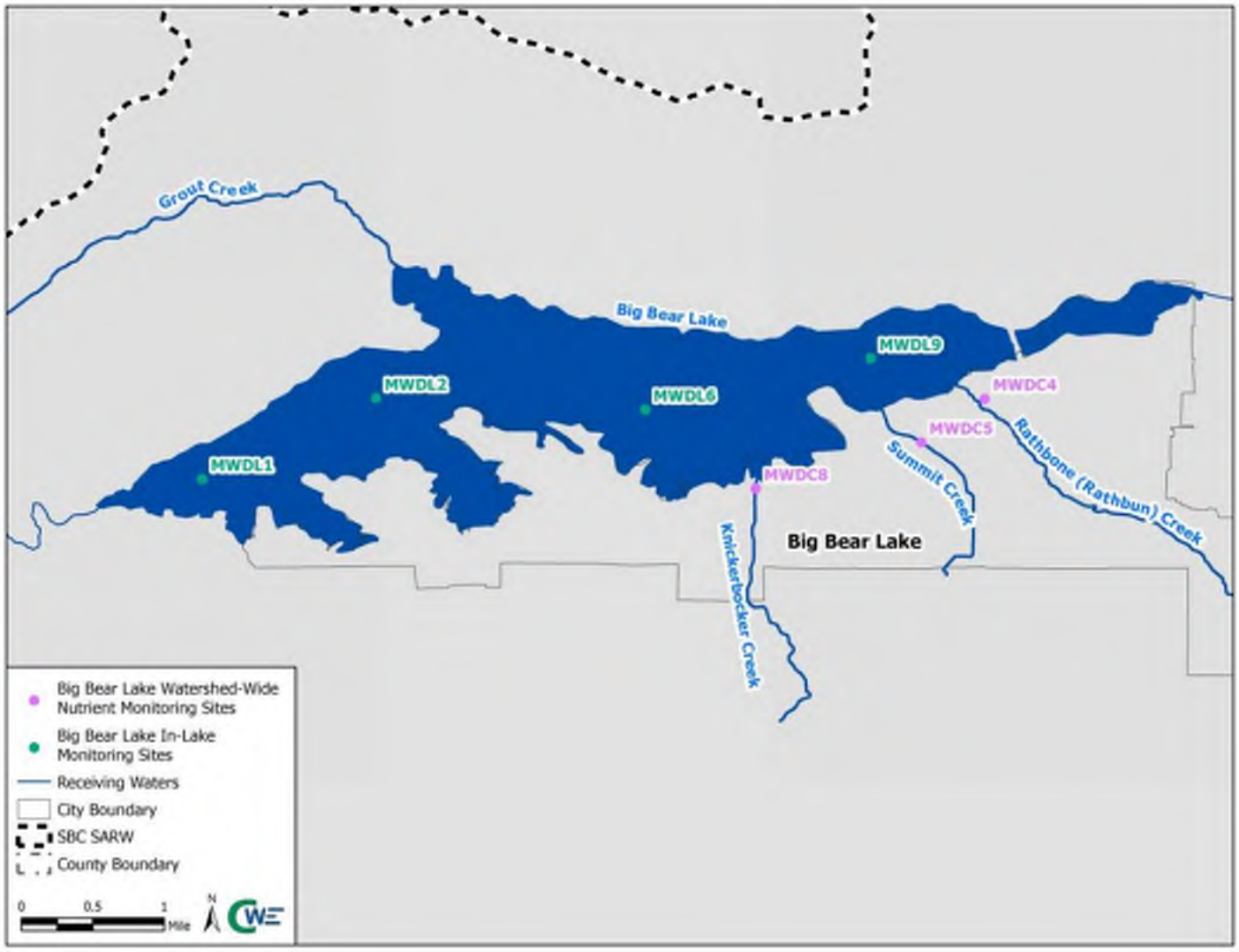


Figure 3-4 Big Bear Lake TMDL Monitoring Sites

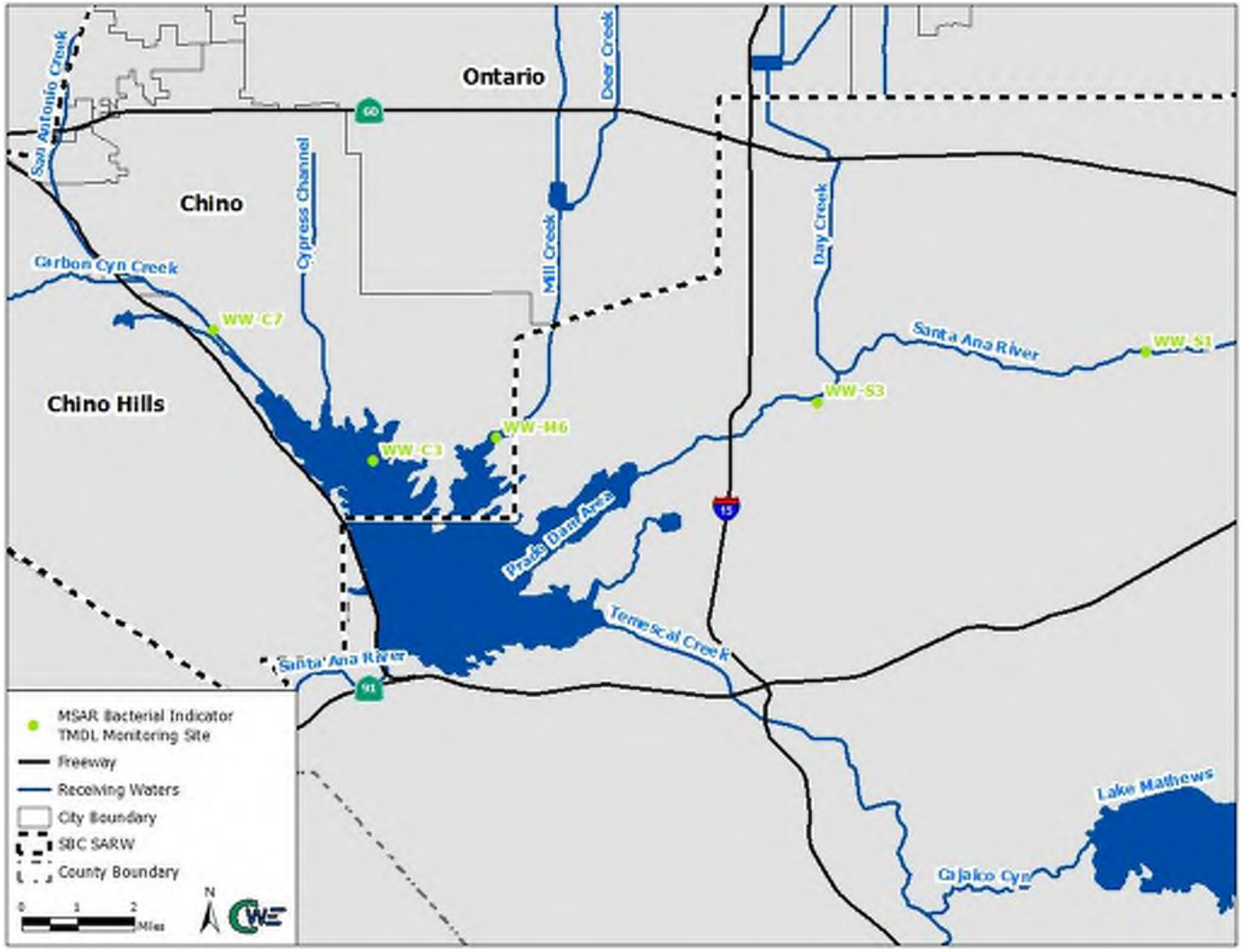


Figure 3-5 MSAR Bacterial Indicator TMDL Monitoring Sites

Table 3-11 Core and Urban Discharge Mass Emission Monitoring Sites

Site No.	Receiving Water	Location	Coordinates	
			Latitude	Longitude
Permanent				
Site 2 (CR1-2)	Cucamonga Creek Reach 1	Cucamonga Creek at Highway 60	34.0295	-117.5993
Site 3	Mill Creek	Cucamonga Channel at Hellman	33.9495	-117.6104
Site 8	SAR Reach 3	SAR at Pedley	33.9552	-117.5328
Site 11	SAR Reach 4	Santa Ana River at Mount Vernon	34.0584	-117.3100
Zone 1 (Rotating)				
CR1-1	Cucamonga Creek Reach 1	Cucamonga Creek at Edison	33.9972	-117.5992
CR1-3	Cucamonga Creek Reach 1	Cucamonga Creek below Turner Basins	34.0775	-117.6010
CR1-4	Deer Creek	Deer Creek above Archibald	34.0755	-117.5935
CR1-5	Deer Creek	Lower Deer Creek above Chris Basin	34.0082	-117.5931
Zone 2 (Rotating)				
WCB	Warm Creek	Warm Creek Bypass	34.0857	-117.2908
DRC	Rialto Channel	Rialto Channel	34.0559	-117.3599
ERC	Rialto Channel	East Rialto Channel	34.0994	-117.3439
SBC	SAR Reach 4	San Bernardino Channel	34.0606	-117.3068
WCC	Warm Creek	Warm Creek Channel	34.0656	-117.3073
DRC	Warm Creek	Del Rosa Channel	34.1184	-117.2589
LCSG	Lytle Creek	Lytle Cajon Spreading Grounds	34.1078	-117.3340
Zone 3 (Rotating)				
LOC3-1	Live Oak Canyon Creek	Live Oak Canyon Creek at County Line	34.0046	-117.1228
STC3-2	San Timoteo Creek Reach 1A	San Timoteo Creek at Anderson	34.0614	-117.2626
MCH3-3	SAR Reach 5	Mission Creek Channel at Santa Ana River	34.0743	-117.2711
ZCC3-4	Zanja Creek	Zanja Creek at Interstate 10 Freeway	34.0595	-117.1704
SAR3-5	SAR Reach 5	SAR at Mountain View	34.0857	-117.2427

Table 3-12 Big Bear Lake TMDL Monitoring Sites

Site ID	Site Description	Latitude	Longitude
Watershed-Wide Nutrient Monitoring			
MWDC4	Rathbun Creek at Sandalwood Avenue	34.2531	-116.8874
MWDC5	West Summit Creek at Swan Drive	34.2487	-116.8938
MWDC8	Knickerbocker Creek at Highway 18	34.2440	-116.9105
In-Lake Monitoring			
MWDL1	BBL – Dam	34.2450	-116.9666
MWDL2	BBL – Gilner Point	34.2532	-116.9490
MWDL6	BBL – Mid Lake Middle	34.2520	-116.9218
MWDL9	BBL – Stanfield Middle	34.2572	-116.8989

Table 3-13 MSAR Bacterial Indicator TMDL Monitoring Sites

Site ID	Location	Latitude	Longitude
WW-C3	Prado Park Lake at Lake Outlet	33.9400	-117.6473
WW-C7	Chino Creek at Central Avenue	33.9737	-117.6884
WW-M6	Mill-Cucamonga Creek below Wetlands	33.9268	-117.6250
WW-S1	SAR Reach 3 at MWD Crossing	33.9681	-117.4479
WW-S3	SAR Reach 3 at Pedley Avenue	33.9552	-117.5328

3.4 Data Analysis Summary

The following subsections describe the water quality conditions based on the Core Monitoring and TMDL monitoring data. The attainment of TMDL numeric targets and Basin Plan WQOs is also discussed.

3.4.1 Core Monitoring Data Analysis

Core Monitoring data was evaluated to determine parameters exceeding water quality standards. The Core Monitoring data was compared to the WQOs for each of the receiving waters. A summary of the findings from the monitoring data evaluation are presented in **Attachment D**. The monitoring data were evaluated with TMDL numeric values, Basin Plan WQOs, and CTR standards for each receiving water when data was available. CTR standards for metals were calculated to correlate with the observed hardness values from each respective sampling event. The tables in **Attachment D** identify a ratio of the total number of exceedances to the total number of available analytical data values in instances where monitoring data exceeded WQOs. The data was also compared in five and ten year data sets in **Attachment D**. A majority of the data from Core Monitoring was collected within the last five years with the exception of Permanent Sites 2, 3, 8, and 11. These monitoring sites have the greatest amount of analytical data available.

The evaluation of the Core Monitoring data suggests a majority of exceedances occur during wet-weather monitoring. Core Monitoring Site 2, located within Cucamonga Creek, mainly exceeded indicator bacteria and copper. Site 3 in Cucamonga Channel, Site 8 at SAR Reach 3, and Site 11 at SAR Reach 4 had higher exceedances ratios for Chemical Oxygen Demand (COD) as well as indicator bacteria. Copper, silver, and zinc also have exceeded wet-weather WQOs throughout many of the sampling locations in the

three rotating zones. In comparison to the Core Monitoring sites during the dry-weather monitoring, data shows exceedances of COD and indicator bacteria, which demonstrate consistent exceedances in either hydrologic condition. However, dry-weather monitoring at SAR Reach 3 showed exceedances of sodium. Due to a limited amount of dry-weather sampling events over a short period of time for the rotating sites, comprehensive data was not available to fully assess the dry-weather conditions of receiving waters within the three rotating zones.

Constituents that show a higher exceedance ratio (greater than 50 percent), excluding priority pollutants from the TMDL and CWA 303(d) List, may be considered priority pollutants in the future, as additional data is available to support that determination. Prioritized pollutants guide the implementation efforts in an attempt to meet TMDL numeric targets and improve water quality within the SBC SARW.

3.4.2 Big Bear Lake Nutrient TMDL

As previously discussed in **Section 3.1.2.1**, conditions for BBLN TMDL and the WLAs and LAs are established for dry hydrological conditions only, which are defined by the conditions observed from 1999-2003: average tributary inflow to BBL is less than 3,049 AF, average lake elevation ranges from 6,671 to 6,735 feet, and annual precipitation ranges from 0 to 23 inches.

Dry hydrologic conditions were not met from 2009-2016; therefore, the TMDL numeric targets do not apply. **Table 3-14** summarizes the average concentrations of chlorophyll *a* and total phosphorus based on the BBL TMDL Annual Reports (2015b). Chlorophyll *a* and total phosphorus numeric TMDL objectives in all other hydrologic conditions do not apply until 2020.

The growing season for chlorophyll *a* is from May 1 to October 31; therefore, data outside of this period were not used to calculate the lake-wide averages. Data for total phosphorus were averaged by taking the arithmetic mean of bottom zone and photic zone samples to get a station sampling date average (see **Figure 3-4** for BBL In-Lake Sampling Stations). Station sampling data averages were then averaged again to get the arithmetic mean over the sampling period.

Table 3-14 BBL In-Lake Chlorophyll *a* and Total Phosphorus Average Concentrations

Year	Chlorophyll *a* Growing Season Average[a] Concentration (µg/L)	Total Phosphorus Annual Average[b] (µg/L)
2009[c]	11.3	41.3
2010[c]	8.6	45.4
2011[c]	7.0	35.9
2012[c]	6.7	34.1
2013[c]	17.1	46.7
2014[c]	15.1	67.1
2015[c]	28.2	50.3
2016[c]	41.8	85.9

[a] Lake-wide average during growing season (May 1 to October 31) no greater than 14 µg/L to be attained no later than 2015 (dry hydrological conditions), 2020 (all other times).
[b] Lake-wide annual average no greater than 35 µg/L to be attained no later than 2015 (dry hydrological conditions), 2020 (all other times).
[c] Wet hydrologic condition, TMDL numeric targets do not apply to wet hydrologic conditions.

Although total phosphorus shows a slight increasing trend, efforts have been made to sequester phosphorus. The 2016 BBLN TMDL Annual Water Quality Report recognizes in mid-2015, the City of Big Bear Lake, SBC, and SBCFCD initiated a joint project with BBMWD to apply 1,553 tons (dry weight) of alum to BBL. The project team applied approximately 574,832 gallons of alum slurry to the lake. The project cost of $747,282 was shared between BBMWD, the Areawide Program Permittees, and the Resorts. It is estimated that this amount of alum sequestered approximately 14,100 pounds of phosphorus and rendered unavailable for plant uptake. Combined with the application conducted in 2004, these parties have sequestered over 31,000 pounds of phosphorus.

BBMWD has primary responsibility for implementing the aquatic weed control program and uses a combination of physical harvesting and USEPA-approved herbicides to reduce Eurasion Water Milfoil. In the year 2000, when SARWQCB staff first began working to develop the TMDL, Eurasion Water Milfoil infested more than one-third of the lake (1,000+ acres). By 2014, routine surveys detected this invasive aquatic plant in less than 100 acres, a 99 percent reduction (see **Figure 3-6**). BBL has been consistently meeting the 2020 TMDL target for eradication of Eurasion Water Milfoil since 2013 (Areawide Program, 2015b).

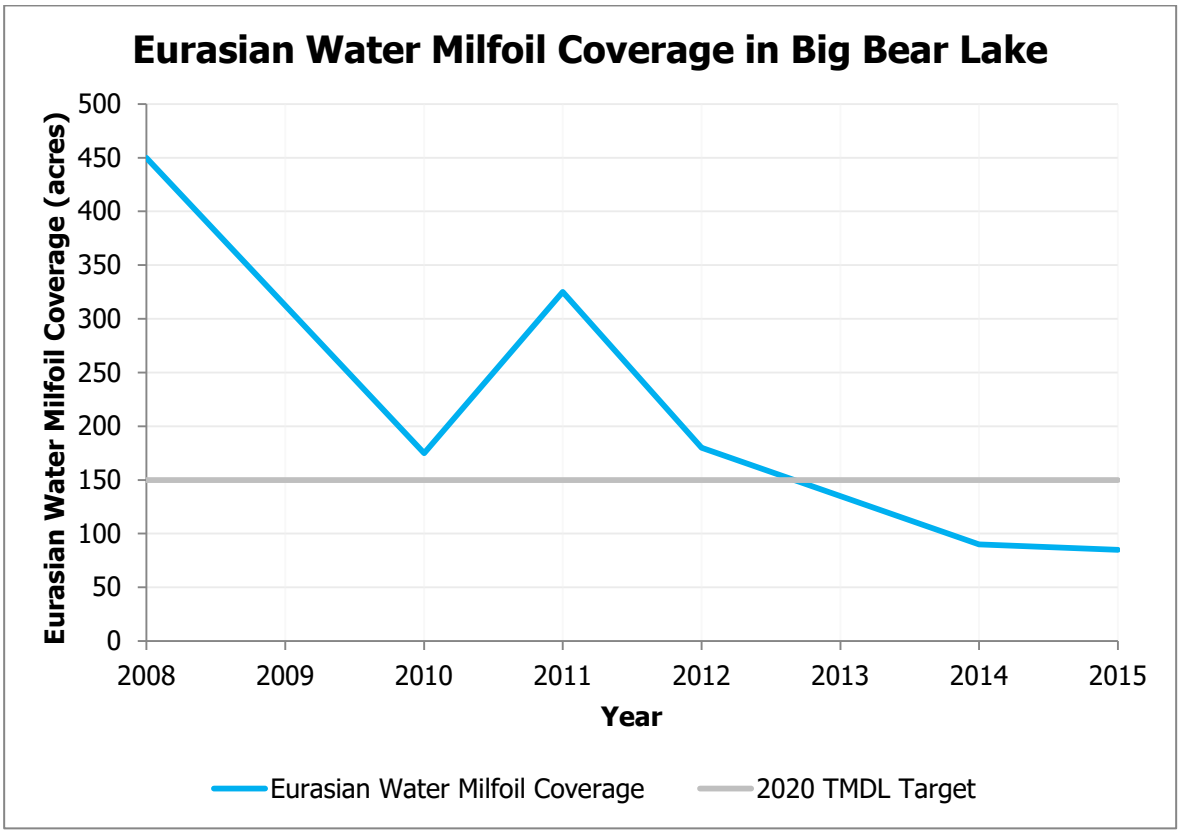


Figure 3-6 Eurasian Water Milfoil Coverage in Big Bear Lake

3.4.3 Middle Santa Ana River Bacterial Indicator TMDL/WLA Monitoring

Stakeholders established the MSAR TMDL Task Force to coordinate TMDL implementation activities designed to manage or eliminate sources of bacterial indicators to water bodies listed as impaired. The TMDL required the establishment of a watershed-wide compliance monitoring program to measure

compliance with numeric targets established by the TMDL, which were derived from Basin Plan objectives established to protect the REC1 beneficial use. The MSAR TMDL Task Force implemented the Santa Ana River Watershed Bacteria Monitoring Program and prepared and submitted the MSAR Water Quality Monitoring Plan and associated Water Quality Assurance Project Plan (QAPP) to the SARWQCB. The TMDL monitoring program was implemented in July 2007, with SARWQCB formal approval in April 2008. Water bodies within the MSAR watershed portion of the SBC SARW and identified in the MSAR Bacterial Indicator TMDL are listed in **Section 3.1.2.2**.

Table 3-15 summarizes the *E. coli* geometric mean criterion exceedance frequency during the 2007-2015 dry seasons. Exceedances were determined based on the REC1 *E. coli* objective of log mean less than 126 organisms/100 milliliters for a 5-day/30-day geomean. The geomean data was prepared using available MSAR Bacterial Indicator TMDL Dry Season Reports and Wet Season Reports. Generally the lowest dry season exceedance frequencies were observed at Prado Park Lake, while Mill-Cucamonga Creek and Chino Creek exhibit the highest exceedance frequencies consistently.

Table 3-15 Frequency of *E. coli* Geomean Exceedances during Dry Seasons

Site	2007[1]	2008	2009	2010	2011	2012	2013	2014	2015
WW-C3 Prado Park Lake	64%	50%	0%	44%	0%	25%	38%	50%	0%
WW-C7 Chino Creek	100%	100%	88%	100%	100%	100%	100%	100%	100%
WW-M6 Mill-Cucamonga Creek	100%	100%	100%	100%	100%	100%	100%	100%	100%
WW-S1 SAR @ MWD Crossing	91%	58%	44%	75%	56%	94%	100%	100%	63%
WW-S3 SAR @ Pedley Avenue	82%	75%	44%	25%	50%	50%	75%	56%	81%

[1] Data retrieved from MSAR Bacterial Indicator TMDL 2010 Triennial Report.

Table 3-16 summarizes the frequency of exceedances based on the proposed *E. coli* objective during the 2007-2008 and 2015-2016 wet seasons. Wet season annual results were variable for Prado Park Lake, SAR at MWD Crossing, and SAR at Pedley Avenue, while the highest exceedance frequencies were consistently observed at Mill-Cucamonga Creek and Chino Creek.

Table 3-16 Frequency of *E. coli* Geomean Exceedances during Wet Seasons

Site	2007-2008[1]	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
WW-C3 Prado Park Lake	53%	70%	82%	73%	45%	9%	0%	45%	53%
WW-C7 Chino Creek	100%	100%	100%	100%	100%	82%	64%	82%	100%
WW-M6 Mill-Cucamonga Creek	100%	100%	91%	91%	100%	100%	100%	63%	100%
WW-S1 SAR @ MWD Crossing	73%	40%	100%	91%	0%	36%	45%	82%	73%
WW-S3 SAR @ Pedley Avenue	63%	40%	82%	100%	100%	36%	36%	27%	63%

[1] Data retrieved from MSAR Bacterial Indicator TMDL 2010 Triennial Report.

3.5 Water Quality Prioritization

Priority pollutants for the SBC SARW were determined based on the number of times a specific pollutant appears on the CWA Section 303(d) List within the SBC SARW, as outlined in **Table 3-17**. The priority pollutants include indicator bacteria, nutrients, and metals (zinc, copper, lead) as identified in **Table 3-18**. The priority pollutants identified in **Table 3-18** are similar to the pollutants identified with a higher percentage of exceedances based on the analyses described above. The TMDL pollutants have been identified as a top priority regardless of the number of times that specific pollutant appeared on the CWA 303(d) List, as a schedule has already been established to address these pollutants in specific water bodies. The number of water bodies impaired (as indicated in the table) was used to prioritize non-TMDL pollutants. Metal constituents were grouped together, which explains why the number of water bodies impaired varies within that prioritization group varies and is not sequential. The top priority pollutant (indicator bacteria) was incorporated into the Stormwater Management Objectives (**Section 1.5**), as further described below **Table 3-18**.

Table 3-17 2016 CWA 303(d) List of Impairments within SBC SARW Priorities

Water Body	Cadmium	Chlordane	COD	Copper	DDT	Lead	Mercury	Noxious/ Nuisance Aquatic Plants	Nutrients	Indicator Bacteria	PCBs	pH	Sediment/ Siltation	TSS	Zinc
BBL		X			X		X	X	X		X				
Chino Creek Reach 1A									X	X					
Chino Creek Reach 1B			X						X	X					
Chino Creek Reach 2										X		X			
Cucamonga Creek Reach 1	X			X		X				X					X
Cucamonga Creek Reach 2												X			
Grout Creek									X						
Knickerbocker Creek										X					
Mill Creek (Prado Area)									X	X				X	
Mill Creek Reach 1										X					
Mountain Home Creek										X					
Mountain Home Creek, East Fork										X					
Prado Park Lake									X	X					
Prado Flood Control Basin												X			
Rathbone (Rathbun) Creek	X			X					X				X		
San Antonio Creek												X			
San Timoteo Creek Reach 1A										X					
San Timoteo Creek Reach 2										X					
Santa Ana River Reach 3				X		X				X					
Santa Ana River Reach 4										X					
Santa Ana River Reach 6	X			X		X									
Summit Creek									X						
Warm Creek										X					
Total	**3**	**1**	**1**	**4**	**1**	**3**	**1**	**1**	**8**	**15**	**1**	**4**	**1**	**1**	**1**

Table 3-18 Prioritization of Pollutants within the SBC SARW

Priority Ranking	Pollutant Listed on CWA 303(d) List	TMDL	Total # Water Bodies Impaired
1	Indicator bacteria	X	15
2	Noxious (nuisance) aquatic plants	X	1
3	Nutrients	X	8
4 (Metals)	Cadmium		3
	Copper		4
	Lead		3
	Mercury		1
	Zinc		1
5	pH		4
Not Priority	Chlordane		1
	COD		
	DDT		
	PCBs		
	Sediment		
	TSS		

The priority ranking indicates that indicator bacteria is the highest priority of pollutants within the SBC SARW. Indicator bacteria was incorporated into the stormwater management objectives for the entire SBC SARW, as indicated in **Table 1-1**, because it is the highest priority pollutant within the SBC SARW. Indicator bacteria is also associated with the Santa Ana River Bacteria TMDL, which has a deadline for implementation. Using indicator bacteria as a stormwater management objective is a sensible choice for a watershed-wide priority because every possible project within the SBC SARW drains to a water body impaired by indicator bacteria (Chino Creek, Mill Creek – Cucamonga Creek, Prado Park Lake, or Santa Ana River Reach 3). Other pollutants were not included in the stormwater management objectives of SBC SARW because the impairments are of a lower priority or because their impacts are less widespread. However, projects that reduce the pollutant loading of indicator bacteria on impaired watersheds also reduce the pollutant loading of other lower-priority pollutants.

3.6 Contributors to Surface Water Impairments

Dry-weather runoff and stormwater have been characterized as a major source of pollution to the nation's waterways. Various activities within the SBC SARW are identified as potential pollutant sources contributing to water body impairments. This section discusses the priority pollutants impairing the water bodies within the SBC SARW, provides a summary of potential contributors of these pollutants in dry-weather and stormwater runoff, and summarizes the correlation between land use types and pollutant generation. Priority pollutants within the SBC SARW are presented in **Table 3-18**. Potential contributing sources for these priority pollutants include urban development, industrial activities, and agricultural lands, as further discussed below.

Indicator Bacteria/Pathogens

Sources of indicator bacteria within the SBC SARW may be associated with runoff from a mix of urban, agricultural, and open space areas. During dry-weather, receiving water bodies accept nuisance non-stormwater discharges from urban areas. Urban areas contribute to the growth of indicator bacteria within the receiving waters through the discharge of trash, pet waste, and/or sewage leaks. Agricultural areas contribute to indicator bacteria through livestock auction lots and confined feeding operations. Discharges from these agricultural land use areas may include stormwater runoff from manured areas, process wastewater from agricultural operations, and tailings from irrigation of agricultural lands. In the MSAR, the remaining agricultural area is formerly known as the Chino Dairy Preserve, which contains approximately 300,000 cows that can generate the waste equivalent of over two million people. During wet-weather conditions, agricultural land uses are likely to be a major contributor to indicator bacteria.

Nutrients and Noxious (Nuisance) Aquatic Plants

Sources of nutrients (nitrogen and phosphorus) include ubiquitous atmospheric deposition, animal waste, fertilizer use, and soil erosion generated by dairies and other agricultural land uses. Specific regions within the SBC SARW with increased nutrient loads as a result of these sources are the BBL, Cucamonga Channel (lower), Cypress Channel (lower), and San Antonio Channel (lower) Subwatersheds. These areas are also becoming urbanized with increased fertilizer use, yard and pet waste, and car washing activities. These activities also contribute to an increase in nutrient transport that enter the MS4 in dry- and wet-weather runoff and lead to eutrophication in water bodies. Nutrients deposited in the water body can be re-suspended in the water column and become available for biological uptake. Nutrients are also bound in living and dead organic material. Excessive nutrients associated with sedimentation in BBL has led to increased macrophyte (noxious aquatic plants) and algae production, which has adverse effects on aquatic habitat and recreation. Decomposition of the organic material consumes oxygen, resulting in depleted oxygen levels in the water column and can lead to periodic fish kills in BBL.

Metals

Metals loadings vary depending on the seasons; as noted in the Los Angeles Region Regional Water Quality Control Board's Los Angeles River Metals TMDL Basin Plan Amendment (2015), metal loadings during dry-weather are mostly dissolved and attributed to Publicly-Owned Treatment Works (POTWs) that discharge to receiving waters and the MS4 in the form of low-volume non-stormwater discharges from urbanized areas. During wet-weather, metals loadings come in the form of particulates and are normally transported into receiving waters through MS4 stormwater runoff (LARWQCB, 2015). As the tributary areas of Cucamonga Creek Reach 1 and the SAR become more urbanized, metallic loading into receiving bodies through stormwater runoff can be expected to increase. Additionally, metals loadings can occur through atmospheric deposition from paved and unpaved road dust, tire wear, construction dust, timber/brush fires, or other anthropogenic sources (LARWQCB, 2015). These metals are either directly deposited into the receiving water, or more likely, the atmospheric deposition of metals occurs over land surfaces which is later washed into receiving waters by dry-weather runoff and/or storm events. Increased urbanization, and the associated construction activities, can attribute to sediment and metal loading. Metals are known to bind themselves to sediments and may be disturbed from the receiving water's bottom, or the water body's highly erosive tributary area, and transported throughout the watershed during dry- and wet-weather events. Atmospheric deposition of metals and its adsorption to sediment can also be considered a likely source.

Mercury

The mercury impairment in BBL originates from atmospheric deposition, attributed to coal-fired power plants, steel recycling facilities, waste incinerators, cement and lime kilns, smelters and gold mine roasters, pulp and paper mills, and chloralkali factories, as identified in the Big Bear Lake Technical Support Document for Mercury TMDL (2008). It should be noted that this TMDL was never approved. Despite the distance of these facilities being 200 miles away, gaseous elemental mercury [Hg(0)] remains in the atmosphere and contributes to long range transport. Divalent mercury [Hg(II)] is highly soluble and has a tendency to attach to particles. Divalent mercury [Hg(II)] redeposits relatively close to the source, usually within 100 miles. The top five facilities that produce mercury fall under two types, cement manufacturing facilities (four facilities) and one oil refinery. In 2006, 40 percent of total reported mercury emissions in Southern California were attributable to a cement manufacturing company, located approximately 100 miles from the watershed. During wetter years, dissolved loading associated with storm event runoff is assumed to dominate mercury loading to BBL. During dry and normal precipitation years, dry deposition to the lake surface constitutes the majority of loading.

A direct geological source of mercury is also attributable to mineralized areas along fault lines. While BBL Watershed is located in the Transverse Range of the San Bernardino Mountains on the east side of the San Andres Fault, naturally elevated mercury levels have not yet been confirmed. However, potential sources of mercury have been associated with dredging of BBL and the sedimentation basins located at the mouth of associated tributaries. Dredging in BBL is assumed to stir up and distribute methylmercury buried within the sediment. Methylmercury is easily taken up by organisms and bioaccumulates at each trophic level. Fish in BBL have accumulated unacceptable tissue concentrations of mercury even though the ambient water quality standard is met. Other indirect geological sources can stem from historic gold mines in the southwest quadrant of San Bernardino County, and also from brief historical prospecting activities that occurred north and east of Bear Valley.

pH

Water bodies within the SBC SARW area with pH impacts include Chino Creek Reach 2, Cucamonga Creek Reach 1, San Antonio Creek, and the Prado Flood Control Basin. Water bodies impacted by pH are considered to have either low or high pH. The SBC SARW water bodies exceeded pH for both high and low pH, as indicated in **Attachment D**. The Basin Plan indicates water bodies are considered to have low pH when the pH is below 6.5. Source discharge that can contribute to low pH include mine wastes, historic mine sites, acid-generating rocks/soils, industrial plants and other sources of acidic gases, coal pile runoff, industrial effluents, landfill leachate, confined animal feeding operations, dairy runoff, instream oxidation or reduction processes, and recent draining of naturally inundated wetlands or floodplains (USEPA, 2016). A water body is considered to have a high pH, if pH exceeds 8.5 for prolonged periods of time or with high frequency. High pH is less common than low pH as anthropogenic sources are more often acidic than basic. High pH can be caused by discharges from industries that use lime, lye, or sodium hydroxide (NaOH); from agricultural runoff of fertilizers high in lime; and/or industrial landfill leachates that contain solvents or lye. In particular, cement, asphalt, and soap manufacturing may be sources of high pH due to the use of lime or lye. Runoff from limestone gravel roads may increase pH. High pH can be caused in rare cases by natural conditions and mineralogy such as weathering of chalk rock high in carbonates or olivine basalts; however, even in these cases, it is rare for stream pH to exceed 9.5. Leaching of naturally alkaline rocks and soils is exacerbated by physical disturbances such as tilling, mining, and construction. An additional cause of elevated pH is high

photosynthetic activity, which removes carbon dioxide from water favoring equilibrium toward carbonate and a higher pH (USEPA, 2016).

3.6.1 Land Use Type and Potential Pollutants

Urban and stormwater runoff from pervious (lawns, landscaping, parks, construction sites, vacant fields, etc.) and impervious areas (streets, parking lots, storage yards, roofs, etc.) delivers accumulated constituents and pollutants (metals, bacteria, fertilizers, hydrocarbons, etc.) to the MS4 and receiving waters. Although admittedly broad-brushed and variable, past studies suggest that some land use types are greater sources of specific pollutants than others. Manufacturing and industrial facilities have often been reported to generate high concentrations of industrial pollutants, such as metals and oils, while commercial areas are often reported to produce trash or bacteria, and residential areas are associated with nutrients and bacteria. Correlations between land use and potential pollutant generation are presented in **Table 3-19**. This correlation may provide insight as to whether projects/programs proposed in the SWRP at future development stages will result in a pollutant load reduction that benefits a known impairment based on the land use types within the tributary area. The information presented in the table is based on various sources, mainly the California Stormwater Quality Association (CASQA) Stormwater Best Management Practice Handbook: New Development and Redevelopment (2003) and A User's Guide for Structural BMP Prioritization and Analysis Tool (SBPAT) Technical Appendices (2008).

Table 3-19 Correlations Between Land Use Type and Pollutant Generation

Land Use Types	General Pollutant Categories								
	Trash & Debris	Sediments	Nutrients	Oil & Grease	Organic Compounds	Pathogens	Heavy Metal	Oxygen Demanding Substances	Pesticides
Agriculture		X	X			X	X	P(1)	X
Commercial	X	P(1)	P(1)	X	P(2)	P(4)		P(5)	P(5)
Education	X	P(1)	P(1)	P(2)	P(2)	P(4)		P(1)	X
Industrial	X	P(1)	P(1)	X	P(2)	P(4)		P(5)	P(5)
Multi-Family Residential	X	X	X	P(2)		P		P(1)	X
Single Family Residential	X	X	X	X		X		X	X
Transportation	X	X	P(1)	X	X(3)		X	P(5)	
Vacant		X	X			P			

X = Anticipated; P = Potential

(1) A potential pollutant if landscaping exists onsite

(2) A potential pollutant if the project includes uncovered parking area

(3) Including petroleum hydrocarbons

(4) A potential pollutant if land use involves food or animal waste products

(5) Including solvents

3.7 Potential Strategies to Address Water Quality Priorities

This section presents a catalog of stormwater and dry-weather runoff capture project types most effective in addressing priority pollutants. Projects and programs that provide multiple benefits, specifically water quality, water supply, flood management, environmental, and community benefits, were identified and prioritized in **Section 6**. The list of project types included herein are intended to address water quality. Projects related to other benefit categories, such as water supply, flood management, environmental, and community, are not discussed below; however, those project types may be enhanced by including stormwater strategies summarized below to provide multiple benefits. The following project types are further detailed within this section:

- Surface infiltration basin
- Underground cistern
- Subsurface infiltration system
- Extended retention wetland
- Seasonal dry detention pond
- Constructed/subsurface flow wetland
- Low-flow diversion pump station
- Sand and media filter
- Membrane filtration
- Ion exchange
- Bioretention planter/rain garden
- Rain barrel
- Infiltration pit/drywell
- Infiltration trench
- Porous/pervious pavement
- Green roof
- Green street
- Connector pipe screen
- Automatic retractable screen
- Hydrodynamic separation device

Details provided below are based on new stormwater projects. Retrofit opportunities may also exist, which are not described in detail below.

Surface Infiltration Basin

Surface infiltration basins make an important contribution towards groundwater management. A key characteristic of these basins is placement over alluvial soils that allow rapid drawdown following a storm event. Careful planning, along with multiple infiltration tests, should be conducted to verify site specific infiltration capabilities. Surface infiltration basins require a larger footprint on the surface as compared to other BMPs. Maintenance of surface infiltration facilities typically requires removal of accumulated sediment and maintenance of vegetation.

Underground Cistern

For areas were infiltration is deemed infeasible, capture and use projects are most favorable, which can be supported using underground cisterns that temporarily store the runoff until needed for non-potable use such as for irrigation. These systems can take many forms such as below grade water tanks, medium sized modular precast concrete units, or very large precast bridge or arch structures. Modular units are installed over a water proof geotextile to retain the water within the cistern. Holding times are a concern with underground cisterns and vector control measures should be implemented if holding times are greater than 72 hours. Additionally, the Department of Public Health may have specific criteria for blended irrigation systems which should be reviewed during the preliminary design period. Well placed access points are necessary to perform the required maintenance, which includes sediment and debris removal using a vacuum truck. Underground storage systems may also be used to support diversion to the sanitary sewer or treatment facilities.

Subsurface Infiltration System

In areas where infiltration is favorable, a similar subsurface cistern design can be used, except the geotextile is omitted so that the runoff may infiltrate into the ground below the cistern and be naturally filtered before recharging the groundwater table. Multiple infiltration tests must be conducted to verify site specific infiltration capabilities, as this BMP requires adequate infiltration to allow the system to drain within 72 hours. Alternatively, vector controls may be implemented to avoid vector concerns. These systems can be implemented with little to no surface area available, which is often desirable when there is limited open space. Maintenance of subsurface infiltration facilities is comparable to the maintenance required for underground cisterns.

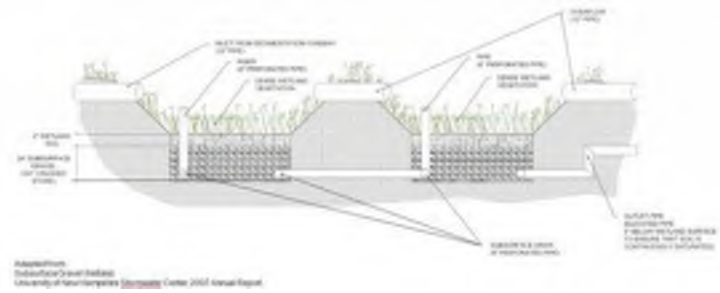
Extended Retention Wetland

Extended retention wetlands are favored where rainfall or runoff is present year round so that replenishment water is available to maintain the wetland and aquatic life. They must also discharge when large storm events or storm event series are encountered. Water depths in extended retention wetlands are greater than depths seen in subsurface flow wetlands; therefore, the area requirements are lessened and there is a significant risk of the water becoming stagnant and overgrown with algae mats. Depending on the anticipated rainfall depth, the volume required for retention could be excessively large, demanding a large wetland area. Maintenance typically requires vegetation management and sediment removal.

Seasonal Dry Detention Pond

Seasonal detention ponds are an effective method for detaining runoff so that it can be metered out through secondary treatment, such as a bioswale, sand filter, or media filter. They are also effective in avoiding damage associated with hydromodification or flooding due to limited downstream conveyance capacity. Maintenance for detention ponds consists of sediment removal and vegetation management.

Constructed/Subsurface Flow Wetland



Unless extensive land area and substrate is available, subsurface flow wetlands are generally reserved as a tertiary treatment or polish for the effluent from wastewater treatment facilities, but can be utilized in relatively small catchments where nutrients are a significant issue. The design is generally based on either a relatively dependable and consistent inflow or the ability to primarily function in detention rather than extended retention. They may also be practical for remediation of dry-weather and very low first flush runoff drainage systems, so long as higher flows may be diverted away. They are impractical where water depths of over a few feet would be present for more than 72 hours. Maintenance of subsurface wetlands is similar to that of constructed wetlands with additional activities related to maintaining media layers and subsurface piping.

Low-Flow Diversion Pump Station

Low-flow diversion pump stations are operationally straight forward, but connection to the sanitary sewer system can be problematic due to capacity issues, connection limitations, treatment costs, and unexpected prohibitions due to changes in the water quality. Low-flow diversion pump stations are effective at diverting dry-weather flows. Typically, they are constructed adjacent to manholes and are slightly deeper than the adjacent drainage channels such that low-flow runoff is diverted. It is possible to use the low-flow diversion in connection with a detention basin where larger flows can be held during a storm event and/or larger dry-weather events are slowly discharged to the sanitary sewers for treatment. Maintenance for low-flow diversion pump stations can be more expensive than non-mechanical BMPs, as pumps require more specialized maintenance.

Sand and Media Filter

Surface, or Austin sand filters, are at ground-level and typically earthen. They are easy to maintain, but have a large footprint. Perimeter, or Delaware, sand filters consist of two parallel trench chambers located in concrete vaults below an impervious surface, such as a parking lot. Media filters detain and treat stormwater via filtration and adsorption of pollutants to the filter media. Media filters containing both organic and mineral filtration materials generally have greater ion exchange capacity than sand filters, and therefore can more effectively remove soluble metals and other dissolved pollutants. This

renders media filters particularly effective for roadways and highly industrial sites that contribute higher concentrations of metals to stormwater runoff, particularly zinc and copper. Maintenance of sand and media filters requires sediment and debris removal and replacement of the filters as necessary.

Membrane Filtration

Membrane filtration water treatment systems use semi-permeable membranes under high pressure to exude clean product water, leaving behind a brine with the pollutants. The higher pressure membrane types such as reverse osmosis or ultra filtration are highly effective at removing dissolved contaminants, while lower pressure systems filter bacteria and viruses. These systems usually require pretreatment as particulate matter can foul the ion selective membrane and reduce performance. Operation and maintenance costs associated with membrane filtration are high due to the large consumption of energy required for filtration.

Ion Exchange

Ion exchange is a polishing step that specifically targets polar dissolved constituents, such as sulfate. Pretreatment is required prior to ion exchange as suspended solids will clog the exchange columns. Ion exchange systems can be used to treat stormwater from pollution generating impervious surfaces at the end of pipe using a pump system. They are also commonly used to treat contaminated groundwater. Operation and maintenance costs associated with ion exchange are high due to the large consumption of energy required to run an exchange system.

Bioretention Planter/Rain Garden

Bioretention is a promising solution that relies on inundation tolerant vegetation and native or engineered soils with high organic content, to capture, infiltrate, and transpire runoff, while retaining pollutants. If designed properly, especially where native soils are sufficiently permeable and without other constraints to infiltration, rain gardens and larger bioretention facilities can be aesthetic amenities in addition to being cost-effective and scalable stormwater retention sites that are easily integrated into highly urbanized retrofit projects. The planters must be flat and require maintenance such as weeding, trimming, and the replacement of dead plants. These BMPs can be used as infiltration BMPs if soil testing demonstrates suitable rates, otherwise, underdrains can be used and the BMP would be considered a biotreatment BMP.

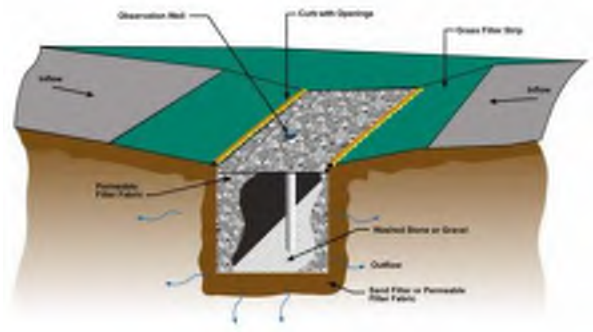
Rain Barrel

Rain barrels hold roof runoff, usually delivered by rain gutters and downspouts, and store the water for later use. Screen installations at the downspout inlets prevent sediment, leaves, debris, and mosquitoes from entering the rain barrel. Rain barrels are easily constructed for aesthetic purposes to compliment adjacent structures. Overall, maintenance requirements are minimal and include frequent visual inspections during the storm season and removal of accumulated sediment or debris. When effectively designed to capture and contain the runoff from a rooftop structure, a rain barrel can prevent runoff from small frequency storm events from ever leaving the property. This will reduce onsite water usage and the amount of pollutants that may potentially be carried offsite. This BMP can be implemented throughout residential areas.

Infiltration Pit/Drywell

Infiltration pits are typically constructed by digging pits sized to accommodate the runoff source and design storm, lined with geotextile filter fabric, and filled with gravel or aggregate. Infiltration testing will be required to verify infiltration is feasible. The retention volume can be increased using various open retention systems or large diameter plastic half pipes in addition to the aggregate. The surface can be open to accept incoming runoff. A drywell is operationally similar to an infiltration pit, but larger and more formally constructed. Pretreatment techniques are recommended to prevent clogging and maintain infiltration. A drywell can be bored, drilled, a driven shaft, or a dug hole that is deeper than its widest surface dimension, it may be classified as a Class V injection well and requires permitting through the USEPA. Maintenance typically includes removal of sediment and debris from the pretreatment system and monitoring and maintaining adequate infiltration.

Infiltration Trench



An infiltration trench is a shallow impoundment over permeable soil that holds and stores runoff until infiltration can occur, using the natural filtering ability of the soil, or other media such as gravel/sand, to filter out pollutants. Infiltration testing will need to be performed to verify infiltration is feasible. This BMP is effective at retaining sediment associated pollutants, but can become clogged, requiring removal of the upper media. Use of a vegetated swale, or other pretreatment methods, will extend the systems longevity and reduce maintenance costs.

Porous/Pervious Pavement

Porous/pervious pavement allows rainfall to drain into an aggregate bed or structural retention unit where it is stored until infiltration can occur. There are many pervious pavements including porous concrete, plastic grid systems, interlocking paving stones, brick, grass pavers, gravel pavers, and crushed stones. These materials allow for onsite infiltration that efficiently filters out pollutants. Infiltration rates of the native soil are a key element to the overall design and will need to be verified with infiltration testing. This type of BMP can be used to disconnect directly connected impervious areas such as rooftops and parking lots. Vegetated runoff should not drain onto the pervious pavement as it may clog the system and require more frequent maintenance. Permeable pavements may be used in many locations where conventional pavements are used, such as parking lots, driveways, and walkways. Areas with the potential for spills, such as gas stations, should be avoided. Using proper maintenance techniques, pervious pavement can remove a significant portion of pollutants in stormwater runoff and reduce pavement ponding. If infiltration is not supported within a site, underdrains may be used in combination with the pervious pavement section to support a treatment type BMP.

Green Roof

Green roofs are appropriate in some climates, but may be challenging to maintain or support in areas with a risk of brush fires and little annual rainfall. Intensive systems have large depths and cover much of the roof while extensive systems feature minimal plantings that require little maintenance. Green roofs enhance water quality, reduce runoff, and are visually appealing as a rest area above office buildings. The amount of stormwater that a green roof can contain is proportional to the area of coverage, types of plants, slope, and many other factors. Green roofs can be constructed during the building's construction phase or included as a retrofit. When retrofitting, it must be noted that the building needs to support the weight of the green roof under fully saturated conditions. A waterproof membrane should be laid over the building to protect it from structural damage and overflow should be addressed through a drainage layer. Green roofs also provide insulation, help reduce building temperatures during summer months, and counter the heat island effect.

Green Street

Green street design is strongly encouraged and can take many forms, such as an inverted street cross section with a vegetated low center median, vegetated curb extensions, parkways that trap and hold gutter flows, or planter boxes connected to the gutter and filled with highly porous soil and appropriate vegetation. Green streets are most successful in areas were sediment generation is limited or can be accommodated by pretreatment through a bioswale. Porous concrete may be used to construct gutters so that flows may infiltrate. Green streets may include a combination of the BMP types described in this section that can be placed within a street's right-of-way.

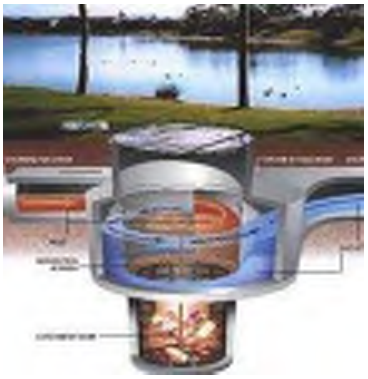
Connector Pipe Screen

While several devices have been certified as meeting the definition of FCSs, one commonly installed device is a connector pipe screen. These screens are typically made from stainless steel mesh, with five millimeter openings, that stretch in front of the lateral or outlet from a catch basin and are secured to the walls and floor of the catch basin, with an opening above the screen that is greater in area than the outlet. During most events, runoff will flow through the screen leaving the trash upstream of, or on, the screen. During high intensity storms or if the mesh becomes occluded, runoff can flow over the screen and drain from the catch basin to prevent flooding. Approximately 75-90 percent or more of catch basins can be retrofitted with this device. While regular maintenance to remove debris trapped on and on the upstream side of the screen is required, the intensity of maintenance is correlated with the amount of trash and debris collected. Implementation is relatively straight forward. In locations where the trash load results in excessive maintenance costs, or to provide additional efforts to reduce trash, many jurisdictions also install automatic retracting screens, as further detailed below.

Automatic Retractable Screen

An automatic retractable screen extends across the opening or "mouth" of a catch basin and traps trash and debris at street level where street sweepers or hand crews may remove the trash before it can enter into the catch basin or drain. The screens will open or retract to allow larger flows and trash to enter the catch basin and be trapped on the connector pipe screen to avoid flooding and reduce maintenance costs. Areas that generate sufficient trash and debris to warrant the use of an automatic retractable screen in combination with a connector pipe screen are usually also subject to enhanced street sweeping on a weekly or even more frequent basis.

Hydrodynamic Separation Device



Hydrodynamic separation devices such as a Continuous Deflection Separator (CDS) unit can be used to remove trash from runoff and serve as a pretreatment device for many of the BMPs previously discussed. A CDS unit effectively screens, separates, and traps debris, sediment, oil, and grease from stormwater and urban runoff. As flows travel through the system, a very fine screen deflects the pollutants, which are captured in a litter sump in the center of the system. The water velocities within the swirl chamber continually shear debris off the screen to keep it clean. CDS units are ineffective in removing soluble pollutants and smaller, less-settleable solids. It is recommended that the CDS unit be inspected at least once every thirty days after the wet season. Floatables should be removed and the sump cleaned out. It is also recommended that the CDS be pumped out and the screen inspected for damage at least once per year.

4. Organizations, Coordination, and Collaboration

Many different types of local agencies can directly benefit from projects that address stormwater. These beneficiaries have the potential to be partners and/or collaborators. This section discusses the organizations that the SBCFCD coordinated and collaborated with and/or will need to coordinate with during SWRP implementation. This section also describes what came out/will come out of that coordination and collaboration.

4.1 Local IRWMP

The OWOW 2.0 Plan was prepared by SAWPA and is the current SARW IRWMP. SAWPA spans three counties in Southern California and seeks to provide a collaborative planning process that addresses various aspects of water resources in the SARW. The plan includes an approach for identifying and prioritizing multi-benefit projects and programs, presents innovative solutions, and addresses other water resource related issues.

SAWPA has a planned OWOW Plan update scheduled for 2018. The SBCFCD has been in coordination with SAWPA in an effort to maintain consistency between the OWOW Plan and this SWRP. The geographic focus of the SBC SARW SWRP is limited to the uppermost reaches of the SAR and its tributaries in SBC. The SBC SARW SWRP will be submitted to SAWPA for incorporation into the OWOW Plan, as required based on the SWRP Guidelines (SWRCB, 2015).

4.2 SWRP Consistency with other Plans and Programs

Various plans and programs relevant to this SWRP have been prepared by SBC, local agencies, groups of agencies, and regulatory entities. These documents were reviewed as part of the SWRP development in an effort to maintain consistency and identify opportunities for partnerships and aligning programs. An Annotated List of Data and Reports Technical Memorandum was prepared summarizing the following planning and reference documents and is included in **Attachment A**.

- Integrated Water Management Plans
  - SAWPA's OWOW 2.0 Plan (2014)
  - IEUA's Integrated Water Resources Plan (2016c)
  - SBVMWD's Upper SAR Watershed IRWMP (2015)
  - WMWD's Updated Integrated Regional Water Management Plan (2008)
- Water Quality and Monitoring Plans
  - Basin Plan (SARWQCB, 2005)
  - BBL Watershed-Wide Nutrient Monitoring Plan (SBCFCD, 2012)
  - Comprehensive Bacteria Reduction Plan (CBRP) (SBCFCD, 2011)
  - Hydromodification Management and Monitoring Plan (SBC Areawide Program, 2013a)
  - Integrated Watershed Monitoring Program (SBC Areawide Program, 2011)
  - SARW Bacteria Monitoring Plan (SAWPA, 2016)

- San Bernardino County Stormwater Planning
  - SBC Watershed Action Plan (SBC Areawide Program, 2013c)
  - Technical Guidance Document for Water Quality Management Plans (SBC Areawide Program, 2013b)
  - Municipal Stormwater Management Plan (SBC Areawide Program, 2015a)
- Urban Water Management Plans (UWMPs)
  - IEUA and Water Facilities Authority's 2010 UWMP (2010)
  - SBVMWD's San Bernardino Valley Regional UWMP (2016)
- Other Planning Documents
  - Chino Basin SWRP Functional Equivalency Document (IEUA, 2016a)
  - Chino Basin Watermaster and IEUA's Recharge Master Plan Update (2013)
  - San Bernardino County Department of Public Works (SBCDPW) Master Plans of Drainage
  - SBCDPW's Comprehensive Storm Drain Plans

4.3 Contribution from Local, State, and Federal Agencies

Local, state, and federal agencies, along with NGOs, were consulted during the development of the SBC SARW SWRP. The section below and **Section 8** identify different audiences (agencies and organizations) that were reached out to during the SWRP development, either as part of the Technical Advisory Committee (TAC) and/or stakeholder outreach events. These audiences included elected and appointed officials, municipal and county staff, watershed groups, local water agencies, and NGOs. Multiple events were held during the course of the planning process to gain input from local agencies and NGOs. These events are described further in **Sections 4.4**, **4.5**, and **4.6**.

Section 6 demonstrates that many project partnerships identified in the SWRP involved the SBCFCD and local water agencies. In most cases, agreements are in place between the SBCFCD and the local water agencies, which will allow projects to be more easily implemented, as new agreements are not required. In instances where new agreements are required, the responsible and partnering parties will negotiate terms and develop agreements prior to project/program implementation. New governance structures are not anticipated.

It is not anticipated that local, state, and/or federal regulatory agencies will be required to make decisions during the SWRP implementation phases, except in reference to various permitting requirements that may be applicable, some of which are discussed in **Section 1.3**. Existing monitoring efforts have been approved by local regulatory agencies and will not be altered based on SWRP implementation.

4.4 Technical Advisory Committee

Local agencies and NGOs were invited to form the TAC to support the development of the SBC SARW SWRP. Expert advice and technical support was solicited from the TAC throughout SWRP development. The SWRCB, SARWQCB, and other interested parties were invited based on proximity to the SBC SARW, involvement in similar efforts (watershed planning, multi-benefit projects, etc.), and existing relationships/partnerships. TAC member attendees include the Chino Basin Water Conservation District (CBWCD), IEUA, SARWQCB, SAWPA, SBCDPW, SBCFCD, SBVMWD, and WMWD. **Table 4-1** summarizes

the roles and responsibility of each agency, including those agencies/organizations which were invited, but did not participate in the TAC.

Table 4-1 TAC Roles and Responsibilities

Agency	Status	Role/Responsibility
Bureau of Reclamation	Unable to Participate	Not applicable
CBWCD	Active	Guidance on water accounting and project selection
IEUA	Active	Guidance on water supply, wastewater, recycled water, and joint use project selection
Riverside County Flood Control and Water Conservation District	Invited, No Response	Not applicable
SARWQCB	Active	Guidance on permit requirements and project selection
SAWPA	Active	Guidance on regional water and project selection
San Bernardino County Department of Public Works, NPDES	Active	TAC lead
SBCFCD, Flood Planning	Active	Guidance on flood control and project selection
SBVMWD	Active	Guidance on water supply, groundwater recharge, and project selection
WMWD	Pending	Guidance on groundwater recharge in service area and project selection

A kickoff meeting was conducted on April 12, 2017, followed by three additional meetings, all of which were hosted by the SBCFCD at the SBCDPW building. The kickoff meeting was convened to develop the SWRP water management goals and objectives, formalize roles and responsibilities, and develop scheduling for future meetings. Each TAC member holds the responsibility to represent their agency and provide information related to their agency, as it relates to the SWRP. TAC members were asked to identify documentation, references, and data that would be beneficial in supporting the development of the SWRP. At each meeting, TAC members provided input at major milestones of the SWRP, including project identification, project prioritization, and the draft SWRP. **Table 4-2** summarizes the TAC meeting schedule and purpose, which includes the kickoff meeting and three additional meetings.

Table 4-2 TAC Meeting Schedule and Purpose

TAC Meeting	Schedule	Purpose
Kickoff Meeting	April 12, 2017	➢ Present background/overview of SBC SARW SWRP ➢ Define roles and responsibilities ➢ Discuss water management goals and objectives ➢ Outline TAC involvement and schedule
Meeting #2 (Quantifiable Benefits and Projects)	July 6, 2017	➢ Examine quantifiable benefit goals and targets to be included in the SWRP ➢ Review multi-benefit projects identified in other planning documents that may be included in the SBC SARW SWRP ➢ Identify data needed for projects to quantify benefits

TAC Meeting	Schedule	Purpose
Meeting #3 (Projects)	September 28, 2017	➢ Present/discuss results associated with benefit quantification for example projects ➢ Collaborate on project concepts ➢ Evaluate opportunities to enhance projects to provide additional benefits
Meeting #4 (Draft SWRP)	April 25, 2018	➢ Walk through the Draft SBC SARW SWRP ➢ Discuss structure and key sections ➢ Solicit feedback, comments, questions, and suggestions

4.5 Public Engagement

It is important that the public is aware of the efforts made by the SBCFCD to development the SWRP and are in support of the development and implementation. Their involvement provides meaningful input and ideas that will contribute to the proposed implementation. A Stakeholder and Public Outreach, Education, and Engagement Plan (SPOEEP) was prepared in the early stages of the SWRP development to identify the approach to involve and engage the public. A copy of the SPOEEP is included in **Attachment E**.

Public participation was provided for during the SWRP development in accordance with the SPOEEP. Community participation was most directly accomplished through the public outreach event, which was held following the SWRP Draft development on July 24, 2018. **Section 8.3** discusses the public outreach event in more detail. Additionally, community participation was accomplished through printed materials, development of a SWRP webpage, and through promotion on social media. The SBCFCD solicited public involvement through invitations on social media and distributed print materials for public feedback and review.

4.6 Stakeholder Engagement

The SBCFCD sought opportunities to partner with local stakeholders in the development of this SWRP, project identification/prioritization, and future implementation. Stakeholders participated in the TAC and also attended stakeholder outreach events. Similar to the public engagement discussed above, the stakeholder outreach events were performed in accordance with the SPOEEP included in **Attachment E**. The SBCFCD utilized stakeholder events to solicit technical information and identify projects that include partnerships with the SBCFCD. Potential participants were invited to the stakeholder events held on August 30 and 31, 2017. Educational materials were provided during the stakeholder presentation and comments cards were available for attendees to leave feedback. Additional information is included in **Section 8.2**.

5. Quantitative Methods

The stormwater management objectives for the SBC SARW will be met through various multi-benefit projects located within the SBC SARW. This section presents the approach taken to develop quantitative methodologies for integrated identification, prioritization, and analysis of multi-benefit projects and programs. An overview is provided, which summarizes the applicable Water Code requirements, which provides a context. Existing hydrologic/hydraulic models, water quality models, and other GIS and spreadsheet-based decision support tools and modeling suitable to conduct the metric-based benefit analysis and prioritization of projects was evaluated with respect to the SWRP development. An approach to conduct the metric-based analysis was established based on the evaluation of existing models/tools.

5.1 Overview

California Water Code Section 10562 describes the minimum requirements for development of a SWRP. An outline of how stormwater projects are included, analyzed, and prioritized within the SWRP is included within the minimum requirements. Water Code Section 10562.(b)(2) states that a SWRP shall "identify and prioritize stormwater and dry-weather runoff capture projects for implementation in a quantitative manner, using a metrics-based and integrated evaluation and analysis of multiple benefits to maximize water supply, water quality, flood management, environmental, and other community benefits within the watershed." Water Code Section 10562.(e) states that "a stormwater resource plan shall use measurable factors to identify, quantify, and prioritize potential stormwater and dry-weather runoff capture projects." **Figure 5-1** illustrates the steps necessary to identify, quantify, and prioritize projects. The following subsections further describe the actions taken as part of the SBC SARW SWRP development to address the Water Code specifications.

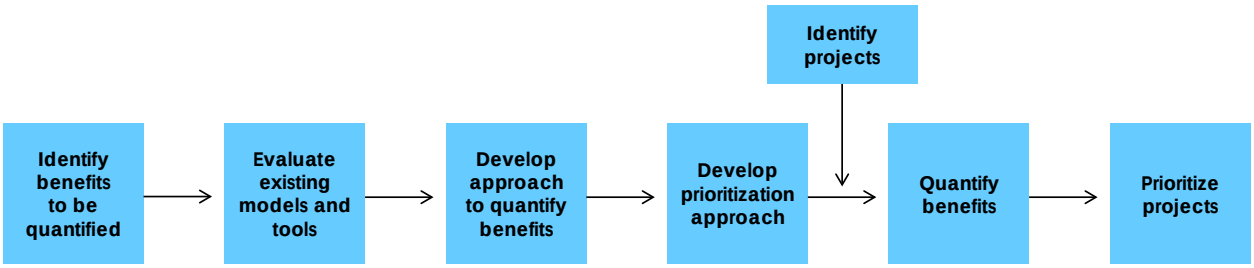


Figure 5-1 Project Identification, Quantification, and Prioritization

5.1.1 Identify

The first step mentioned in the quote above pertaining to Water Code Section 10562.(e) is to identify stormwater projects. A request for projects was made to public entities within the SBC SARW area through the TAC and stakeholder outreach events. Projects received were screened and removed if they did not fit the goals and objectives of the SBC SARW SWRP. Projects were submitted by the local stakeholders listed below:

- SBCFCD
- San Bernardino County Regional Parks Department (SBC Parks)
- CBWCD
- IEUA
- San Bernardino Valley Water Conservation District (SBVWCD)
- SBVMWD
- WMWD
- City of Big Bear Lake
- City of Chino Hills
- City of Montclair
- City of Redlands

5.1.2 Quantify

The second step mentioned in Water Code Section 10562.(e) is to quantify stormwater project benefits. The identification of benefits to be quantified and the methodologies by which benefits were estimated is the focus of this section (**Section 5**). The benefits for quantification fall into the five overarching benefit categories referenced in Water Code Section 10562.(b)(2) and listed in Table 3 of the SWRP Guidelines:

- Water quality
- Water supply
- Flood management
- Environmental
- Community

Table 3 in the SWRP Guidelines (SWRCB, 2015) goes on to give examples of appropriate metrics for each benefit category. Some of the examples given would be difficult to apply to the SBC SARW SWRP. One reason for this is that certain benefit examples are not "measurable," which is a requirement of the Water Code. Another reason is that some of the benefits apply to watersheds in other parts of the state where permanent base flow is a characteristic of the watershed. However, the guidelines also state that "other metrics and methodologies for integrated evaluation and analysis of multiple benefits may be considered, as appropriate."

Table 5-1 identifies the benefits to be quantified as part of the SBC SARW SWRP based on the SWRP Guidelines and local conditions. **Section 5.3** details the approach to quantify the benefits identified in the table below. Each project identified for inclusion will provide benefits from at least two benefit categories (water quality, water supply, flood management, environmental, and community), consistent with SWRP Guidelines Section VI.D.2.

Table 5-1 Multiple Benefits Quantified

Benefit Category	Multiple Benefits Quantified
Water Quality	Pollutant load reduction
	Stormwater runoff reduction
Water Supply	Stormwater recharge
	Recycled water recharge
Flood Management	Runoff rate reduction
	Runoff volume reduction
	Flood elevation reduction
	Removal of parcels/structures from the 100-year floodplain
	Property value saved
Environmental	Wetlands enhancement/creation
	Riparian area enhancement
	Streambed restoration
	Increased urban green space
Community	Provide employment opportunities
	Increase public education
	Increase community involvement
	Walking paths, sidewalks, and bike trails enhancement/creation
	Public use areas enhancement/creation

5.1.3 Prioritize

The third step mentioned in Water Code Section 10562.(e) is to prioritize stormwater projects. Once benefits were quantified, projects were prioritized based on an integrated metrics-based analysis of quantitative and practical factors. The quantitative factors are listed in **Table 5-1**. The practical factors broadly fit into the categories of cost and project readiness. Additional details on the prioritization elements are included in **Section 5.4**. The integrated metrics-based analysis of quantitative and practical factors on a project-specific basis is included in **Section 6**.

5.2 Review of Existing Models and Tools

Existing models and tools were evaluated for use in quantifying benefits. This evaluation includes an analysis of hydrologic/hydraulic models, water quality models, and other GIS and spreadsheet-based decision support tools and modeling suitable to conduct the metrics-based benefit analysis and prioritization of projects. This subsection focuses on the suitability of various models and decision support tools to quantify benefits. Existing models and tools that can be used to quantify the benefits from **Table 5-1** were reviewed and incorporated into the approach as applicable, which is defined further in **Section 5.3**.

5.2.1 Hydrologic/Hydraulic Models

Hydrologic and hydraulic models are used to quantify volumes and rates of water for quantifying water supply and flood control benefits. Hydrologic models identify the volume and timing of stormwater runoff based on watershed properties and geographic location, while hydraulic models generally focus on localized characteristics of water surface height, width, flow velocity, and energy. Hydrologic models found capable of producing output used to quantify benefits include:

- Hydrologic Engineering Center – Hydrologic Modeling System (HEC-HMS) from USACE
- Watershed Modeling System (WMS) from Aquaveo
- Hydrological Simulation Program – Fortran (HSPF) from USGS
- Wasteload Allocation Model (WLAM) from Wildermuth Environmental, Inc. (WEI)

Computer programs exist that also assist with the calculation of simple hydrologic estimates such as the Rational Method and the unit hydrograph method, which are described in the San Bernardino County Hydrology Manual. CivilDesign Corporation and Advanced Engineering Software (AES) developed software that computes information conforming to the methodology detailed in the San Bernardino County Hydrology Manual. Hydraulic models found capable of producing output used to quantify flood control benefits include:

- Hydrologic Engineering Center – River Analysis System (HEC-RAS) from USACE
- Water Surface Pressure Gradient (WSPG) from the Los Angeles County Flood Control District

5.2.2 Water Quality Models

Water quality models are used to quantify project performance in an effort to establish water quality benefits for projects included in the SWRP. Some water quality models are public domain software and could be used to assess pollutant loading. These models require significant base data for calibration, which is typically not available over extremely large areas like the SBC SARW. Water quality models found capable of producing output used to quantify water quality benefits include:

- Stormwater Management Model (SWMM) from USEPA
- SBPAT from Geosyntec Consultants
- System for Urban Stormwater Treatment and Analysis Integration (SUSTAIN) from USEPA

5.2.3 GIS-Based Decision Support Tools and Models

GIS is a critical component in quantifying benefits that are used to prioritize projects within the SWRP. Decision support tools using GIS have been included in watershed plans throughout the state. In local watershed planning studies, GIS-based tools/models were used to assemble spatial information such as soil type, land use, ground slope, impervious areas, parcels of land, and bodies of water. Points were assigned to each parcel of land that corresponded with prioritization criteria, and parcels were ranked based on the number of points each parcel received, with high scores indicating sites where stormwater projects would be most beneficial or easiest to implement.

With regard to the SBC SARW SWRP, projects have already been identified by stakeholders, and the type of application identified above would not be applicable. However, GIS is critical to the development of input data for hydrologic, hydraulic, and water quality models.

5.2.4 Spreadsheet-Based Decision Support Tools and Models

Spreadsheet-based decision support tools are critical during all phases of the SWRP. Spreadsheets are a necessary component to almost every type of hydrologic, hydraulic, and water quality model discussed in the previous sections. In particular, long-term simulation of watershed hydrology using rain gage data can be calculated with spreadsheets programmed with hydrologic equations. Many other analyses necessary for GIS-based calculations also require spreadsheets.

Spreadsheet-based decision support tools are most helpful during the prioritization phase of project benefit quantification. There are many watershed planning document examples where spreadsheet-based decision support tools were used to prioritize projects given an array of benefits. Some of these tools are readily available through the developers and/or local agencies, while project specific tools are typically developed by the user and tailored to the specific project goals.

5.3 Approach to Quantify Benefits

The benefits used in the SWRP are described in the subsections below. They are arranged according to the five benefit categories listed in Water Code Section 10562.(b)(2), which are also listed in Table 3 of the SWRP Guidelines (SWRCB, 2015). Included in each benefit description is a section on how the benefit achieves the stormwater management goals and objectives, types of projects that can attain the benefit, approach to quantifying the benefit, and metric used to evaluate the benefit.

In some instances, project sponsors had completed studies/analyses that quantified the benefits being considered in the SWRP. For projects where benefits had already been quantified, no further analysis was necessary as a part of the SBC SARW SWRP. This is an appropriate approach to avoid duplicative and unnecessary analysis costs and results. Though in most cases these types of benefits calculations predate the determination of the approach to quantify benefits, the calculations are still valid for the SBC SARW SWRP because they incorporate the physical structure and location of the projects. This approach also avoids having conflicting benefit quantifications. It is understood this may result in a non-uniform comparison. Project sponsors were given the opportunity to review the information included in the SWRP prior to finalization and there were no protests regarding this approach. The approaches outlined below were used for projects where benefits had not already been quantified by the responsible agency.

Projects included in the SWRP are at different stages of planning/design, ranging from ideas to full design plans. Assumptions were made to perform the analyses necessary to quantify benefits when projects lacked certain details necessary to quantify benefits. The benefits quantified as a part of the SBC SARW SWRP are preliminary and refinement will be necessary as the project designs progress.

Benefits described in this section are tangible, measurable, and quantifiable. Additionally, projects included in the SWRP also provide additional intangible, non-measurable benefits that fall under these benefit categories. These intangible benefits are not highlighted in this section.

5.3.1 Water Quality

Water quality benefit goals include opportunities to control stormwater pollution through infiltration and/or treatment processes. **Section 3** describes the water quality priorities within the SBC SARW area. Projects that address the priorities identified provide the greatest benefit to the watershed. Water quality benefits achieved by projects included in the SWRP include pollutant load reduction and stormwater runoff reduction. The tables below summarize the approach to quantify each water quality benefit for the projects identified in the SWRP. Assumptions were made when input data was not readily available. Each of the tables also identifies the project types that would provide the specific benefit.

Table 5-2 Approach to Quantify Pollutant Load Reductions

Goal:	
Reduce the pollutant load from the contributing drainage area to achieve water quality objectives in downstream receiving waters, focusing on the water quality priorities identified in **Section 3**.	
Applicable Models and Tools:	
Custom spreadsheet-based decision support tools with ArcGIS Soil Conservation Service (SCS) Runoff Curve Number method Runoff volume estimation methodology from San Bernardino County Hydrology Manual Data analysis from San Bernardino Areawide Stormwater Monitoring Program Stormwater BMP Database effectiveness calculations	
Input	**Output**
➢ Drainage area ➢ Land use/land cover ➢ Rain depth/patterns (rain gage data) ➢ Infiltration rates ➢ Existing water quality	➢ Volume of runoff ➢ Pollutant load reduction
Metric:	
Removal of _____ *E. coli* per year	
Potential Project Types:	
Projects involving infiltration (basins and/or soft-bottom channels) or treatment BMPs (bioswales)	

Table 5-3 Approach to Quantify Stormwater Runoff Reductions

Goal:	
Reduce volume of stormwater runoff from the project tributary area to downstream receiving waters to improve water quality by reducing the discharge of polluted runoff.	
Applicable Models and Tools:	
Custom spreadsheet-based decision support tools with ArcGIS SCS Runoff Curve Number method Runoff volume estimation methodology from San Bernardino County Hydrology Manual	
Input	**Output**
➢ Drainage area ➢ Land use/land cover ➢ Rain depth/patterns (rain gage data) ➢ Infiltration rates	➢ Volume of runoff captured/infiltrated
Metric:	
_____ acre-feet of runoff reduced per year (AFY)	
Potential Project Types:	
Projects involving basin outlet controls and/or infiltration (includes basins, soft-bottom channels, and/or treatment BMPs that support infiltration [bioswales])	

5.3.2 Water Supply

Water supply benefit goals include opportunities to augment local water sources by storing water in groundwater basins. Water supply benefits quantified as part of the SBC SARW SWRP include groundwater recharge and recycled water recharge. A table for each water supply benefit is included below summarizing how benefits were quantified and which types of projects achieve the specific benefit. Assumptions were made for input variables when information was not readily available.

Table 5-4 Approach to Quantify Stormwater Recharge

Goal:	
Increase the amount of stormwater runoff captured and infiltrated into groundwater basins.	
Applicable Models and Tools:	
Custom spreadsheet-based decision support tools with ArcGIS SCS Runoff Curve Number method Runoff volume estimation methodology from San Bernardino County Hydrology Manual	
Input	**Output**
➢ Drainage area ➢ Land use/land cover ➢ Rain depth/patterns (rain gage data) ➢ Infiltration rates	➢ Volume of runoff infiltrated
Metric:	
_____ acre-feet of stormwater runoff recharged per year (AFY)	
Potential Project Types:	
Projects involving infiltrating at a rate or volume above the existing condition (includes basins, soft-bottom channels, and/or treatment BMPs that support infiltration [bioswales])	

Table 5-5 Approach to Quantify Recycled Water Recharge

Goal:	
Increase the amount of recycled water captured and infiltrated into groundwater basins.	
Applicable Models and Tools:	
Benefit is quantified when analysis available by others, typically the project sponsor	
Input	**Output**
➢ Results from existing hydrologic studies	➢ Volume of recycled water infiltrated
Metric:	
_____ acre-feet of recycled water recharged per year (AFY)	
Potential Project Types:	
Projects able to capture recycled water and involving infiltration at a rate or volume above the existing condition (includes basins, soft-bottom channels, and/or treatment BMPs that support infiltration [bioswales])	

5.3.3 Flood Management

Flood management benefit goals include opportunities to decrease flood risk and minimize property losses. Flood management benefits quantified as part of the SWRP include runoff rate reduction, runoff volume reduction, flood elevation reduction, removal of parcels/structures from the 100-year floodplain, and property value saved. Tables are included below summarizing the approach to quantify each flood management benefit. Example project types that achieve the benefit are included in the table. Assumptions were made when input information was not readily available.

Table 5-6 Approach to Quantify Runoff Rate Reductions

Goal:	
Reduce the peak runoff rate for the 100-year storm event, such that flooding is reduced.	
Applicable Models and Tools:	
Custom spreadsheet-based decision support tools with ArcGIS SCS Runoff Curve Number method Synthetic unit hydrograph estimation methodology from San Bernardino County Hydrology Manual Stage-storage, stage-discharge, and culvert analysis from Hydraflow Express Flow routing and timing using HEC-HMS	
Input	**Output**
➢ Drainage area ➢ Land use/land cover ➢ As-built plans ➢ Infiltration rates ➢ 100-year storm event rainfall	➢ Peak flow rate reduction due to diversion or infiltration improvements ➢ Peak flow rate reduction due to basin outlet reconfiguration
Metric:	
Runoff rate reduction of _____ cubic feet per second (cfs) during the 100-year storm event	
Potential Project Types:	
Projects that detain stormwater and/or enhance infiltration (includes basins and soft-bottom channels)	

Table 5-7 Approach to Quantify Runoff Volume Reductions

Goal:	
Reduce the volume of floodwaters reaching downstream conveyances, such that additional capacity is available downstream and flooding is reduced.	
Applicable Models and Tools:	
Custom spreadsheet-based decision support tools with ArcGIS SCS Runoff Curve Number method Runoff volume estimation methodology from San Bernardino County Hydrology Manual	
Input	**Output**
➢ Drainage area ➢ Land use/land cover ➢ Rain depth/patterns (rain gage data) ➢ Infiltration rates	➢ Volume of runoff diverted from downstream conveyances
Metric:	
Runoff reduction of _____ acre-feet per year (AFY)	
Potential Project Types:	
Project designed to detain stormwater, including infiltration (includes basins, soft-bottom channels, and/or treatment BMPs that support infiltration [bioswales])	

Table 5-8 Approach to Quantify Flood Elevation Reductions

Goal:	
Reduce flood elevation (water surface elevation) of the 100-year flood in conveyances downstream, which reduces the risk to property damage or loss caused by flooding.	
Applicable Models and Tools:	
Hydraulic analysis using HEC-RAS SCS Runoff Curve Number method Synthetic unit hydrograph estimation methodology from San Bernardino County Hydrology Manual Stage-storage, stage-discharge, and culvert analysis from Hydraflow Express Flow routing and timing using HEC-HMS	
Input	**Output**
➢ Drainage area ➢ Land use/land cover ➢ As-built and proposed channel plans ➢ 100-year storm event rainfall	➢ Water surface elevation profile
Metric:	
Water surface elevation reduction of _____ feet during the 100-year storm event	
Potential Project Types:	
Projects where channels are enlarged to convey additional flow or provide a runoff peak rate reduction through detention of flood flows (include channel widening/improvement and infiltration basin projects where infiltration is enhanced by manipulating the geometry of outflow structures)	

Table 5-9 Approach to Quantify Removal of Parcels/Structures from the Floodplain

Goal:	
Remove parcels/structures from the 100-year floodplain, decreasing the risk of losing property or human life due to flooding.	
Applicable Models and Tools:	
Custom spreadsheet-based decision support tools with ArcGIS Hydraulic analysis using HEC-RAS	
Input	**Output**
➢ Flood maps from FEMA ➢ San Bernardino County parcel maps ➢ HEC-RAS flood elevation analysis	➢ List of parcels removed from flood hazard area
Metric:	
Removal of _____ parcels/structures from the 100-year floodplain (measured in units of parcels or structures, depending on what makes the most sense for each geographic location)	
Potential Project Types:	
See project types identified under the flood elevation reduction benefit (**Table 5-8**)	

Table 5-10 Approach to Quantify Property Value Saved

Goal:	
Decrease property losses due to flooding.	
Applicable Models and Tools:	
List of parcels removed from flood hazard area San Bernardino County assessor data Home price estimates from Zillow.com	
Input	**Output**
➢ Parcels and structures removed from flood hazard areas	➢ Total value of parcels and structures removed from flood hazard areas
Metric:	
$_____ saved (in 2017 dollars) during one 100-year flood event	
Potential Project Types:	
See project types identified under the flood elevation reduction benefit (**Table 5-8**)	

5.3.4 Environmental

Environmental benefit goals include opportunities to enhance habitat and open space through the implementation of stormwater projects. Environmental benefits being quantified in the SWRP include wetlands enhancement/creation, riparian area enhancement, streambed restoration, and increased urban green space. A table is included below for each benefit. The tables summarize the approach used to quantify the benefit and the types of projects the benefit is applicable to. Assumptions were made when quantifying benefits if the input data was not readily available.

Table 5-11 Approach to Quantify Wetlands Enhancement/Creation

Goal:	
Enhance/create wetlands to protect and improve habitat for species dependent on aquatic habitats for survival. Wetlands enhancement/creation replaces wetland habitat lost due to the process of urbanization.	
Applicable Models and Tools:	
ArcGIS	
Input	**Output**
➢ Conceptual plans ➢ Construction plans	➢ Areas where wetlands will be enhanced/created
Metric:	
_____ acres of wetlands enhanced/created	
Potential Project Types:	
Projects involving wetland enhancement/creation	

Table 5-12 Approach to Quantify Riparian Area Enhancement

Goal:	
Riparian area enhancement helps protect and improve riparian habitat, which is important to protecting biodiversity, maintaining/improving water quality, and protecting channel slopes, among other benefits.	
Applicable Models and Tools:	
ArcGIS	
Input	**Output**
➢ Conceptual plans ➢ Construction plans	➢ Areas where riparian area is created/enhanced
Metric:	
_____ acres of riparian area enhanced	
Potential Project Types:	
Enhancing riparian areas in highly urbanized/semi-arid areas is difficult given the ecological stresses imposed by development and drought. Achieving biodiversity in an artificially-created riparian zone is possible and can be managed through careful design of channel-side bioswales. In non-urbanized areas, riparian areas can be enhanced by creating channel conveyances that mimic natural conditions.	

Table 5-13 Approach to Quantify Streambed Restoration

Goal:	
Restore or enhance natural streambeds for the protection of fish and wildlife habitat. Streambed restoration can also stimulate the natural scour and sedimentation processes essential to creating coarse sandy loam habitat for the endangered San Bernardino kangaroo rat.	
Applicable Models and Tools:	
ArcGIS	
Input	**Output**
➢ Conceptual plans ➢ Construction plans	➢ Areas where streambeds will be constructed to mimic natural conditions
Metric:	
_____ feet of streambed restored, improved, or enhanced	
Potential Project Types:	
Channel enhancement projects located in natural sections of receiving waters (commonly in the eastern portion of the SBC SARW area)	

Table 5-14 Approach to Quantify Increased Urban Green Space

Goal:	
Increase urban green space by providing trees, shrubs, and grasses that can filter pollution from air, water, and soils. Urban green space also provides community benefits of increased access to spaces for recreation, exercise, communing with nature, neighborhood cohesion, and intangible social benefits associated with lower crime rates and improved property values.	
Applicable Models and Tools:	
ArcGIS	
Input	**Output**
➢ Conceptual plans ➢ Construction plans	➢ Areas where urban green space will be created or enhanced
Metric:	
_____ acres of urban green space added	
Potential Project Types:	
Projects that involve public use, where landscaping and tree-planting are essential components of the project (includes trail projects adjoining channels and projects with biological treatment of stormwater, where plants constitute a necessary water quality component)	

5.3.5 Community

Community benefit goals include opportunities to improve community health, safety, recreation, and sense of cohesiveness, particularly within disadvantaged communities. Community benefits being quantified in the SWRP include providing employment opportunities; increasing public education; increasing community involvement; walking paths, sidewalks, and bike trails enhancement/creation; and public use areas enhancement/creation. The approach used to quantify each community benefit is summarized in the tables below, which also identify project types that would achieve the specific benefit. Assumptions were made during the analysis when input data was not readily available.

Table 5-15 Approach to Quantify Provided Employment Opportunities

Goal:	
Increase the number of jobs for members of the community.	
Applicable Models and Tools:	
Estimates of job creation rates due to government infrastructure spending from the American Recovery and Reinvestment Act (Executive Office of the President – Council of Economic Advisors, 2009)	
Input	**Output**
➢ Project cost estimates	➢ Jobs created, in job-years (one job for a year)
Metric:	
_____ employment opportunities provided	
Potential Project Types:	
All projects, as short-term employment is provided to implement the project and long-term employment may be introduced based on continued operation and maintenance of the facilities.	

Table 5-16 Approach to Quantify Increased Public Education

Goal:	
Increase public education associated with stormwater quality and multi-benefit project implementation, such that the public's understanding of water quality protection results in water quality improvements.	
Applicable Models and Tools:	
Not applicable	
Input	**Output**
➢ Concept plans ➢ Construction plans ➢ Project-specific implementation plans	➢ Number of interpretive signs installed as part of the project
Metric:	
_____ interpretive signs installed as part of the project	
Potential Project Types:	
Projects that involve educational signage, which are typical for projects that are in public right-of-way or include public use benefits, such as trails along channels.	

Table 5-17 Approach to Quantify Increased Community Involvement

Goal:	
Enhance public participation in the design/implementation phase of a project. Project buy-in can occur when designers have taken the time to involve the community, which yields long-term community cohesion benefits.	
Applicable Models and Tools:	
Not applicable	
Input	**Output**
➢ Project-specific implementation plans	➢ Number of community meetings planned
Metric:	
_____ community meetings planned	
Potential Project Types:	
Projects that involve community meetings during the design and implementation phases, which is typical of larger projects that include public use benefits, such as along a trail/park.	

Table 5-18 Approach to Quantify Path, Sidewalk, and Bike Trail Enhancement/Creation

Goal:	
Enhance/create walking paths, sidewalks, and bike trails, which provide community benefits by increasing connectivity, supporting multi-modal transportation, and encouraging a healthy community.	
Applicable Models and Tools:	
ArcGIS	
Input	**Output**
➢ Concept plans ➢ Construction plans	➢ Linear feet of walking paths/trails, sidewalks, and/or bike trails enhanced or created
Metric:	
_____ feet of walking paths, sidewalks, and/or bike trails enhanced/created	
Potential Project Types:	
Projects that involve walking paths, sidewalks, and/or bike trails, which are most likely along channel improvement projects.	

Table 5-19 Approach to Quantify Public Use Area Enhancements/Creation

Goal:	
Provide space for communities to gather and recreate, especially within disadvantaged communities, which have been neglected historically in terms of the development of public spaces. Enhancing/creating certain types of public use areas may result in health and social benefits.	
Applicable Models and Tools:	
ArcGIS	
Input	**Output**
➢ Concept plans ➢ Construction plans	➢ Acreage of public use areas created or enhanced
Metric:	
_____ acres of public use area enhanced/created	
Potential Project Types:	
Projects that involve publically accessed parks, trails, and open spaces, which may be included in projects inclusive of trails along channel improvements.	

5.4 Prioritizing Projects based on Multiple Benefits

Section D.1 of the SWRP Guidelines (2015) provides guidance for prioritizing stormwater and dry-weather runoff capture projects within a watershed. The guidance indicates that the prioritization of individual projects and programs for implementation should be based on an integration of quantitative factors and elements. The elements are listed in the following order (Section D.1.a through Section D.1.f).

a. Projects/programs supported by entities that have created permanent, local, or regional funding

b. Projects or programs that use a metrics-driven approach and an appropriately detailed geospatial analysis of multiple benefits to maximize water supply, water quality, flood management, environmental, and community benefits within the watershed

c. Projects located on lands with public ownership

d. Projects that augment local water supplies

e. Projects and programs that preserve, restore, or enhance watershed processes that yield a broad suite of water quality benefits and support beneficial uses

f. Projects and programs that create or restore habitat, open space, parks, recreation, or green open space in disadvantaged communities with a high deficit of tree canopy, parks, and open space

The prioritization for the SBC SARW SWRP is based on an integrated metrics-based analysis of these factors. The interpretation and quantification of these factors is discussed further in **Section 5.4.1**, including the assignment of numeric codes based on these prioritization elements. The methodology for combining the codes into a prioritization matrix is discussed further in **Section 5.4.2**.

5.4.1 Prioritization Elements

A discussion of each prioritization factor and element proposed for the SBC SARW SWRP based on these guidelines is included in the following subsections. Each element will convert into a numeric code to evaluate the project's conformance with each element. The codes will be developed such that low numbers indicate the more preferred values.

The prioritization of projects in the SBC SARW SWRP is based on a strict hierarchal prioritization discussed in the sections below. That is, the prioritization methodology favors projects that perform well on the first categories over projects that perform well over later categories. This approach aligns with the order of prioritization factors listed in Section D.1 of the SWRP Guidelines (2015). More information about each prioritization factor is included in the subsections below.

5.4.1.1 Project Readiness

Section D.1.a of the SWRP Guidelines (2015) indicates that the SWRCB places a high priority on projects or programs that are already supported by a public agency that is responsible for funding both capital improvements and operations and maintenance. The best way to indicate whether or not a given project is already supported by a public agency is if that public agency has signed off on detailed concept plans or construction plans developed to any level of completeness. The existence of plan drawings and/or concepts indicates a level of intent from a public agency that they are willing to commit time and resources to the project. Also, projects that have plans are more ready for construction than projects that are currently just ideas or rough concepts.

Accordingly, the first prioritization factor in the SBC SARW SWRP will be a Project Readiness factor that indicates whether or not a public agency has signed off on concept plans or construction plans. If the public agency has approved plans for the project, the project will be deemed approved or ready. If no plans exist for the project, the project will be deemed not approved or ready. **Table 5-20** summarizes the prioritization code for this factor.

Table 5-20 Project Readiness Code Definition

Code Value	Project Readiness
1	Approved or ready
2	Not approved or ready

5.4.1.2 Cost Estimate

Another quantitative proxy for a project's readiness is the existence of a cost estimate prepared by an engineer. The existence of a cost estimate indicates that a public agency has examined the project from an engineer's perspective to estimate the time and materials needed to complete the project, even if the cost estimate is preliminary. The second prioritization factor in the SBC SARW SWRP will be a Cost Estimate factor that indicates whether or not a cost estimate exists for the project. **Table 5-21** indicates the prioritization code for this factor.

Table 5-21 Cost Estimate Code Definition

Code Value	Cost Estimate
1	Cost estimate has been prepared
2	Cost estimate has not been prepared

5.4.1.3 Quantification

Section D.1.b. of the SWRP Guidelines (2015) states that "[p]rojects or programs that use a metrics-driven approach and an appropriately detailed geospatial analysis of multiple benefits to maximize water supply, water quality, flood management, environmental, and community benefits within the watershed" should be prioritized in an SWRP. Therefore, projects where an analysis has been performed quantifying these benefits should be prioritized in the SBC SARW SWRP over projects where the benefits have simply been assumed to exist. Benefit quantification is also an indication of project readiness; only when an element of a project is defined and described can the element's effect on public water quality and supply be evaluated to any level of certainty.

The third prioritization factor in the SBC SARW SWRP will be a Quantification factor that indicates whether or not a metrics-based analysis of a project's multiple benefits has been performed. **Table 5-22** reveals the prioritization code for this factor.

Table 5-22 Quantification Code Definition

Code Value	Quantification
1	Benefits have been quantified
2	Benefits have not been quantified

5.4.1.4 Benefit Categories

The intention of the Water Code requirements is to encourage stormwater and dry-weather runoff projects that provide multiple public water quality and supply benefits, according to the SWRP Guidelines (SWRCB, 2015). The SWRP Guidelines go on to explain that each project or program included in an SWRP should address at least two or more main benefits and as many feasible additional benefits as possible. This guidance indicates that the SWRCB considers the number of benefit categories as an important factor with which to prioritize projects in the SWRP.

The fourth prioritization factor in the SBC SARW SWRP will be a Benefit Categories factor that describes the number of benefit categories that a project will provide. The five benefit categories, as described in Water Code Section 10562.(b)(2), which are also listed in Table 3 of the SWRP Guidelines and described

in **Section 5.3**, are water supply, water quality, flood management, environmental, and community benefits. **Table 5-23** describes the prioritization code for this factor.

Table 5-23 Benefit Categories Code Definition

Code Value	Benefit Categories
1	Project provides benefits across five (5) categories
2	Project provides benefits across four (4) categories
3	Project provides benefits across three (3) categories
4	Project provides benefits across two (2) categories
5	Project provides benefits in one (1) category

5.4.1.5 Water Supply Cost

Section D.1.d of the SWRP Guidelines (SWRCB, 2015) indicates that a SWRP should prioritize projects that augment local water supplies such as projects that use captured stormwater and dry-weather runoff to recharge groundwater. Project readiness elements and multiple benefits are a greater priority than this element based on the prioritization elements listed in the SWRP Guidelines. For this reason, the Water Supply Cost prioritization element will be placed in the SBC SARW SWRP after these elements of project prioritization.

The SBC SARW SWRP contains a mix of both large and small projects. Large projects tend to capture large quantities of stormwater, but at a higher project cost than small projects. If projects were prioritized only by the quantity of stormwater supplied, large costly projects would always be placed ahead of small projects regardless of the cost effectiveness of the project. This is a potential waste of public money. Therefore, in the SBC SARW SWRP, prioritization for water supply benefits provided will be normalized according to the cost of water supplied per acre-foot per year. The breakdown of the range of water supply costs is described in **Table 5-24**.

Table 5-24 Water Supply Cost Code Definition

Code Value	Water Supply Cost per Acre-Foot per Year
1	Less than $5,000
2	Between $5,000 and $10,000
3	Between $10,000 and $50,000
4	Between $50,000 and $100,000
5	Between $100,000 and $200,000
6	Between $200,000 and $500,000
7	Between $500,000 and $1,000,000
8	Greater than $1,000,000
9	Project provides no benefit to groundwater recharge/benefits are unquantified

5.4.1.6 Water Quality Cost

Section D.1.e of the SWRP Guidelines (SWRCB, 2015) states that "[p]rojects and programs that preserve, restore, or enhance watershed processes that yield a broad suite of water quality benefits and support

beneficial uses" should be prioritized in an SWRP. This element is placed sixth on the list after the elements described above.

In the SBC SARW, the beneficial uses of the water bodies within the watershed are impacted primarily by the presence of indicator bacteria, which is further discussed in **Section 3**. Within the SBC SARW SWRP a water quality benefit will be assigned primarily on projects that reduce the quantity of *E. coli* bacteria.

Similar to the Water Supply Cost prioritization element described in **Section 5.4.1.5**, the Water Quality Cost prioritization element is structured in a way to level the playing field between large and small projects by comparing the project cost and bacteria removal. The most cost efficient projects will attain a lower code value, as described in **Table 5-25**.

Table 5-25 Water Quality Cost Code Definition

Code Value	Water Quality Cost per Billion *E. coli* Bacteria Removed per Year
1	Less than $50
2	Between $50 and $100
3	Between $100 and $500
4	Between $500 and $1,000
5	Between $1,000 and $2,000
6	Between $2,000 and $5,000
7	Between $5,000 and $10,000
8	Greater than $10,000
9	Project provides no water quality benefit/benefits are unquantified

5.4.2 Ranking Methodology

The projects are included in a prioritization matrix and assigned prioritization codes based on the elements described in **Section 5.4.1**. The one-digit codes in the six prioritization elements will be combined into a six-digit ranking code for each project, assembled from the prioritization elements in the order listed in **Section 5.4.1**. This order is related to the order of prioritization elements listed in Section D.1 of the SWRP Guidelines (SWRCB, 2015).

The projects will then be ordered from first to last, with the lowest numeric value of ranking code being listed first and higher numeric value of ranking code being listed last. The completed prioritization matrix is further discussed in **Section 6.3**.

6. Project Identification and Prioritization

Multi-benefit stormwater management projects located throughout the SBC SARW will help achieve the stormwater management objectives for the watershed. The projects propose enhancement of existing stormwater infrastructure and construction of new improvements to capture stormwater and dry-weather runoff and achieve multiple benefits. This section describes the process used to identify projects, results of the benefit analysis utilizing the approach described in **Section 5.3**, project prioritization in accordance to the approach included in **Section 5.4**. This section also includes an assessment of the stormwater management objectives, as originally defined in **Section 1.5**.

6.1 Project Identification

A project must be included in a SWRP to receive grant funding from the State of California, according to state law. California Water Code Section 10563 (c)(1) states that "the development of a stormwater resource plan … shall be required to receive grants for stormwater and dry-weather runoff capture projects from a bond act approved by the voters after January 1, 2014."

As mentioned above, the SBCFCD received input from the following agencies for inclusion in the SWRP in response to project solicitation through the TAC and stakeholder outreach events:

- SBCFCD
- SBC Parks
- CBWCD
- IEUA
- SBVWCD
- SBVMWD
- WMWD
- City of Big Bear Lake
- City of Chino Hills
- City of Montclair
- City of Redlands

Figure 6-1 illustrates the project locations and **Table 6-1** lists the projects approved for inclusion in this SWRP. The order listed in the page is not associated with the prioritization, which is further discussed in **Section 6.3**. The table identifies the lead/responsible agency for each project with a brief project description. Figures illustrating the project locations are included in **Attachment F**.

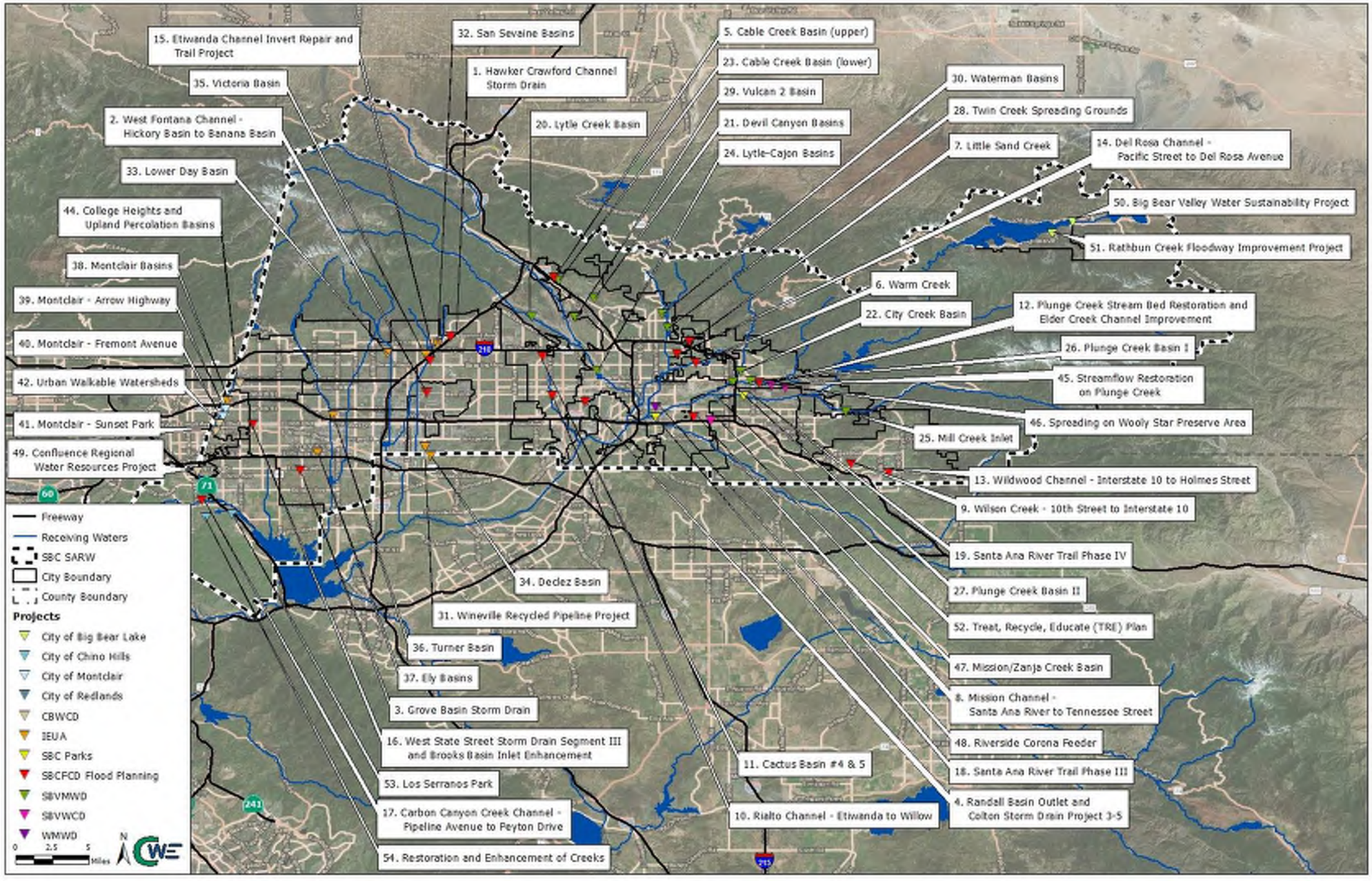


Figure 6-1 SWRP Projects

Table 6-1 SWRP Projects

Project Number	Project	Responsible Agency	Project Description
1	Hawker Crawford Channel Storm Drain	SBCFCD	An existing undersized trapezoidal channel cuts through a field and discharges into San Sevaine Basin No. 3, which has an infiltration rate of 0.5 feet per day. The proposed project will take flow into a box culvert sized to carry the 100-year flow rate and discharge into San Sevaine Basin No. 1, which has a higher infiltration rate (2.5 feet/day). The project will increase the stormwater and dry-weather runoff captured and infiltrated to the groundwater by 12 acre-feet per year.
2	West Fontana Channel - Hickory Basin to Banana Basin	SBCFCD	The existing undersized riprap-lined trapezoidal channel floods surrounding parcels during high return interval storm events. The proposed project will enlarge the channel to contain the 100-year storm event and add a bioswale to the north side that treats runoff from areas north of the channel.
3	Grove Basin Storm Drain	SBCFCD	Grove Basin has a gated outlet structure which is connected to a 66-inch Reinforced Concrete Pipe (RCP). This 66-inch RCP discharges onto Grove Avenue, causing street flooding, and the potentially polluted discharge eventually reaches Prado Park Lake. The proposed project will reroute the flows to a 108-inch RCP going eastward along Chino Avenue and discharge to Lower Cucamonga Spreading Grounds, allowing for additional groundwater infiltration.
4	Randall Basin Outlet and Colton Storm Drain Project 3-5	SBCFCD	Randall Basin is a flood control basin that can only discharge excess flows overland in an uncontrolled emergency spillway to Randall Avenue. The proposed project will allow Randall Basin to be managed as a recharge facility by including a control structure at the basin outlet and a new storm drain to the Santa Ana River.
5	Cable Creek Basin (Upper)	SBCFCD	Uncontrolled and unregulated flows from Cable Creek discharge to the Cajon Wash. The proposed project will create a new basin on Cable Creek upstream of Little League Drive in north San Bernardino. The basin will capture sediment and polluted runoff. The project will also provide a water supply benefit to the Bunker Hill groundwater basin through groundwater recharge.

Project Number	Project	Responsible Agency	Project Description
6.1	Warm Creek - Baseline Street to Sand Creek Confluence - Concept 1	SBCFCD	Warm Creek is an undersized earth-lined trapezoidal channel between Baseline Street and the improved confluence with Sand Creek. Warm Creek Concept 1 will increase the width of the channel, which will provide an increase in infiltration. The channel will be lined with riprap, and the velocity will be controlled by grouted riprap grade breaks. A trail is also proposed along a portion of the site, to be maintained by the Cities of San Bernardino and Highland.
6.2	Warm Creek - Del Rosa Confluence to Sand Creek Confluence - Concept 2	SBCFCD	Warm Creek Concept 2 will improve water quality by adding bioretention facilities on each side of the channel at locations where it is feasible to capture runoff from intersecting storm drains. Walls will separate the bioretention facilities from the flood control channel, and the channel will be deep enough to contain the entire 100-year flood flow. The project will incorporate a trail to be maintained by the Cities of San Bernardino and Highland.
7.1	Little Sand Creek - Concept 1	SBCFCD	Little Sand Creek is a channel with a riprap bottom and rail-and-wire revetment with sheet metal backing on the sides. Concept 1 will improve water quality and flood control with the incorporation of a bioretention facility to capture and treat stormwater flows entering from the north side of the channel. The bioretention facility will be separated from the improved flood control channel by a concrete wall.
7.2	Little Sand Creek - Concept 2	SBCFCD	Little Sand Creek Concept 2 will take advantage of publicly owned lands on the north side of the channel to improve water supply and water quality. A small basin will be constructed that will take diverted dry-weather runoff from Little Sand Creek for infiltration into the groundwater basin.
8	Mission Channel - Santa Ana River to Tennessee Street	SBCFCD	Mission Channel is an undersized earth and riprap trapezoidal channel that bisects a Disadvantaged Community (DAC) in eastern San Bernardino and western Redlands. The proposed project will benefit the community by adding a trail connecting the Santa Ana River Trail and the Orange Blossom Trail while upgrading the channel to be capable of carrying the 100-year storm event. The channel will continue to be an earthen channel, and the increased width will increase the volume of infiltration.

Project Number	Project	Responsible Agency	Project Description
9	Wilson Creek - 10th Street to Interstate 10	SBCFCD	Wilson Creek flows through west Yucaipa as a 60-foot wide channel with rail and wire revetment on the side slopes. The efficiency of infiltration from the earth-lined channel is less than optimal, as the channel is prone to scour and deposition, which alters the stream bed and constricts the spread of flows. The proposed project will improve infiltration efficiency, reduce scour, enhance the flood capacity, and improve the trail system along the channel.
10.1	Rialto Channel - Etiwanda to Willow - Concept 1	SBCFCD	Rialto Channel conveys urban stormwater and outflow from the Cactus Basins in an undersized earth and rock-lined trapezoidal channel. The proposed project concept will widen the channel to allow for more infiltration while deepening the channel to provide additional flood capacity. The project will also provide community benefits to a severely DAC within the City of Rialto through the creation of a multi-use trail to connect with the popular Pacific Electric Trail.
10.2	Rialto Channel - Etiwanda to Willow - Concept 2	SBCFCD	Rialto Channel Concept 2 will widen and deepen Rialto Channel to provide flood protection for surrounding residents and businesses. The concept will increase infiltration in the upper portion through Armorflex blocks, while the lower portion will convey flood flows through a concrete lined rectangular channel. The project will include a multi-use trail as mentioned above.
11	Cactus Basin #4 and 5	SBCFCD	Cactus Basin #4 and 5 will provide multiple beneficial uses for DACs in Rialto and the Inland Empire. The project will provide a large increase in the volume of stormwater captured to recharge groundwater. The project will enhance water quality by removing bacteria and other pollutants from downstream water bodies. The project will also protect thousands of structures from flooding.
12	Plunge Creek Stream Bed Restoration and Elder Creek Channel Improvement	SBCFCD	The Elder Creek/Plunge Creek confluence project, a continuation of SBVWCD's Plunge Creek restoration project, will rehabilitate the ecological function of the wash. The project will spread stormwater through braided channels to restore natural watershed processes, enhance groundwater recharge, and improve downstream water quality. The project will also improve Elder Gulch upstream of the confluence to reduce sedimentation and protect surrounding areas from flooding.

Project Number	Project	Responsible Agency	Project Description
13	Wildwood Channel - Interstate 10 to Holmes Street	SBCFCD	Wildwood Channel conveys flows in an undersized channel lined with sand and gravel. The proposed project will widen the channel to increase infiltration capacity and flood protection while providing grade breaks that will reduce velocities. The project will also enhance the existing multi-use trails in this DAC.
14.1	Del Rosa Channel - Pacific Street to Del Rosa Avenue - Concept 1	SBCFCD	Del Rosa Channel is an undersized rectangular channel with a riprap-lined bottom and rail-and-wire revetment on the sides. The limited amount of public right-of-way reduces the opportunities for additional enhancements. Concept 1 will widen the channel from 20 feet to 30 feet and deepen it to handle flood flows. The composition of the channel bottom will remain porous for infiltration. A new culvert will be required across Pacific Avenue.
14.2	Del Rosa Channel - Pacific Street to Del Rosa Avenue - Concept 2	SBCFCD	Del Rosa Channel Concept 2 will widen the channel without deepening it. The slopes will be protected with stair-stepped rock gabion walls, eliminating the need for permanent concrete structures within the channel right-of-way. Flooding will be reduced, but the channel will not be capable of carrying the 100-year flood. The existing culvert at Pacific Avenue will remain in place.
15	Etiwanda Channel Invert Repair and Trail Project	SBCFCD	Etiwanda Channel and San Sevaine Channel are two rectangular concrete channels laterally contiguous to one another separated by a channel wall. The channels are subject to scour issues. The proposed project will remove the wall between the channels, address the scouring issues, and provide a trail improvement benefiting the community as a part of the San Sevaine Trail Phase I Segment 2 in the City of Fontana.
16	West State Street Storm Drain Segment III and Brooks Basin Inlet Enhancement	SBCFCD	West State Street Storm Drain is an open channel that runs between West State Street and the Union Pacific Railroad in the Cities of Montclair and Ontario. The storm drain conveys runoff westward to San Antonio Creek Channel, but upstream of the confluence with San Antonio Creek Channel there is an inlet that diverts low flows into Brooks Basin. The project will enlarge the inlet and enhance the channel to provide flood protection and capture, convey, and divert more stormwater to Brooks Basin for infiltration (groundwater recharge).

Project Number	Project	Responsible Agency	Project Description
17	Carbon Canyon Creek Channel - Pipeline Avenue to Peyton Drive	SBCFCD	Carbon Canyon Creek Channel is a riprap-lined undersized trapezoidal channel between Pipeline Avenue and Peyton Drive. The proposed project will widen the channel, while maintaining a soft bottom. This design will increase flood protection and provide additional opportunity for stormwater flows to infiltrate and recharge groundwater.
18	Santa Ana River Trail Phase III	SBC Parks	Santa Ana River Trail Phase III will extend the popular public use trail from its current endpoint at Waterman Avenue in San Bernardino to California Street in Redlands. Stormwater improvements along the trail will be sized for the 100-year flood flow from future development conditions. The trail provides public use areas and green space for DACs.
19	Santa Ana River Trail Phase IV	SBC Parks	Santa Ana River Trail Phase IV will complete the trail to Garnet Street in Mentone. The project will include similar stormwater improvements as Phase III, provide public use areas, and enhance green space. The project will also feature interpretive signage as a public education component.
20	Lytle Creek Basin	SBVMWD	The proposed Lytle Creek Basin will be located in the City of Rialto east of Interstate 15, upstream of an existing CEMEX plant. The 60 acre site will capture unregulated flood flows from Lytle Creek and allow an estimated average of 4,023 acre-feet of stormwater per year to infiltrate and recharge the Bunker Hill groundwater subbasin.
21	Devil Canyon Basins	SBVMWD	The existing Devil Canyon Spreading Grounds diverts flow from Devil Creek during very high flow events. The proposed project would increase the capacity of the diversion through the construction of an inflatable armored dam across Devil Creek. Two new recharge cells will be constructed below the existing Basin No. 1, and the transfer structures between the existing basins will be improved. The improvements will allow an estimated average of 3,631 acre-feet of stormwater per year to infiltrate.

Project Number	Project	Responsible Agency	Project Description
22	City Creek Basin	SBVMWD	The series of nine proposed basins will be constructed along over a mile of City Creek on both sides of the 210 Freeway in the City of Highland. Infiltrated stormwater from the City Creek Basin project will recharge the Bunker Hill groundwater subbasin by an estimated average of 5,247 acre-feet per year. The basins will be connected at the downstream end to the proposed Plunge Basin II project, though the projects can be constructed independently of one another.
23	Cable Creek Basin (Lower)	SBVMWD	This Cable Creek Basin project will be located just downstream of the proposed SBCFCD Cable Creek Basin project (Project No. 5). Unlike the SBCFCD project, flow will be diverted into the lower Cable Creek Basin project from the main channel via an inflatable rubber dam. The Bunker Hill groundwater subbasin will be recharged by an estimated average of 2,978 acre-feet of stormwater per year as a result of this project.
24	Lytle-Cajon Basins	SBVMWD	The Lytle-Cajon Basins project will be located just upstream of the Lytle-Cajon Radial Gate and spillway. The proposed project will result in the construction of eight in-channel recharge basins. In total, the project will result in an estimated average of 3,408 acre-feet of additional infiltrated stormwater to recharge the Bunker Hill groundwater subbasin.
25	Mill Creek Inlet	SBVMWD	The Mill Creek Inlet project will improve the transfer of flow from Mill Creek into the existing series of percolation basins in the Mill Creek wash area. The capacity of the existing inlet will be increased from 110 cubic feet per second (cfs) to 210 cfs and involve the replacement of culverts underneath the existing flood control levee. The improvements will allow 196 acre-feet more stormwater to infiltrate per year.
26	Plunge Creek Basin I	SBVMWD	The Plunge Creek Basin I project will place a basin downstream of the SBVWCD and SBCFCD Plunge Creek Restoration Projects. The single cell basin will capture water using an inflatable rubber dam diversion across Plunge Creek, resulting in an increase in groundwater recharge of an estimated 2,481 acre-feet per year.

Project Number	Project	Responsible Agency	Project Description
27	Plunge Creek Basin II	SBVMWD	The Plunge Creek Basin II project will be located just upstream of the confluence of Plunge Creek and City Creek. The basin will receive flows from an inflatable dam placed across Plunge Creek. Groundwater recharge due to construction of the basin will be increased by approximately 1,050 acre-feet per year.
28	Twin Creek Spreading Grounds	SBVMWD	The existing Twin Creek Spreading Grounds are flow-through basins located within Twin Creek north of Lynwood Drive in the City of San Bernardino. Existing basins within the spreading grounds were originally built to attenuate flows, but over the years the basin walls have been eroded or purposely breached, allowing flows to pass through unobstructed. The proposed project will reconstruct and armor the basin walls, construct one new cell, and provide new transfer structures between the basin cells. These improvements will provide flood protection and groundwater infiltration benefits.
29	Vulcan 2 Basin	SBVMWD	The Vulcan 2 Basin project will improve groundwater recharge in a new basin located near the severely DAC of Muscoy. The project will divert flow from the Devil Creek Diversion Channel using an inflatable dam. The Vulcan 2 Basin will allow the diverted flow to infiltrate, recharging the Bunker Hill groundwater subbasin by an average of 3,441 acre-feet per year.
30	Waterman Basins	SBVMWD	The Waterman Basins project will improve the existing diversion structure at the Waterman Basins northeast of Waterman Avenue and 40th Street in the City of San Bernardino. The improvements will refurbish two existing radial gate systems and provide two new gates for a maximum diversion capacity of 1,000 cfs. Upon completion, Waterman Basins will put an estimated average of 1,675 more acre-feet of stormwater per year into the groundwater aquifer.

Project Number	Project	Responsible Agency	Project Description
31	Wineville Recycled Pipeline Project	IEUA	The Wineville Recycled Pipeline Project will make changes to three basins. The project will include upgrading Wineville Basin to be capable of infiltration by adding a gate to the outlet and improving the dam. Detained stormwater will be pumped to Jurupa Basin via a new pump and conveyance pipeline. Stormwater will then be pumped from Jurupa Basin through existing lines to the RP3 Basins, which will be enlarged and improved to accept more stormwater and recycled water. Combined, the upgrades will add over 6,500 acre-feet per year on average of stormwater and recycled water to the Chino groundwater subbasin.
32	San Sevaine Basins	IEUA	Recharge in the San Sevaine Basins will be increased by recycling water through a new pump and conveyance pipeline from San Sevaine Basin No. 5, which has a low infiltration rate, to San Sevaine Basin No. 3, which has a higher infiltration rate. A new berm will also be constructed within Basin No. 5. The improvements will facilitate additional groundwater recharge from both stormwater and recycled water.
33	Lower Day Basin	IEUA	The improvements proposed as part of the Lower Day Basin project include the construction of a secondary diversion structure within the channel to more efficiently divert flows into the basin. Within the basin, capacity will be increased by removing a mid-level outlet and reconstructing an embankment. These improvements will add an estimated average of 75 acre-feet of groundwater to the Chino groundwater subbasin per year.
34	Declez Basin	IEUA	Declez Basin will be improved by reconstructing the existing embankment and spillway at a higher elevation to increase storage. Additionally, a gate will be installed on an existing outlet, improving the ability of IEUA to manage the basin as a recharge facility. The improvements will recharge an average of 241 acre-feet of stormwater to the groundwater basin annually.

Project Number	Project	Responsible Agency	Project Description
35	Victoria Basin	IEUA	The Victoria Basin project will improve the recharge and flood control capabilities of the existing basin by abandoning the mid-level outlet that allows flows to discharge to the San Sevaine Channel. The basin's recharge capacity will be increased by blocking the outlet and extending the existing lysimeter stations, allowing the basin to hold a greater volume of water.
36	Turner Basin	IEUA	The existing spillway at Turner 2 Basin was built long before upstream development in the City of Rancho Cucamonga required larger stormwater basins at the confluence of Cucamonga Channel and Deer Creek Channel, and it is one of the last remaining pieces of the Turner Basin complex that has yet to be replaced. A new spillway at a higher elevation will allow IEUA to store additional stormwater volume within the basin complex, which will produce an additional annual recharge volume of 66 acre-feet.
37	Ely Basins	IEUA	The Ely Basins improvements include excavating 470,000 cubic yards of material from within the existing footprint of the basins. IEUA estimates that the increase in the capacity of the basins would yield an average of 221 acre-feet of additional stormwater recharge per year.
38	Montclair Basins	IEUA	The proposed project at Montclair Basin will add one drop inlet structure from Basin 1 to Basin 2, and one drop inlet structure from Basin 2 to Basin 3. The project will allow for better management of groundwater recharge and the efficiencies attained will yield an average of 248 acre-feet of additional recharge per year.
39	Montclair - Arrow Highway	City of Montclair	This project will reduce the current four lane major arterial street to a two lane road, allowing for a median that will capture runoff from the street, treat it, and infiltrate it back into the ground.
40	Montclair - Fremont Avenue	City of Montclair	This project will reduce the current four lane arterial street to a two lane road, allowing for a median that will capture runoff from the street, treat it, and infiltrate it back into the ground.
41	Montclair - Sunset Park	CBWCD / Montclair	This project will develop a walking and biking environmental trail that incorporates a water feature moving dry-weather runoff on Orchard Street from the north end of the park to the south end where it will infiltrate into the ground.

Project Number	Project	Responsible Agency	Project Description
42	Urban Walkable Watersheds	CBWCD	The Urban Walkable Watersheds project will feature a community walking trail that provides connectivity near water infrastructure projects while actively capturing and infiltrating runoff through green infrastructure demonstration projects. An emphasis will be placed on increasing public education and community involvement through educational programs involving nearby public schools.
43	Multipurpose Recharge Basins	CBWCD	The Multipurpose Recharge Basins project will re-conceptualize the role of groundwater recharge basins by integrating native plant restoration and passive recreation with educational signage on perimeters of existing basins. The project will increase areas for public education and recreation without impeding groundwater recharge in the basin.
44	College Heights and Upland Percolation Basins	CBWCD	The improvements proposed to the College Heights and Upland Percolation Basins will include water quality features to improve urban runoff, flood mitigation, streetscape, passive recreation, and education.
45	Streamflow Restoration on Plunge Creek	SBVWCD	The Streamflow Restoration on Plunge Creek will continue the enhancement of the SBVWCD Plunge Creek Conservation Project by an additional half mile. In addition to providing riparian habitat, the stream enhancements will improve flood management capacity during high flow events.
46	Spreading on Woolly Star Preserve Area	SBVWCD	The Spreading on Wooly Star Preserve Area project involves spreading Santa Ana River water within the preserve area during events of high flow through the installation of new gates and pipes. Stormwater infiltration will occur in historical remnant channels to better mimic pre-development processes, which will enhance riparian habitat.
47	Mission/Zanja Basin	SBVWCD	The Mission/Zanja Groundwater Recharge Basin project will place a groundwater recharge basin in vacant lands along the Mission Zanja, reducing stormwater runoff and increasing groundwater recharge. Seven possible locations have been identified with the smallest being 65,000 square feet with a recharge rate of 10 feet per day. Up to 15 acre-feet will recharge per day at a flow rate of 7.5 cfs.

Project Number	Project	Responsible Agency	Project Description
48	Riverside Corona Feeder	WMWD	The project will connect the California State Water Project feeder to Riverside. California State Water Project water will be used to recharge Riverside County basins.
49	Confluence Regional Water Resources Project	CBWCD	The project will construct a new groundwater recharge and storage reservoir at the confluence of Chino Creek and San Antonio Creek. Pumps will send excess stormwater to upstream CBWCD-managed basins to enhance recharge opportunities. An artificial habitat and bioremediation channel will be used as an educational and wetland habitat feature.
50	Big Bear Valley Water Sustainability Project	City of Big Bear Lake	Big Bear Valley wastewater currently is treated and sent outside of the SARW to irrigate crops in Lucerne Valley. The project will upgrade the Wastewater Treatment Plant (WWTP) and reuse tertiary-treated wastewater locally to recharge local groundwater, provide critical habitat for endangered species, and stabilize BBL water levels.
51	Rathbun Creek Floodway Improvement Project	City of Big Bear Lake	The project will increase the size of three culverts on Rathbun Creek to be able to convey the 100-year discharge without flooding nearby properties. The project will also enhance the natural streambed downstream of Big Bear Boulevard and riparian habitat. A multiuse trail will be constructed along the banks to extend Rathbun Trail all the way to Big Bear Lake.
52	Treat, Recycle, Educate (TRE) Plan	City of Redlands	The TRE Plan consists of several green street improvements combined with a new 0.8-acre stormwater basin near the existing Redlands WWTP. The area will include a new educational park featuring interpretive signage describing the LID BMPs that will be included in the park and on Nevada Street. The park's vegetation will be irrigated with recycled water from the WWTP.
53	Los Serranos Park	City of Chino Hills	The Los Serranos Park project will create a new community park in the City of Chino Hills. The design will include green infrastructure and habitat enhancement and protection.
54	Restoration and Enhancement of Creeks	City of Chino Hills	This project will improve the ecosystem and protect valuable riparian habitat through a creek rehabilitation and streambed restoration project. The project will also provide public walking trails and educational opportunities.

6.2 Benefit Analysis Results

Each project was evaluated for its capacity to maximize water supply, water quality, flood management, environmental, and other community benefits within the watershed. The benefits were analyzed based

on the quantitative methods approach described in **Section 5.3**. A summary of this analysis is included in **Attachment G**.

6.3 Project Prioritization

The projects listed in **Section 6.1** were assigned a ranking code according to the methodology described in **Section 5.4**. The ranking takes into account an integration of quantitative factors, including the project readiness, cost, breadth of benefits, water supply efficiency, and water quality efficiency, to assure the greatest needs are addressed. A summary of the result of this analysis are included in **Attachment H**. While each of the projects is considered a priority, this analysis helps determine which projects may be most ready and beneficial from a SWRP perspective.

6.4 Assessment of Stormwater Management Objectives

Five stormwater management goals were identified in **Section 1.5** as follows:

1. Enhance water quality
2. Maximize water supply
3. Improve flood management
4. Protect the environment
5. Provide community benefits

Eighteen stormwater management objectives were identified in accordance with these goals, as further discussed in sections above and for which the quantitative approach is included in **Section 5.3**. **Table 6-2** identifies the degree to which these stormwater management objectives will be satisfied through the construction of all projects identified in **Section 6.1**. It is unlikely that all projects will be constructed and overall implementation will span over multiple decades. Conditions will change over time and those changes are not accounted for in this analysis. The assessment included below provides a context to the magnitude of benefits proposed through this SWRP.

Table 6-2 Assessment of Stormwater Management Objectives

Goal	Objective	Predicted Cumulative Achievement
Enhance Water Quality	Pollutant Load Reduction	The projects will cumulatively provide for the removal of roughly **four quadrillion (4 x 10^{15}) MPN *E. coli* bacteria** from the waterways of the SBC SARW per year.
	Stormwater Runoff Reduction	The projects will reduce the discharge of untreated stormwater by approximately **41,000 acre-feet** per year.
Maximize Water Supply	Stormwater Recharge	The projects in the SWRP will cumulatively capture on average around **41,000 acre-feet** of stormwater per year and use the volume to recharge local aquifers.
	Recycled Water Recharge	The projects will also capture about **7,500 acre-feet** of recycled water per year for groundwater recharge.

Goal	Objective	Predicted Cumulative Achievement
Improve Flood Management	Runoff Rate Reduction	At least 32 projects will provide a benefit of reducing the peak flow rate during floods, with a maximum predicted flow rate reduction of **600 cfs** (Cactus Basin #4 and 5).
	Runoff Volume Reduction	The projects will cumulatively prevent **41,000 acre-feet** of stormwater from reaching downstream flood-prone areas.
	Flood Elevation Reduction	At least 17 projects will provide a benefit of reducing the water surface elevation during a flood event, with a maximum predicted flood elevation reduction of almost **9 feet** (Wilson Creek – 10th Street to Interstate 10).
	Removal of Parcels/ Structures from the Floodplain	The projects will cumulatively remove approximately **1,900 parcels** from the risk of flooding during a 100-year storm event.
	Property Value Saved	These parcels have a combined value of over **$610 million.**
Protect the Environment	Wetlands Enhancement/ Creation	The projects will enhance or create over **148 acres** of wetlands.
	Riparian Area Enhancement	The projects in the SWRP will restore or enhance almost **178 acres** of riparian habitat.
	Streambed Restoration	The projects in the SWRP will restore at least **4,545 feet** of streambed to natural conditions, creating and preserving critical habitat for endangered species.
	Increased Urban Green Space	Cumulatively, the projects will increase the amount of urban green space within the SBC SARW by about **78 acres**.
Provide Community Benefits	Provide Employment Opportunities	Construction of the projects in the SWRP is estimated to provide roughly **6,100 job-years** of employment opportunities to the community. From the Bureau of Labor Statistics, the median tenure of an employee in a construction job in 2016 was 4 years (BLS, 2016). Therefore, it is estimated that the projects will cumulatively provide over **1,500 new jobs**.
	Increase Public Education	Public education benefits will be achieved in at least **eight projects**. These projects will have interpretive signage to increase the public's understanding of water quality protection and using stormwater as a resource.
	Increase Community Involvement	At least **five projects** in the SWRP will increase community involvement as a permanent feature of the project.
	Recreational Paths Enhancement/ Creation	The projects in the SWRP will create or enhance over **29 miles** of multi-use paths and trails for public use.
	Public Use Area Enhancement/ Creation	Over **75 acres** of new public use and recreational space will be created by the construction of the projects.

7. Implementation Strategy and Schedule

This section presents elements of the implementation strategy that will be used to implement projects and programs identified in the SBC SARW SWRP. The strategy includes implementation elements, resources, performance-measures, and an adaptive management approach. This section also discusses the use of decision support tools to support ongoing implementation and adaptation.

7.1 Implementation Approach

Figure 7-1 illustrates the overall implementation strategy. The four major components of the implementation strategy are resources, implementation, adaptive management, and performance measures. These components are further detailed in the sections below.

Figure 7-1 Overall Implementation Strategy

7.2 Resources

Financial resources are a significant component of SWRP implementation. A matrix of funding opportunities is included in **Attachment I**, summarizing various financing programs (grants and loans). The matrix included in the attachment identifies the funding agency, program, timeline, purpose, eligible uses, funding limits, contact information, and website link. Funding programs will change over time. The attached matrix summarizes programs that are currently relevant, which may also be relevant in the

future. The cost estimates included in **Attachment H** represent the currently projected funding needs on a project by project basis (if available). The responsible agency for each project would ultimately be responsible for identifying and securing funding according to the financing program schedule and/or the implementation schedule if the implementing agency's funds are utilized.

7.3 Implementation

The general implementation strategy includes several elements, including schedule, responsible parties, community participation, and tracking, which are further detailed below. The schedule for implementation is discussed in **Section 7.3.1**. The party responsible for each project will dictate specific details regarding implementation. This information is discussed in **Section 7.3.2**. Community involvement (**Section 7.3.3**) is a key component, as the SWRP is a regional planning document that is most effective when stakeholders and the public are involved. Project/program implementation tracking (**Section 7.3.4**) will be important to measure progress from the planning phase through operation. The elements described in this section will also be considered through the adaptive management process.

7.3.1 Schedule

This section discusses the schedule associated with finalizing the SWRP along with the scheduling of the projects identified through the SWRP development process. This SWRP will be submitted to SAWPA (the local IRWM group) upon finalization, as required based on the SWRP Guidelines (SWRCB, 2015). **Table 7-1** summarizes the typical schedule related to implementation of various size projects. It is assumed that all outreach related activities would occur during the planning/design and construction phases. The schedule noted in the table below does not take into account the time needed to obtain necessary federal, state, and local permits. The obtainment of permits can vary by project and can range from a few months to several years.

Table 7-1 Typical Project Schedule

Phase	Percent Complete				
	Year 1	Year 2	Year 3	Year 4	Year 5
Green Streets (Under $1 Million for Construction)					
Agency planning and design	100%	-	-	-	-
Consultant planning and design	100%	-	-	-	-
Construction	-	100%	-	-	-
Agency construction management	-	100%	-	-	-
Consultant construction management	-	100%	-	-	-
Small/Medium Projects (Under $10 Million for Construction)					
Agency planning and design	100%	-	-	-	-
Consultant planning and design	50%	50%	-	-	-
Construction	-	25%	75%	-	-
Agency construction management	-	25%	75%	-	-
Consultant construction management	-	25%	75%	-	-
Large Projects (Over $10 Million for Construction)					
Agency planning and design	100%	-	-	-	-
Consultant planning and design	25%	50%	25%	-	-

Phase	Percent Complete				
	Year 1	Year 2	Year 3	Year 4	Year 5
Construction	-	-	25%	50%	25%
Agency construction management			25%	50%	25%
Consultant construction management			25%	50%	25%

The schedules for each individual project will vary based on the needs of the project, the funding available, and other unforeseeable circumstances, and thus it is unknown when exactly projects will begin in most cases. A rough estimate of the date when construction will start for each project is listed below. These dates are tentative and subject to change for a variety of reasons.

Year 1 = 2018

11. Cactus Basin #4 and 5 (SBCFCD)
15. Etiwanda Channel Invert Repair and Trail Project (SBCFCD)
16. West State Street Storm Drain Segment III and Brooks Basin Inlet Enhancement (SBCFCD)
18. Santa Ana River Trail Phase III (SBC Parks)
32. San Sevaine Basins (IEUA)
33. Lower Day Basin (IEUA)
49. Confluence Regional Water Resources Project (CBWCD)

Year 1 = 2019

2. West Fontana Channel – Hickory Basin to Banana Basin (SBCFCD)
12. Plunge Creek Stream Bed Restoration and Elder Creek Channel Improvement (SBCFCD)
31. Wineville Recycled Pipeline Project (IEUA)
34. Declez Basin (IEUA)
35. Victoria Basin (IEUA)
36. Turner Basin (IEUA)
37. Ely Basins (IEUA)
38. Montclair Basins (IEUA)
53. Los Serranos Park
54. Restoration and Enhancement of Creeks

Year 1 = 2020

3. Grove Basin Storm Drain (SBCFCD)
50. Big Bear Valley Water Sustainability Project (City of Big Bear Lake)
51. Rathbun Creek Floodway Improvement Project (City of Big Bear Lake)

Year 1 = 2021

1. Hawker Crawford Channel Storm Drain (SBCFCD)
17. Carbon Canyon Creek Channel – Pipeline Avenue to Peyton Drive (SBCFCD)

Year 1 = 2022

19. Santa Ana River Trail Phase IV (SBC Parks)

Year 1 = 2023 or beyond

4. Randall Basin Outlet and Colton Storm Drain Project 3-5 (SBCFCD)
5. Cable Creek Basin (Upper) (SBCFCD)
6.1 Warm Creek – Baseline Street to Sand Creek Confluence – Concept 1 (SBCFCD)
6.2 Warm Creek – Del Rosa Confluence to Sand Creek Confluence – Concept 2 (SBCFCD)
7.1 Little Sand Creek – Concept 1 (SBCFCD)
7.2 Little Sand Creek – Concept 2 (SBCFCD)
8. Mission Channel – Santa Ana River to Tennessee Street (SBCFCD)
9. Wilson Creek – 10th Street to Interstate 10 (SBCFCD)
10.1 Rialto Channel – Etiwanda to Willow – Concept 1 (SBCFCD)
10.2 Rialto Channel – Etiwanda to Willow – Concept 2 (SBCFCD)
13. Wildwood Channel – Interstate 10 to Holmes Street (SBCFCD)
14.1 Del Rosa Channel – Pacific Street to Del Rosa Avenue – Concept 1 (SBCFCD)
14.2 Del Rosa Channel – Pacific Street to Del Rosa Avenue – Concept 2 (SBCFCD)
20. Lytle Creek Basin (SBVMWD)
21. Devil Canyon Basins (SBVMWD)
22. City Creek Basin (SBVMWD)
23. Cable Creek Basin (Lower) (SBVMWD)
24. Lytle-Cajon Basins (SBVMWD)
25. Mill Creek Inlet (SBVMWD)
26. Plunge Creek Basin I (SBVMWD)
27. Plunge Creek Basin II (SBVMWD)
28. Twin Creek Spreading Grounds (SBVMWD)
29. Vulcan 2 Basin (SBVMWD)
30. Waterman Basins (SBVMWD)
39. Montclair – Arrow Highway (City of Montclair)
40. Montclair – Fremont Avenue (City of Montclair)
41. Montclair – Sunset Park (CBWCD / City of Montclair)
42. Urban Walkable Watersheds (CBWCD)
43. Multipurpose Recharge Basins (CBWCD)
44. College Heights and Upland Percolation Basins (CBWCD)
45. Streamflow Restoration on Plunge Creek (SBVWCD)
46. Spreading on Woolly Star Preserve Area (SBVWCD)
47. Mission/Zanja Basin (SBVWCD)
48. Riverside Corona Feeder (WMWD)
52. Treat, Recycle, Educate (TRE) Plan (City of Redlands)

7.3.2 Responsible Parties

A lead agency has been identified for each of the projects evaluated, as defined in **Table 6-1**. The responsible agency is the agency that submitted the project information for inclusion in the SWRP. In several cases, the lead agency will partner with other agencies. For example, the SBCFCD has identified

several projects that may include trail features. Those trail features will be established through a partnership with local jurisdictions.

There are not any critical linkages between projects, such that there is not any given project that must be implemented prior to another. Several of the projects are related due to their location within the same subwatershed; therefore, implementation of one project may impact performance of another, but will not mitigate the need for the other project. The project concepts identified in the SWRP are based on full implementation. In some cases multiple alternatives have been identified and in that case only one concept will be implemented. The lead agency may determine it is best to phase the projects, which would essentially create interdependence among the phases. Due to the independence of each project, the lead agency will be responsible for the overall implementation and utilize partners as appropriate.

7.3.3 Community Participation

The stakeholders/public supported the development of the SWRP through the TAC and outreach events, described further in **Section 4 and 8**. Community participation is consistent with the SPOEEP, included in **Attachment E**. The efforts made during the SWRP development to involve stakeholders and the public will transition into a platform for stakeholder/public input during implementation. Involvement during implementation will likely focus on the direct community in which the project is being implemented. Meetings and/or workshops will be executed as necessary in an effort to inform the community of multi-benefit project implementation and seek input as appropriate.

In addition to the involvement during the design and construction process of project implementation, the stakeholders/public may be engaged following the completion of projects when educational signage is incorporated. The community will learn about the multiple benefits the project provides and stormwater quality through the signage included as part of the projects. Stakeholder/public input may also be solicited during the design process with regard to the proposed educational signage.

7.3.4 Tracking

Project implementation is the most significant SWRP element for which tracking is applicable. Preliminary information regarding project status has been collected and documented as part of the SWRP development. The project prioritization in **Attachment H** identifies whether conceptual design plans have been prepared, as well as a cost estimate, for each of the projects included in the SWRP. The status of required studies, reports, investigations, and design plans may be tracked independently by each of the parties responsible for implementation. Tracking this information is helpful, as it may assist the responsible agency and/or their partners with prioritizing implementation efforts. Centralized tracking was considered and determined not to be the best approach at this time. A centralized tracking system will be reconsidered in the future and would be incorporated into the SWRP through the adaptive management process described below if deemed appropriate at that time. Each responsible party will track the status of applicable design elements for each of their projects independently, which may include, but is not limited to:

- Conceptual plans
- Preliminary design report
- Soils investigation

- Hydrology and hydraulic study
- Topographic survey
- Flood study
- Design plans

7.4 Adaptive Management

The SBC SARW SWRP is structured as a living document and will be adaptively managed. The SWRP will be reviewed approximately every five years to determine if an update is warranted. Adaptive management will allow the SWRP to be updated with the most pertinent and relevant information, which changes over time. For example, ongoing monitoring may demonstrate water quality improvements over time. In that instance, the SWRP could be updated to re-establish the water quality priorities. The utilization of monitoring data as part of the adaptive management process is further discussed in **Section 7.5**. Ongoing adaptations to the SWRP may include, but are not limited to:

- Re-characterization of water quality priorities
- Source assessment re-evaluation
- Effectiveness assessment of watershed-based projects
- Updated metrics-based quantitative analysis
- Deleted or new projects
- Identification of completed projects

Projects may be submitted to the SBCFCD by local lead agencies on an ongoing basis. The Multi-Benefit Project Request Form originally used to collect project information from stakeholders is included in **Attachment J**. This form may be submitted to the SBCFCD at any time and the SBCFCD will incorporate projects into the SWRP as appropriate. If a project concept has changed, the responsible agency would be required to submit the updated information to the SBCFCD. Updated information would also need to be submitted if the quantified benefits are determined to be different than those presented in the SWRP due to additional data collection and/or detailed analyses. It will be noted in the SWRP when a project originally identified in the SWRP has been implemented during periodic updates.

7.5 Performance Measures

This section discusses how performance of identified projects will be measured to assess the achievement of projected benefits. The following components will be used to assess performance and are further described below:

- Evaluation of expected versus actual outcomes, which leads to the re-evaluation of project objectives, priorities, and goals
- Monitoring and information management systems used to gather performance data
- Mechanisms to adapt project operations and plan implementation based on performance data
- Approach to document and share performance data with stakeholders

7.5.1 Expected versus Actual Outcomes

The quantification of multiple benefits presented in **Attachment G** represents a preliminary evaluation of the expected outcome due to project implementation. Project concepts assessed are preliminary, and benefits will be updated as the designs are finalized by the responsible parties. Projects that receive funding through grants are typically required to measure performance over time and are designed to achieve a benefit agreed upon between the responsible party and the granting agency. Benefits have been quantified within the five benefit categories (water quality, water supply, flood management, environmental, and community) through the SWRP development.

Table 7-2 summarizes design elements and/or technical analyses that may be necessary to measure actual outcomes/multiple benefits based on the benefit category following project implementation. The elements/analyses identified will need to be tailored for each project to establish an economical approach. For example, measuring flow rates/volumes into a basin can be done easily using a flow meter on the inflow pipe, while for a channel improvement, installing flow meters at every inlet (to assess infiltration within the channel) would be extremely costly and a detailed analysis may represent a more economical approach. Additional details pertaining to the benefits are included in **Section 5.3**.

Table 7-2 Options for Measuring Actual Outcomes by Benefit Category

Benefit	Design Elements/Analysis Options to Verify Performance
Water Quality	
Pollutant load reduction	➢ Visual flow monitoring ➢ Flow meter(s)/stream gage(s) ➢ Monitoring program (pre-/post-project and/or upstream/downstream) ➢ Monitoring with lysimeters (if applicable) ➢ Hydrologic modeling with collected rainfall data ➢ Infiltration testing to support calculations
Stormwater runoff reduction	➢ Visual flow monitoring ➢ Flow meter(s)/stream gage(s) ➢ Hydrologic modeling with collected rainfall data ➢ Infiltration testing to support calculations
Water Supply	
Stormwater recharge	➢ Visual flow monitoring ➢ Flow meter(s)/stream gage(s) ➢ Hydrologic modeling with collected rainfall data ➢ Infiltration testing to support calculations
Recycled water recharge	➢ Recycled water discharge rates/quantities ▪ Flow meter, visual monitoring, and/or collect data from others ➢ Flow rate/quantity captured ▪ Flow meter and/or visual monitoring ➢ Assessment of recycled water capture versus stormwater captured (unless project exclusively captures recycled water)
Flood Management	
Runoff rate reduction	➢ Model existing and proposed conditions hydrology and hydraulics and compare results ➢ Prepare Letter of Map Revision (LOMR) (if applicable)

Benefit	Design Elements/Analysis Options to Verify Performance
Runoff volume reduction	➢ Visual flow monitoring ➢ Flow meter(s)/stream gage(s) ➢ Hydrologic modeling with collected rainfall data ➢ Infiltration testing to support calculations
Flood elevation reduction	➢ Model existing and proposed conditions hydrology and hydraulics and compare results ➢ Prepare LOMR (if applicable)
Removal of parcels/structures from the 100-year floodplain	➢ Model existing and proposed conditions hydrology and hydraulics and compare results to identify change in floodplain limits ➢ Identify structures/parcels removed ➢ Prepare LOMR (if applicable)
Property value saved	➢ Model existing and proposed conditions hydrology and hydraulics and compare results to identify properties saved ➢ Update current market prices for properties removed from the floodplain to quantify property value saved
Environmental	
Wetlands enhancement/creation	➢ Measure area based on design plans/implementation ➢ Visual monitoring/photo documentation of enhancement
Riparian area enhancement	➢ Measure area based on design plans/implementation ➢ Visual monitoring/photo documentation of enhancement
Streambed restoration	➢ Measure length based on design plans/implementation ➢ Visual monitoring/photo documentation of restored streambed
Increased urban green space	➢ Measure area based on design plans/implementation ➢ Visual monitoring/photo documentation of urban green space type and how it is utilized by the community
Community	
Provide employment opportunities	➢ Data collection from all involved partners related to employment ➢ Collection of timesheets during design, construction, and ongoing implementation (as applicable)
Increase public education	➢ Count number of interpretive signs installed ➢ Photo documentation of signage and use ➢ Public surveys
Increase community involvement	➢ Track number of community meetings held ➢ Compile and analyze data/outcomes pertaining to each meeting (number of attendees, who attended, presentation, comments, action items, etc.)
Walking paths, sidewalks, and bike trails enhancement/creation	➢ Measure feature lengths based on design plans/implementation ➢ Photo documentation of paths, sidewalks, and/or bike trails (implementation and ongoing use)
Public use areas enhancement/creation	➢ Measure public use areas based on design plans/implementation ➢ Photo documentation (implementation and ongoing use)

Project objectives, priorities, and goals may be re-evaluated once actual outcomes are quantified. At that time, the future implementation strategies may be modified, as necessary and feasible, to align with objectives, priorities, and goals, which may be adapting and changing. These re-evaluations and assessments would be part of the adaptive management process described under **Section 7.4**.

7.5.2 Monitoring

This section is broken into two separate monitoring discussions; the first one is regional monitoring that is conducted currently to assess water quality on a regional level, and the second is individual project monitoring that may be implemented following project implementation. Results from both of these monitoring programs may be used to assess performance of either a specific project or the overall program. Project specific monitoring may include information management systems, such as flow monitoring, which will also produce data that can be used to assess performance.

7.5.2.1 Regional Water Quality Monitoring

Section 3.3 details the monitoring programs implemented in the last ten years along with the results of those monitoring efforts, specifically pertaining to:

- Core Monitoring
- BBLN TMDL Monitoring:
  - BBL Watershed-Wide Nutrient Monitoring
  - BBL In-Lake Monitoring
- MSAR Bacterial Indicator TMDL/WLA Monitoring

The SBC Areawide Stormwater Monitoring Programs are implemented to fulfill the MS4 Permit requirements. Implementation is currently ongoing and the monitoring programs will be modified as required by future MS4 Permits. The data collected through these monitoring efforts was used to quantify anticipated pollutant load reductions associated with project implementation. Through the adaptive management process, further detailed in **Section 7.4**, future monitoring data will be used to verify the characterization of water quality.

In early November of each year, the SBC Areawide Stormwater Annual Report is completed for the previous fiscal year, which includes a summary of the findings from the various monitoring programs. These reports are available for stakeholders to review and are reviewed by the SARWQCB. The transparent reporting process allows for data to be reviewed and gaps to be identified if they exist. Implementation of the SBC SARW SWRP does not require additional regional monitoring to be conducted. Monitoring may be conducted on a project by project basis, as further discussed below.

The findings related to regional water quality may provide insight as to how implemented programs are influencing the quality of water reaching downstream receiving waters. This assessment may be relevant to SWRP implementation in the future, once SWRP projects have been implemented. Findings from these ongoing monitoring efforts may influence future implementation and project prioritization (through the adaptive management process).

7.5.2.2 Project Specific Monitoring

Various types of monitoring may be implemented for individual projects. Monitoring may include flow monitoring (visual versus automatic) and/or water quality monitoring. Individual project monitoring is likely to occur when grant funds are received in which monitoring is required to assess performance. The monitoring scope and frequency will likely vary on a project by project basis. Individual project

monitoring data will allow the responsible party to assess project performance and compare expected and actual outcomes. This data may also be used to make projections on regional water quality improvements due to project implementation.

Monitoring data collected as part of a grant funded project will be summarized and reported to the grant manager. This data may also be shared with the public and/or stakeholders through a public input process or on the SWRP website. Sharing the monitoring data and findings with the granting agency, public, and/or stakeholders will promote a multi-faceted review process in which data gaps would be identified and an approach to fill those gaps could be developed as necessary.

7.5.3 Information Management

Information will be managed such that project operations and SWRP implementation may be adjusted based on performance data collected. How information will be stored and shared is further discussed under the following subsection, while this subsection focuses on how the information will be used to guide future operations and decisions. For instance, monitoring data (flow and/or water quality) may demonstrate that the originally projected targets are not being achieved. Some projects that involve controls (pumps, valves, etc.) may be modified to maximize the benefits achieved by a project; however, most of the projects identified in the SBC SARW SWRP cannot be easily modified once implemented. Potential project enhancements may be evaluated if critical goals are not achieved. Alternatively, if a project is exceeding the projected benefits at a high operational cost, then the project operations may be altered such that the projected benefits are achieved in a more economical way.

On a larger scale, regional monitoring data may be used to guide project/program implementation. For example, if several projects are implemented within a watershed tributary to a regional monitoring site and it is observed that water quality improves once the projects are implemented, then there may be opportunities to re-prioritize project implementation. In that case, projects within other watersheds that have water quality concerns may become a higher priority over those that would continue to improve the same watershed. Another example is that if one project helps relieve flooding in a given area, then another project to address that flooding may become a lesser priority. Projects may be re-prioritized following implementation of another project with similar benefits in the same subwatershed through the adaptive management process.

Project specific data collected through monitoring activities and/or information management systems will be managed by the responsible parties in accordance with any agreements they have in place with other involved parties (funding parties and/or project teaming partners). This data will be shared with the SBCFCD such that it may be considered when the SWRP is adaptively managed. Data collected from individual project implementation and regional monitoring will be compiled as part of the adaptive management process to determine how the program needs to be modified, likely through project re-prioritization.

The SWRP and identified projects will be submitted to and included in the latest version of the SAWPA OWOW Plan. Each project included in the SWRP and funded through an IRWM grant program will be required to provide data from approved project performance monitoring programs in formats consistent with the requirements of existing statewide databases such as the California Surface Water Ambient Monitoring Program (SWAMP), the California Environmental Data Exchange Network (CEDEN), the California Rapid Assessment Methods (CRAM) for wetland and riparian habitat conditions, and groundwater quality monitoring through the GeoTracker database, per the requirements of the OWOW

Plan. The OWOW Plan also encourages projects from the SWRP that are not funded through IRWM grant programs to upload data to the SAWPA Plan Performance Assessment Database. This database is reviewed by SAWPA staff, who will identify gaps in the data, correct erroneous data, and perform frequent backups on the database.

7.5.4 Data Sharing

Performance data collected will be made available to interested parties through various platforms. Separate reporting documents will be prepared summarizing data collection and results based on the type of monitoring/data collection. For example, annual reports (and/or other regularly scheduled reports, i.e., quarterly, seasonal, etc.) are prepared for all of the regional monitoring efforts. Additionally, an Areawide Stormwater Program Annual Report is prepared, as referenced in **Section 7.5.2.1**, that summarizes the individual regional monitoring program reports. Project specific monitoring will likely include periodic reports for internal use and/or for other involved parties. Data will be assessed and reviewed through report preparation and also by the SBCFCD through the SWRP adaptive management process. Gaps will be filled as identified and appropriate.

Through these reports, the public and interested stakeholders have access to the information collected. Stakeholders and/or the public may request regional monitoring data from the SBCFCD, while some of the monitoring reports are posted directly online on their respective websites. Specific project data will be shared as appropriate by the responsible party upon consent from all teaming partners. The SBCFCD will also evaluate opportunities to post data on the SWRP website and send email blasts to stakeholders and the public whom have been involved in outreach efforts.

The data submitted to statewide databases or through the SAWPA Plan Performance Assessment Database will be available through web tools and data requests. These data sharing tools have been developed to give stakeholders the ability to perform watershed-wide analysis and may be used to influence the goals of future plan revisions.

7.6 Decision Support Tools

The projects identified in the SWRP undergo a detailed quantitative assessment to understand the multiple benefits the given project provides. The results from the quantitative analysis and prioritization become an important tool that will be used to make decisions, such as how and when to implement the project. The approach to perform the quantitative analysis and results are included in **Section 5** and **Section 6**. Analyses performed and documentation prepared/reviewed during project implementation will also support decision making.

Decision support tools will be used in the implementation phase of the SWRP to determine progress toward meeting the goals and objectives specified in this SWRP and to determine project priorities for future iterations of the SWRP. Decision support tools will be consistent with the requirements of the SAWPA OWOW Plan, as the SBC SARW SWRP will be submitted to and approved by the local IRWM group that manages the OWOW Plan (SAWPA). The OWOW Plan calls for project proponents to collect data and submit it through database systems that have been developed for statewide efforts, such as the CEDEN and SWAMP databases, or through the SAWPA Plan Performance Assessment Database.

Updates to the watershed goals and objectives will occur whenever the OWOW Plan is updated. The OWOW Plan has been updated several times to evolve with the changing objectives of the SARW, and will be updated in the future. The OWOW Plan is a planning document with a 20-year horizon, and the needs of the watershed will require reassessment of the goals and objectives at the end of that time horizon at the very latest.

8. Education, Outreach, and Public Participation

Stakeholders, including elected and appointed officials, municipal and county staff, watershed groups, local water agencies, and NGOs, along with the public (e.g., residents, businesses, homeowners associations, etc.) are crucial to the development of the SWRP. The diverse motivation and viewpoints of each audience has shaped the development of this plan. Information regarding the goals, projects, programs, and needs identified in the SWRP was shared and the public (including stakeholders) was provided opportunities to provide feedback on the development of this plan, while the TAC provided technical guidance. The various educational outreach/education efforts for stakeholders and the public are detailed within the following subsections. Some of these approaches may also be used during community engagement executed during project design and implementation.

8.1 Education

The SBC SARW SWRP development provided an opportunity to educate local stakeholders and the public. In addition to the stakeholder and public outreach events described in **Section 4** and the sections below, education was promoted through printed materials, a SWRP webpage, and social media, each of which are further described in the subsections below. Printed materials and the SWRP webpage will be available during project design and implementation. The responsible party will incorporate these resources into future public outreach efforts.

8.1.1 Printed Materials

Printed materials were developed in an effort to educate stakeholders and the public. Printed materials included graphic posters displayed at outreach events, flyers, and informational handouts. The goals of the printed materials were to simply convey through illustrations and simplified text:

1. What is a SWRP?
2. Why is a SWRP necessary?
3. What types of solutions are included in the SBC SARW SWRP?

Multiple benefits provided through the SBC SARW SWRP implementation (water quality, water supply, flood management, environmental, and community benefits) were highlighted in printed material. The printed materials were also used to advertise stakeholder and public outreach events and solicit public review and comment of the SWRP. Printed materials were available to the public at the SBCFCD office, online, and outreach events. Some of the outreach material was printed in both English and Spanish. Copies of the printed materials available for distribution are included in **Attachment K**. Responsible parties will reference these printed materials during project design and implementation outreach efforts.

8.1.2 SWRP Webpage

The SBCFCD developed a webpage on their website providing accessible information to stakeholders and the public on the SBC SARW SWRP development. The webpage features an overview of the SWRP and included announcements regarding the outreach events and public comment period (schedule, start, end,

etc.). The webpage includes links to download educational materials, as detailed in **Section 8.1.1**. During the public review period, the Draft SBC SARW SWRP was posted on this webpage with directions on how to provide comments and feedback. The webpage provides contact information, which allows interested parties to contact key personnel with any comments/questions. The webpage allows stakeholders and the public to easily find information specific to the SBC SARW SWRP development and support the outreach and education efforts described in this section. The webpage will continue to host these resources and be utilized by responsible parties to support individual project design and implementation outreach efforts.

8.1.3 Social Media

Social media was used to advertise for the public outreach event. In particular, Facebook was utilized to support education and outreach efforts. The SWRP webpage link was included in posts, encouraging the public to access and review additional information. The SBCFCD collaborated with the Areawide Program and utilized their Facebook page. The Areawide Program Facebook page has over 13,000 followers.

8.2 Stakeholder Outreach

The SBCFCD sought opportunities to partner with local stakeholders in the implementation of projects/programs that provide multiple benefits (combination of water quality, water supply, flood management, community, and environmental benefits). Potential participants were invited to the stakeholder event. Opportunities included elected and appointed officials, municipal and county staff, watershed groups, local water agencies, and NGOs, along with other stakeholders, as summarized in **Table 8-1**.

Table 8-1 Participants Invited to the Stakeholder Outreach Events

Stakeholder Category	Potential Stakeholders
Elected/appointed officials	Local officials
Local municipalities	Big Bear Lake, Chino, Chino Hills, Colton, Fontana, Grand Terrace, Highland, Loma Linda, Montclair, Ontario, Rancho Cucamonga, Redlands, Rialto, San Bernardino, Upland, and Yucaipa
Neighboring counties	Orange County (Department of Public Works and Flood Control District) Riverside County Flood Control and Water Conservation District
Non-governmental organizations	Council for Watershed Health Inland Empire Waterkeeper
Regulators	SARWQCB SWRCB USACE
SBC departments	Flood Control District Public Health (Mosquito and Vector Control) Public Works Regional Parks Special Districts
Water agencies and member agencies	BBMWD - BBMWC
	CBWCD and Chino Basin Watermaster

Stakeholder Category	Potential Stakeholders
Water agencies and member agencies (continued)	IEUA – Cities of Chino, Chino Hills, Ontario, and Upland, Crawford Canyon Municipal Water Company, Cucamonga Valley Water District, Fontana Water Company, Monte Vista Water District, and San Antonio Water Company
	SBVMWD – Cities of Colton, Loma Linda, Redlands, and Rialto, EVWD, Marygold Mutual Water Company, Muscoy Mutual Water Company, RHWC, SBMWD, SBVWCD, South Mesa Water Company, Terrace Water Company, WVWD, Western Heights Water Company, and YVWD
	Six Basins Watermaster
	WMWD
	Warren Valley Basin Watermaster
	Other – City of Big Bear Lake Water Department, Big Bear City Community Service District, Fallsvale Service Company, Lake Arrowhead Community Services District, Lytle Creek Springs Water Company, and Running Springs Water District
Watershed groups	MSAR TMDL Task Force SAWPA
Other agencies	Bureau of Reclamation California Department of Transportation California Department of Water Resources California State Parks School Districts United States Forest Service (Trails Unlimited)

SBCFCD contacted potential participant agencies/organizations to identify the personnel that would best serve as the stakeholder representatives. Contact information of the potential participants was obtained at other outreach events by the members of the TAC. Invitations were distributed by email. Invitations were distributed a few weeks in advance, such that a preliminary head count was determined prior to the event. A running list of agencies/organizations and personnel invited were tracked along with any input received.

The stakeholder outreach events were held in mid-August 2017. Due to the large area the SBC SARW covers, the two stakeholder outreach events were in similar formats and were hosted at two different locations, one on the east side of the SBC SARW and the other on the west to encourage stakeholders throughout the watershed to participate.

The main goals of the stakeholder events were:

- Collect information regarding challenges faced in relationship to water quality, water supply, flood management, environmental, and the community;
- Gather details pertaining to current projects and programs conceptualized, planned, and implemented;
- Solicit project/program ideas to be included in the SWRP; and
- Obtain data pertinent to quantifying project/program benefits, including, but not limited to, monitoring data, flood studies, project/program concepts, system operations, etc.

Questions, comments, and concerns were addressed at the end of the meeting. The format of the stakeholder event was facilitated as a conversation, while a presentation was used to support discussions. The event included a sign-in sheet, which was used to gather information on the participants, and send out updates on the SWRP to allow stakeholders to review the SWRP during the public review period. Hard copies of the agenda were distributed along with informational handouts. The information identified in the agenda was presented utilizing a PowerPoint presentation, while discussions were encouraged after the presentation. Comment cards were provided to attendees to leave feedback.

8.3 Public Outreach

A public outreach event was held on July 24, 2018, to advertise the release of the public draft SWRP, provide an overview of the plan, and encourage public review and comment. The public outreach event was a model for the type of public outreach that shall be conducted during the implementation phase of the plan. The public was informed of the meeting through printed advertisements, email blasts, and social media. More than two dozen stakeholders and members of the public attended the event hosted at the SBCFCD office.

The subsections below describe mechanisms, processes, and milestones that were used to facilitate public participation and communication during development and implementation of the plan, including strategies to engage particular communities in project design and implementation. Additional details pertaining to the outreach efforts are included in the SPOEEP, which is included in **Attachment E**. **Figure 8-1** below is a picture from the outreach event on July 24, 2018.

Figure 8-1 Public Outreach Event

8.3.1 Strategies to Engage Disadvantaged Communities

A DAC is defined as a census geography (place, tract, or block group) where the annual median household income is less than 80 percent of the statewide annual median household income. Approximately 800,000 people lived in a DAC within the SBC SARW as of 2013, which was nearly half the entire population of the SBC SARW. Cities predominated by DACs tend to have limited resources and technical expertise, resulting in limited community support for multi-benefit project initiatives.

Engagement with DACs is an important aspect of project identification and implementation and is essential to develop support and understanding for the multi-benefit projects identified in the SWRP.

Figure 8-2 illustrates DAC blocks/tracts in the SBC SARW and the SWRP-identified projects. There are 37 projects that will be physically located within the boundaries of a census tract or block designated as a DAC. The remaining projects not located in a DAC will still provide benefits to DACs in terms of water supply to groundwater used to service DACs, water quality improvements for downstream DACs, or recreation benefits for nearby DACs.

The public outreach event held on July 24, 2018, during the development of the SBC SARW SWRP included strategies to engage DACs. The strategies included the production of notices and handouts in multiple languages (English and Spanish). The outreach materials for the July 24, 2018, SWRP public outreach event are included in **Attachment K**. These strategies can be replicated for the outreach effort for each project in the SWRP. Additionally, the sign-in sheets used at the public outreach event collected zip code information in an effort to track engagement from DAC areas. It was found that all of the attendees live within a zip code that contains a DAC area.

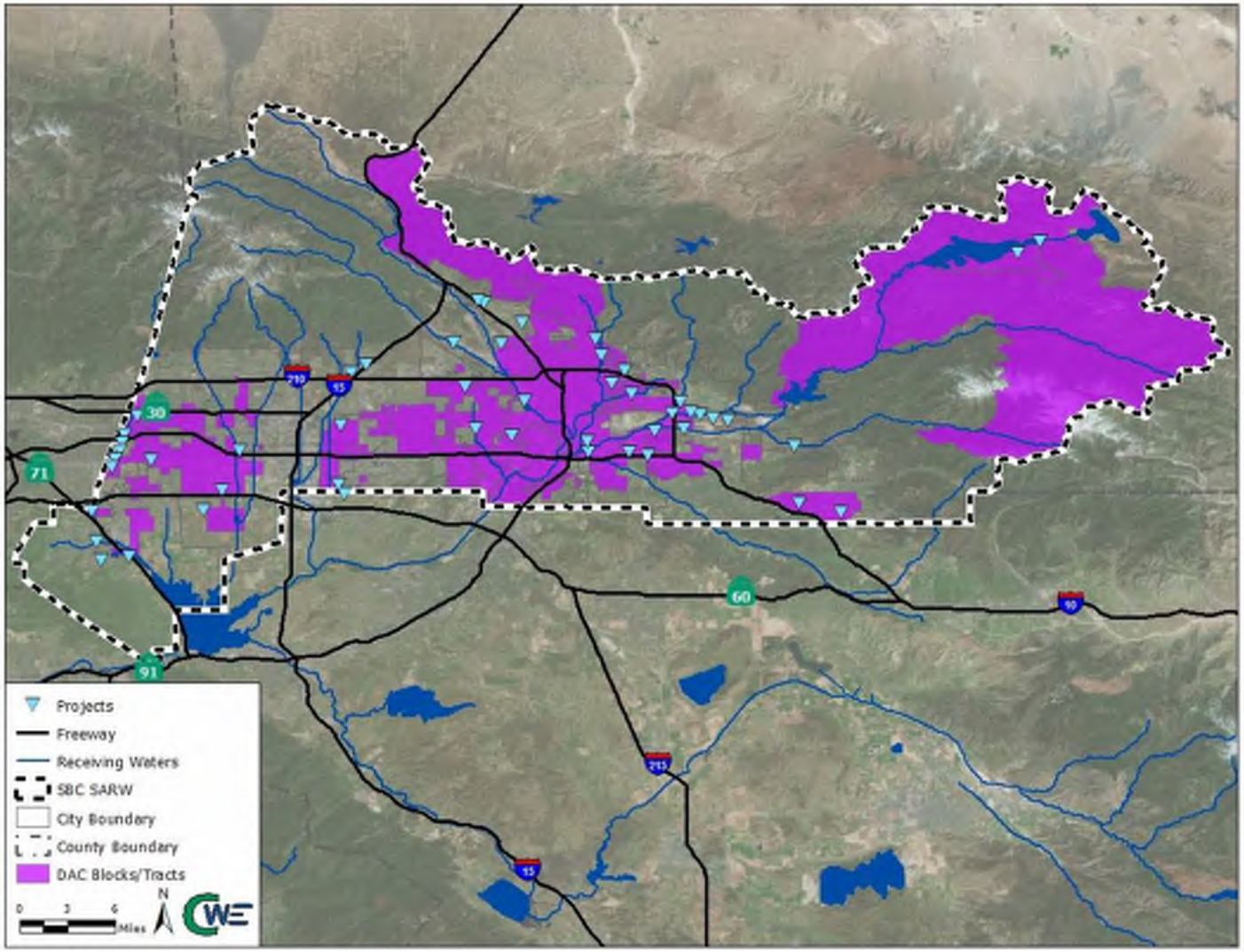


Figure 8-2 DAC Blocks/Tracts and SWRP Projects

8.3.2 Strategies to Address Environmental Injustice Needs and Issues

The USEPA defines environmental justice as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies." The goal of environmental justice will be achieved, according to the USEPA, only when everyone has the same degree of protection from environmental and health hazards, and when everyone enjoys equal access to the decision-making process.

Many of the strategies to encourage DAC participation are the same strategies to encourage equal access to the decision-making process, such as multilingual outreach efforts and dynamic approaches to community notification. Many projects in the SWRP help DACs achieve protection from environmental and health hazards. Because DACs are often located near industrial areas, DACs tend to experience stormwater or groundwater pollution more directly. Projects located within a DAC that improve water quality will help address environmental injustice caused by pollution, and there are many projects within the SWRP that achieve this goal. Additional details pertaining to the outreach approach in regards to engaging areas impacted by environmental injustice needs and issues are included in the SPOEEP (**Attachment E**).

8.3.3 Engagement during Project Design and Implementation

The public was engaged during the development of the SWRP and will also be engaged with during project design and implementation. **Section 8.1** describes how the educational components developed as part of this SWRP (printed materials, webpage, etc.) will be utilized to support outreach efforts conducted during design and implementation. Parties responsible for project implementation will also be responsible for conducting public outreach. Public outreach is typically performed by the responsible parties in the vicinity of the project being implemented. Agencies typically send informational flyers and host outreach events. Information regarding the SWRP and multiple benefits will be incorporated into these outreach efforts.

Responsible parties will evaluate opportunities to allow for public input on the project during the design process. This may include input on landscape materials, educational signage, etc. If public input is appropriate, then outreach will be conducted during the earlier phases of design, such as during preliminary design and also after 50% design is complete to share how input was incorporated. In instances where public input is not beneficial, educational outreach may be conducted as project design is being finalized and prior to construction in an effort to educate the public on the project, the multiple benefits it provides, and how it fits into the SWRP.

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Attachment A

Annotated List of Data and Reports Technical Memorandum

TECHNICAL MEMORANDUM

To: Arlene Chun, PE
Harold Zamora, PE

From: Katie Thomas, PE
Ilana Ton

Date: June 9, 2017

Subject: **San Bernardino County Sana Ana River Watershed Stormwater Resource Plan: Annotated List of Data and Reports**

1. Introduction

California voters passed the Water Quality, Supply, and Infrastructure Improvement Act of 2014 (Proposition 1) during the general election of November 4, 2014. As a precursor to the passage of Proposition 1, the California Legislature adopted Senate Bill (SB) 985 entitled the Stormwater Resource Planning Act (SB 985), requiring the development of a Stormwater Resource Plan (SWRP) to be eligible to receive grants from a bond act approved after January 1, 2014, for stormwater and dry-weather runoff capture projects. A SWRP is a stormwater management document developed on a watershed basis that identifies a prioritized list of projects to address stormwater and dry-weather runoff, while also providing multiple benefits, such as water supply, flood management, and environmental and community enhancements. The State Water Resources Control Board (SWRCB) developed Stormwater Resource Plan Guidelines (2015) to help facilitate the proper preparation of SWRPs. Proposition 1 includes numerous categories of projects to be funded, one being the Stormwater Grant Program. Planning and implementation grants were included in the Stormwater Grant Program. Planning grants are to be used for developing SWRPs and/or conducting studies prior to project implementation while the implementation grants are used to fund projects identified in a SWRP or equivalent document.

The San Bernardino County Flood Control District (SBCFCD) was awarded planning grant funds through the Stormwater Grant Program for the development of the San Bernardino County Santa Ana River Watershed (SBC SARW) SWRP (Grant Agreement No. D1612627). The SBC SARW SWRP encompasses the upper limits of the Santa Ana River (SAR) Watershed that lies within the San Bernardino County jurisdictional boundary.

A variety of Technical Memorandums (TMs) will be prepared throughout the development of the SBC SARW SWRP consistent with the final Grant Agreement. The information included in the TMs will be incorporated into the SWRP. Additional information pertaining to the SBC SARW SWRP planning area is

included in the Planning Area Description TM. This TM describes references that will be reviewed, and utilized as appropriate, to support the development of the SBC SARW SWRP. References have been categorized as existing permits; planning documents; studies and reports; GeoTracker; Geographic Information Systems (GIS) data; Total Maximum Daily Loads (TMDLs); and additional data. The list of references summarized in this TM will continue to grow as the SWRP is being developed. In addition to the references identified, the SWRP Guidelines will be referenced throughout the development of the SWRP, as these guidelines serve as the basis for the SWRP being prepared. The SWRP Guidelines were developed consistent with Water Code section 1560 et seq. It is likely the Water Code will also be referenced as a guiding document to support the SWRP development.

2. National Pollutant Discharge Elimination System Permits

Section V.D of the SWRP Guidelines (2015) states that all SWRPs must be implemented in accordance with applicable National Pollutant Discharge Elimination System (NPDES) permits and waste discharge requirements. This section summarizes the Municipal Separate Storm Sewer System (MS4) Permit covering the SBC SARW area and the Report of Waste Discharge (ROWD) submitted for renewal of the MS4 Permit. In addition to these, other NPDES permit programs will be under consideration, such as the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), which are not as applicable to the development of the SWRP.

2.1 NPDES Municipal Separate Storm Sewer System Permit Order No R8-2010-0036

The NPDES Permit and Waste Discharge Requirements for the SBCFCD, the County of San Bernardino, and the Incorporated Cities of San Bernardino County within the Santa Ana Region, Order No. R8-2010-0036 (MS4 Permit) was adopted on January 29, 2010, and expired on January 29, 2015. The MS4 Permit was administratively extended until a new permit is issues. The MS4 Permit regulates the discharge of pollutants from anthropogenic sources from MS4s. Among many things, the MS4 Permit outlines the responsibilities of the Permittees, defines discharge prohibitions and receiving water limitations, and identifies programs that must be implemented in an effort to minimize pollutant discharges. The MS4 Permit details the granted legal authority and expectations of the Permittees which include inspections, enforcement , prohibition of waste discharge, and other actions necessary to uphold the MS4 Permit requirements. Although the expiration date has passed, the MS4 Permit must be abided by until a new MS4 Permit is adopted by the Santa Ana Regional Water Quality Control Board (RWQCB). The MS4 Permit applies to the SBC SARW area and the SWRP will be developed to be consistent with the requirements contained within it.

2.1.1 Report of Waste Discharge: Application for Renewal of the Municipal NPDES Stormwater Permit (NPDES Permit No. CAS618036)

The ROWD was prepared as part of the MS4 Permit renewal application process, which will result in the development and adoption of a fifth-term MS4 Permit by the RWQCB in the near future. The ROWD identifies the accomplishments of the Areawide Stormwater Program (Program), which implements the

shared requirements set forth by the MS4 Permit, and develops priorities for the watershed area. The document presents evidence that the iterative Program Best Management Practice (BMP) approach works well in this area. The data and findings included within the ROWD will be referenced throughout the SWRP development and may be used to support approaches taken to address the SWRP Guidelines (2015).

3. Planning Documents

Various plans and programs have been developed and will be reviewed and utilized as appropriate in the development of the SWRP. Relevant documents include planning documents prepared by San Bernardino County, local agencies, groups of agencies, and regulatory entities. The following sections summarize integrated water resource plans, water quality and monitoring plans, stormwater planning documents developed for San Bernardino County, urban water management plans, and other planning documents.

3.1 Integrated Water Management Plans

3.1.1 SAWPA: One Water, One Watershed Plan 2.0

The One Water, One Watershed (OWOW) Plan is the Santa Ana River Watershed Integrated Regional Water Management (IRWM) Plan (IRWMP) prepared by the Santa Ana Watershed Project Authority (SAWPA). This plan reflects a collaborative planning process that addresses various aspects of water resources in the region (watershed). This collaborative plan crosses multiple jurisdictional boundaries and includes a public input process. The plan includes an approach for identifying and prioritizing multi-benefit projects and program, presents innovative solutions, and addresses other water resource related issues. The current version of this plan is 2.0, while an update is currently in progress. The SBC SARW SWRP will be submitted to SAWPA for incorporation into the OWOW Plan. This document will be referenced for information pertaining to the watershed and projects identified in the plan that are located within the SBC SARW may be identified and prioritized in the SWRP.

3.1.2 IEUA Integrated Water Resources Plan

The Integrated Water Resources Plan: Water Supply & Climate Change Impacts 2015 - 2040 (IRP) was prepared by the Inland Empire Utilities Agency (IEUA) in 2015. This document identifies a plan for ensuring reliable, cost-effective, and environmentally responsible water supplies for the next 25 years. The IRP goals are to integrate and update water resources planning documents in a comprehensive manner and develop an implementation strategy to improve near-term and long-term water resources management for the region. The IRP also evaluates new growth, development, and water demand patterns within the service area and assesses the water needs and supply source vulnerabilities under climate change. This document will provide information pertaining to water supply and demand within the IEUA service area, which will be included in the SWRP, as required by the Water Code. Potential projects identified within the document will also be reviewed to identify if there are opportunities to include them in the SWRP.

3.1.3 Upper Santa Ana River Watershed Integrated Regional Water Management Plan (SBVMWD)

San Bernardino Valley Municipal Water District (SBVMWD) prepared an IRWMP in 2015 to integrate planning among the agencies in the IRWM Region which begins upstream of Prado Dam and extends into the San Bernardino Mountains covering an area over 850 square miles. The IRWMP recognizes the priority of improving water supply reliability by implementing local supply projects given that imported water is increasingly viewed as a less reliable supply. The plan includes a water budget, goals and objectives, water management strategies, projects identified to help meet the region's objectives, and an implementation plan for doing so. The goals and objectives identified in this IRWMP will be reviewed and the goals and objectives of the SWRP will be made consistent with these goals, as appropriate. Potential projects identified within the document will also be reviewed to identify if there are opportunities to include them in the SWRP.

3.1.4 Updated Integrated Regional Water Management Plan (WMWD)

Western Municipal Water District (WMWD) prepared an Updated Integrated Regional Water Management Plan in 2015 covering their service area, which is located in Riverside County, adjacent to the SBC SARW area. The update addresses long range water quantity, quality, and environmental planning needs within the service area. This document identifies and evaluates water management strategies; addresses local and regional water quality, environmental, and disadvantaged community issues; discusses other regional planning efforts; and compiles an estimate of water demands by member agencies. Although WMWD's service area does not cover any portion of the SBC SARW area, a portion of the water served by WMWD is pumped from a groundwater aquifer that extends into San Bernardino County; therefore, actions taken over the groundwater aquifer may impact WMWD. This plan will be reviewed to determine if information presented within it is applicable to the SBC SARW SWRP. Projects identified in the IRWMP will be evaluated for inclusion in the SWRP.

3.2 Water Quality and Monitoring Plans

3.2.1 Basin Plan

The Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) is the basis for the RWQCB's regulatory program for controlling water quality. The Basin Plan includes a collection of water quality goals, descriptions of water quality conditions, and discussions of solutions. The Basin Plan establishes water quality standards for ground and surface waters of the region. The Basin Plan contains information on policies, beneficial uses of the waters of the Santa Ana Region, monitoring programs, and other miscellaneous topics in regards to water quality management. The SWRP will identify water bodies within the SBC SARW area, along with their beneficial uses. Water quality data will be analyzed to determine the pollutant priorities within each water body. The Basin Plan will serve as an important reference for classifying water bodies and determining priorities.

3.2.2 Big Bear Lake Watershed-Wide Nutrient Monitoring Plan

The Big Bear Lake Watershed-Wide Nutrient Monitoring Plan was submitted by the Big Bear Lake TMDL Task Force (TMDL Task Force) with the intent to: review and update the Big Bear Lake Nutrient TMDL; determine the sources of nutrients; develop TMDLs for wet and moderate years hydrologic conditions; and determine compliance with the Big Bear Lake Dry Nutrient TMDL, including Waste Load Allocations (WLAs) and Load Allocations (LAs). Similar to the Santa Ana River Watershed Bacteria Monitoring Plan described below in **Section 3.2.6**, monitoring results associated with the implementation of this monitoring program will be utilized in the SWRP to identify water quality priorities and assess the need for projects at key locations within the SBC SARW. Additionally, this monitoring program will be assessed to determine if continued implementation will support the goals and adaptive management of the SWRP.

3.2.3 Comprehensive Bacteria Reduction Plan

The Comprehensive Bacteria Reduction Plan (CBRP) was prepared in response to the MS4 Permit. The CBRP is a long-term plan designed to achieve compliance with dry-weather condition WLAs for bacterial indicators established by the Middle Santa Ana River (MSAR) Bacterial Indicator TMDL as well as a monitoring program to track progress towards compliance. The CBRP will be referenced for information regarding the MSAR Bacterial Indicator TMDL, such as requirements, and implementation actions (projects and programs).

3.2.4 Hydromodification Management and Monitoring Plan

A Hydromodification Management and Monitoring Plan for the Santa Ana River Watershed Region, within the County of San Bernardino, was developed to fulfill the requirements of Section XI.B.3.b.ii of the MS4 Permit. The Plan evaluates hydromodification impacts for drainage channels deemed most susceptible to degradation, identifies sites to be monitored (including assessment methodology and required follow-up actions based on results), and identifies monitoring sites that may be used to evaluate the effectiveness of stormwater BMPs. This document will be referenced during the project selection process. Areas susceptible to hydromodification will be identified and projects may be proposed to mitigate concerns. Additionally, this plan will be reviewed to verify projects proposed in the SWRP will not worsen impacts associated with hydromodification.

3.2.5 Integrated Watershed Monitoring Program

The Integrated Watershed Monitoring Program (IWMP) was prepared in response to the MS4 Permit. The objective of the IWMP is to provide data to support the development of an effective watershed and key environmental resources management program that focuses resources on the priority pollutants of concern. The IWMP includes the following monitoring programs: core; illegal discharge/illicit connection; hydromodification; source identification and special studies; and regional watershed. Monitoring results associated with the implementation of this monitoring program will be utilized in the SWRP to identify water quality priorities and assess the need for projects at key locations within the SBC SARW. Additionally, this monitoring program will be assessed to determine if continued implementation will support the goals and adaptive management of the SWRP.

3.2.6 Santa Ana River Watershed Bacteria Monitoring Plan

The Santa Ana River Watershed Bacteria Monitoring Plan establishes the requirements for bacteria sampling to support the following objectives: fulfill the monitoring and surveillance requirements of the 2012 adopted Basin Plan Amendment to Revise Recreation Standards for Inland Freshwaters in the Santa Ana Region; conduct sampling to support implementation of the MSAR Bacterial Indicator TMDL; and support any additional bacterial indicator monitoring that may be conducted in the watershed to support regional regulatory activities or requirements. Monitoring results associated with the implementation of this monitoring program will be utilized in the SWRP to identify water quality priorities and assess the need for projects at key locations within the SBC SARW. Additionally, this monitoring program will be assessed to determine if continued implementation will support the goals and adaptive management of the SWRP.

3.2.7 Water Quality Monitoring Data

The existing water quality monitoring data from the monitoring programs described above will be utilized to establish the current baseline water quality conditions within the SBC SARW. The monitoring data will be compiled and compared to water quality objectives (WQOs) to identify Water Body-Pollutant Combinations (WBPC). Projects and programs identified in the SWRP will aim to address the WBPCs identified.

3.3 San Bernardino County Stormwater Planning

3.3.1 San Bernardino County Watershed Action Plan

In response to the MS4 Permit, a Watershed Action Plan (WAP) was developed for San Bernardino County in two phases. A hydromodification assessment was provided within the WAP to examine the thresholds for determining whether a creek is subject to hydromodification impacts due to future development. References were made to the System-Wide Evaluation Retrofit Opportunities TM and an Evaluation of Retrofit Sites for Water Quality Improvements, which is an extension to the TM. The TM identifies opportunities to retrofit existing stormwater conveyance systems, parks, and other recreational areas with water quality protection measures and includes recommendations for specific retrofit studies that incorporate opportunities for addressing applicable TMDLs. The evaluation explores the availability and applicability of the identified projects to a specific water quality concern. The document also includes a cost-benefit analysis of each potential retrofit site in the context of the water quality improvement needs of the subwatershed and watershed. The methodology used to identify projects and quantify benefits will be reviewed and referenced as appropriate in the SWRP.

3.3.2 Technical Guidance Document for Water Quality Management Plans

The Technical Guidance Document (TGD) for Water Quality Management Plans (WQMPs) was prepared in response to the MS4 Permit and describes requirements for new development and significant redevelopment projects to incorporate Low Impact Development (LID) BMPs to the maximum extent practicable. This document provides guidance for incorporation of site design/LID, source control, and treatment control BMPs. This document also addresses Hydrologic Conditions of Concern (HCOC)

mitigation measures necessary for specific new and redevelopment sites. The methodology for sizing LID BMPs along with design specifications will be referenced within the SWRP when identifying similar types of stormwater BMP projects, such that the approach and specifications are consistent with this approved and implemented guidance document.

3.3.3 Municipal Stormwater Management Plan

This Municipal Stormwater Management Plan (MSWMP) is an interim umbrella document that presents the overall MS4 Permit implementation approach as managed by the San Bernardino County Areawide Stormwater Program. The MSWMP is developed to delineate the following Areawide Programs: program management; illegal discharges; industrial/commercial sources; new development and redevelopment; public agency activities; residential program activities; public information and participation; program evaluation; and monitoring. The MSWMP will be referenced to verify the SWRP is consistent with the currently implemented stormwater program.

3.4 Urban Water Management Plans

3.4.1 IEUA and WFA Urban Water Management Plan

The 2015 Urban Water Management Plan (UWMP) is an update to the IEUA and Water Facilities Authority's (WFA) 2010 UWMP. IEUA provides services for the southwestern section of San Bernardino County in the SARW which also encompasses the WFA's service area of 135 square miles within the upper SARW. This UWMP lays out the region's plan for ensuring reliable, cost-effective, and environmentally responsible water supplies for the next 25 years. This document includes information about water demand, water supply, and supply reliability assessment in the IEUA service region. The IEUA and WFA UWMP will be referenced during the development of the SWRP for information regarding water supply and demand and potential projects that may be included in the SWRP.

3.4.2 San Bernardino Valley Regional Urban Water Management Plan

The SBVMWD prepared the San Bernardino Valley Regional Urban Water Management Plan (UWMP) in 2015 and updated it in 2016. The SBVMWD service area includes nine additional water agencies, which are served by SBVMWD. The UWMP provides a summary of the anticipated supplies and demands for the years of 2015 through 2040. This document includes 16 sections and is over 1,100 pages. The sections include, but are not limited to, regional water sources, regional water use, contingency planning, future goals, and recommended projects. The SBVMWD UWMP will be referenced during the development of the SWRP for information regarding water supply and demand. Potential projects identified within the document will also be reviewed to identify if there are opportunities to include them in the SWRP.

3.5 Other Planning Documents

3.5.1 Chino Basin Stormwater Resources Plan Functional Equivalency Document

The objective of the Chino Basin Stormwater Resources Plan Functional Equivalency Document is to demonstrate that the accumulation of existing stormwater and dry-weather flow management programs and their implementation agreements in the Chino Basin are functionally equivalent to a SWRP. The IEUA, Chino Basin Watermaster, Chino Basin Water Conservation District (CBWCD), SBCFCD, and the region's cities and water districts have worked together since 2000 to implement regional programs within the Chino Groundwater Basin to increase groundwater recharge by using stormwater and dry-weather runoff. This collaboration has resulted in the development of recharge master plans; the construction, operation, maintenance, and monitoring of new recharge project facilities; periodic reviews of these recharge projects' performance; and periodic updates to recharge master plans. This document references a variety of other documents that together satisfy the SWRP Self-Certification Checklist, making projects referenced in these documents eligible for Proposition 1 implementation grant funding. This document, and the documents referenced within it, will be reviewed throughout the development of the SWRP development. Projects identified in this plan may also be included in the SBC SARW SWRP as appropriate.

3.5.2 Recharge Master Plan Update

The Chino Basin Watermaster and IEUA prepared a Recharge Master Plan Update (RMPU) in 2010 that was amended in 2013. The RMPU was prepared in response to a court order and includes a discussion on safe yield, review of water supply plans, description of existing stormwater recharge projects, assessment of stormwater recharge opportunities, evaluation of supplemental water recharge opportunities, and identifies future recharge plans. The 2013 amendment: addresses the changes since the 2010 RMPU and impacts of the revised groundwater production and replenishment projections; maintains an inventory of existing recharge facilities and their capabilities; utilizes monitoring, reporting, and accounting practices to estimate long-term average annual net stormwater recharge; and organizes recharge improvement projects and how to evaluate, rank, and apply the projects. The RMPU and amendment will be reviewed during the development of the SWRP to identify existing initiatives (projects and programs) that may be applicable to the SWRP. Potential projects identified within the documents will also be reviewed to identify if there are opportunities to include them in the SWRP.

3.5.3 Master Plans of Drainage

Master Plans of Drainage (MPD) were created to evaluate the existing drainage systems and recommend improvements and new facilities in an area based on localized drainage issues. MPDs are often developed based on projected future land uses in an undeveloped area and identify locations where storm drain facilities will be necessary. They address the current and future drainage needs of a city or area. SBCFCD has developed area specific MPDs covering developed portions of their jurisdiction (County unincorporated areas), some of which are available online and others available at their office. Additionally, some cities within the SBC SARW area have developed an MPD inclusive of their current and planned storm drain system. MPDs will be referenced as needed to verify storm drain locations and may

be used as a tool for identifying potential projects, as planned facilities (new and/or improved) may be incorporated into projects identified and prioritized in the SWRP.

3.5.4 Comprehensive Storm Drain Plans

Comprehensive Storm Drain Plans (CSDPs) are similar to MPDs, as they evaluate existing drainage systems, identify deficiencies, and recommend improvements based on localized drainage issues. The main difference between CSDPs and MPDs is that CSDPs do not plan for future facilities in undeveloped areas; rather, they may identify future facilities needed to mitigate existing developed areas. Various CSDPs were developed by the SBCFCD and are available at their office. Similar to MPDs, CSPDs will be referenced as needed to verify storm drain locations and may be used as a tool for identifying potential projects, as planned facilities (new and/or improved) may be incorporated into projects identified and prioritized in the SWRP.

4. Studies and Reports

Information and findings from various studies and reports will be reviewed and referenced in the development of the SWRP as appropriate.

4.1 Annual Water Use Reports

IEUA monitors and compiles water use data from each of its retail agencies to track overall water demands and sources of supply. Each fiscal year, this data is compiled into an Annual Water Use Report. Data includes monthly water use (by member agency and source of supply), a five-year history of water use, and retail agency water usage as a percentage of the total water used in the service area. These reports will be reviewed for information pertaining to water use within the IEUA service area, as this information is required in the SWRP based on the SWRP Guidelines.

4.2 FEMA Flood Insurance Study and Flood Insurance Rate Maps

The Federal Emergency Management Agency (FEMA) prepared a Flood Insurance Study (FIS) for San Bernardino County, California and Incorporated Areas. This study revises and updates information on the existence and severity of flood hazards in the geographic area of San Bernardino County. Flood risk data that is used to establish actuarial flood insurance rates and assist the community in its efforts to promote sound floodplain management is summarized in the FIS. The FIS includes flow rate information, cross section data, and narrative descriptions of areas that have been assessed for flooding potential. In addition to the FIS, Flood Insurance Rate Maps (FIRMs) are prepared, which illustrate the extent of modeled floodplains. These maps are available through the FEMA website as image files and GIS shapefiles. The FIS and FIRMs will be reviewed to identify areas susceptible to flooding. This information may be used to identify and prioritize projects in the SWRP.

4.3 Preliminary Data Summary of Urban Stormwater Best Management Practices

The Preliminary Data Summary of Urban Stormwater Best Management Practices was prepared by the United States Environmental Protection Agency (USEPA) and includes information on the effects of urban land use as a contributor to acidity and nutrients in stormwater. Additionally, this document makes the case for the atmospheric deposition of nutrients and metals. This report summarizes information and data regarding the effectiveness of BMPs at controlling and reducing pollutants in urban stormwater, expected costs, and environmental benefits. This report describes how urban stormwater runoff is a source of pollutants causing water quality impairments, what those pollutants are, and where they originate from. This information will be utilized throughout the development of the SWRP to identify activities generating or contributing to the contamination of stormwater runoff. BMP design standards will also be reviewed and referenced as appropriate.

4.4 Use Attainability Analysis Cucamonga Creek Reach 1

A Use Attainability Analysis for Cucamonga Creek Reach 1 was prepared in 2013 by the RWQCB. This document explores the possibility of recovering the beneficial uses of Cucamonga Creek. The Use Attainability Analysis describes Reach 1 of Cucamonga Creek in detail, provides information regarding the existing beneficial uses, summarizes the factors that impact the beneficial uses, and identify future uses and the impact of those uses. Additionally, the current characteristics of the impaired creek and potential sources of pollution are discussed along with water quality monitoring data. Information presented in the Use Attainability Analysis will be reviewed and incorporated into the SWRP as appropriate. It is anticipated that the water body characterization and discussion of pollutant sources will be important to the development of the SWRP, specifically relating to the water quality prioritization and identification of potential pollutant sources.

5. GeoTracker

"GeoTracker" is the SWRCB's online database management system to track and archive compliance data from discharges or spills of waste or unauthorized releases of hazardous material from underground storage tanks. A map is produced with a list of sites that impact, or had/have a potential to impact, groundwater quality in California. Also, GeoTracker contains records for various unregulated projects, as well as permitted facilities such as irrigated lands, oil and gas refineries, and other related sites. Information pertaining to both open and closed cases are available through GeoTracker. GeoTracker will be utilized as part of the project evaluation and prioritization phase of the SWRP development to identify if a project that involves infiltration will negatively impact groundwater supply due to existing contamination.

6. Geographic Information System Data

GIS software is designed to capture, store, manipulate, analyze, manage, and present spatial data. There are various sources of GIS data available within the SBC SARW area that will be referenced and utilized throughout the SWRP development. GIS data gathered may be used for analysis and/or creating

figures. Data from the County of San Bernardino's Geographic Information Management System will be utilized to support the development of the SWRP. Data taken from this database includes county boundary, land use, jurisdictional boundaries, and subwatershed boundaries. Data was also pulled from other governmental GIS databases. The following GIS data will be reviewed from various sources and incorporated as appropriate: floodplains, groundwater basins, impairments, soil conditions, storm drains, topography, water bodies, etc. Some examples of sources other than San Bernardino County include, but are not limited to, FEMA, Department of Water Resources (DWR), SAWPA, United States Geological Survey (USGS), and more.

7. Total Maximum Daily Load

TMDL requirements and supporting technical documents will be utilized during the development of the SWRP, including, but not limited to, Basin Plan Amendments (BPAs) and TMDL Staff Reports.

7.1 Big Bear Lake Nutrient TMDL

The BPA for the Big Bear Lake Nutrient TMDL includes background information regarding phosphorous, the principle nutrient causing the impairment, sources, and numeric targets (to be applied in all hydrologic conditions) for total phosphorus and response numeric targets for chlorophyll *a*, macrophyte coverage, and percentage of nuisance aquatic vascular plant species. The response numeric targets provide a method of tracking improvements to water quality as a result of reduced loading of phosphorus. The BPA specifies WLAs and LAs for total phosphorus for Big Bear Lake that applies to Dry Hydrologic Conditions. The BPA also specifies an implementation plan for nutrient reduction that includes compliance schedules for the numeric targets, WLAs, and LAs. The BPA outlines requirements associated with a monitoring program, which has been incorporated into the Big Bear Lake Watershed-Wide Nutrient Monitoring Program, as described in **Section 3.2.2**, which is used to track progress toward compliance. In addition to the BPA, a Staff Report is available, which provides additional details regarding the findings presented in the BPA. These documents will be referenced throughout the development of the SWRP, as the SWRP will consider objectives and schedules established by TMDLs. Additionally, projects and programs will be made consistent to TMDL documents.

7.2 Big Bear Lake and Rathbun Creek Draft Sedimentation/Siltation TMDLs Technical Staff Report

The Staff Report on the Sediment TMDL for Big Bear Lake and Rathbun Creek was prepared in 2005 to support the development of a TMDL. The Staff Report was created to assess the sources of sedimentation and siltation impairments in Big Bear Lake and Rathbun Creek. The Staff Report provides information on the land uses tributary to both Big Bear Lake and Rathbun Creek. References are made to weathering, mass-wasting, and watershed erosion processes to explain the impairments. Additionally, a link between sedimentation and nutrient impairment is made. A BPA/TMDL was never finalized and approved for Big Bear Lake and Rathbun Creek for sedimentation/siltation; however, this report will be reviewed for information regarding the source assessment conducted, as this information may be applicable to the SWRP.

7.3 Big Bear Lake Technical Support Document for Mercury TMDL

The Big Bear Lake Technical Support Document for Mercury TMDL was prepared in 2008 for the SWRCB and USEPA. This document describes the possible sources of mercury loading into Big Bear Lake and the techniques used to quantify loads from each source. Local and regional monitoring data coupled with model output for Big Bear Lake Watershed were used to estimate loading from wet and dry atmospheric deposition and watershed sources (water column and sediment bound). The Technical Report finds that the MS4 was not a significant source of mercury in the lake. This document will be reviewed and referenced as appropriate throughout the development of the SWRP, specifically in regards to the water quality evaluation and source assessment. A BPA/TMDL was never finalized and approved for Big Bear Lake for mercury; however, this report will be reviewed for information regarding the source assessment conducted, as this information may be applicable to the SWRP.

7.4 Middle Santa Ana River Watershed Bacterial Indicator TMDL

The BPA for the MSAR Bacterial Indicator TMDL includes background information regarding the fecal coliform impairment, potential sources, and numeric targets to be achieved in the MSAR. The BPA also includes the USEPA requirement of the states to evaluate and incorporate Escherichia coliform (*E. coli*) as water quality standards based on its "Ambient Water Quality Criteria for Bacteria - 1986." The BPA specifies alternative numeric targets for *E. coli* to be achieved in the MSAR. The amendment specifies Wet and Dry Season TMDLs, WLAs for point sources, and LAs for fecal coliform and *E.coli*. Included in the amendment is an implementation plan for bacterial reduction, which was incorporated into the CBRP, as described in **Section 3.2.3**. In addition to the BPA, a Staff Report is available, which provides additional details regarding the findings presented in the BPA. These documents will be referenced throughout the development of the SWRP, as the SWRP will consider objectives and schedules established by TMDLs. Additionally, projects and programs will be made consistent to TMDL documents.

8. Additional Data

In addition to the sources identified above, the following additional sources may be referenced as applicable throughout the development of the SWRP. It is anticipated that references in addition to those identified in this TM will be identified throughout the development of the SWRP.

- Clean Water Act Section 303(d) List
- Future MS4 Permits (if made available)
- Other applicable NPDES Permits
- San Bernardino County Areawide Stormwater Program Annual Reports
- Local Implementation Plans (LIPs)
- Applicable laws and ordinances
- Planning documents prepared by local agencies and Non-Governmental Organizations (NGOs)
- Groundwater monitoring data

9. References

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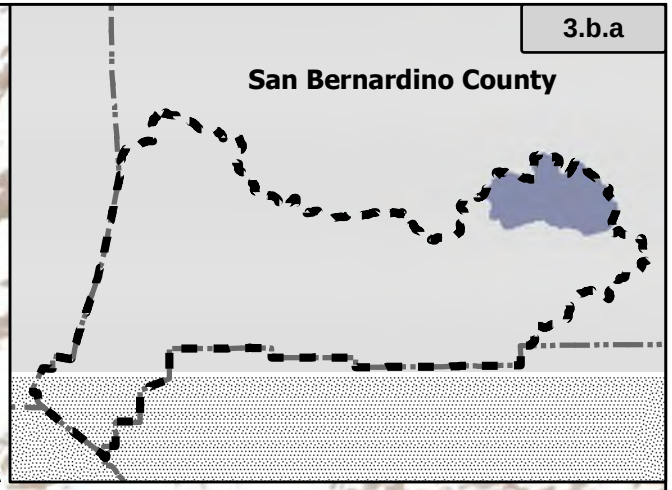
Attachment B

Land Use Categorization Table

Land Use Description	Re-Categorization
Agriculture	Agriculture
Cemetery	Vacant
College	Education
General Commercial	Commercial
General Industrial	Industrial
Golf Course	Vacant
Heavy Industrial	Industrial
Hotel/Motel	Commercial
Institutions/Government	Commercial
K-12 Schools	Education
Light Industrial	Industrial
Miscellaneous Commercial	Commercial
Miscellaneous Industrial	Industrial
Office	Commercial
Open-Non-developed	Vacant
Other Retail/Service	Commercial
Parks	Vacant
Regional Commercial	Commercial
Residential	Residential
Transportation	Transportation
Urban Mixed	Commercial
Utilities	Vacant

Attachment C

San Bernardino County Santa Ana River Subwatershed Figures



Big Bear Lake

Baldwin Lake

Big Bear Lake

Santa Ana River

Receiving Waters

Big Bear Lake Subwatershed

SBC UA

City Boundary

SBC SARW

County Boundary

0 1 2 Miles

Land Use

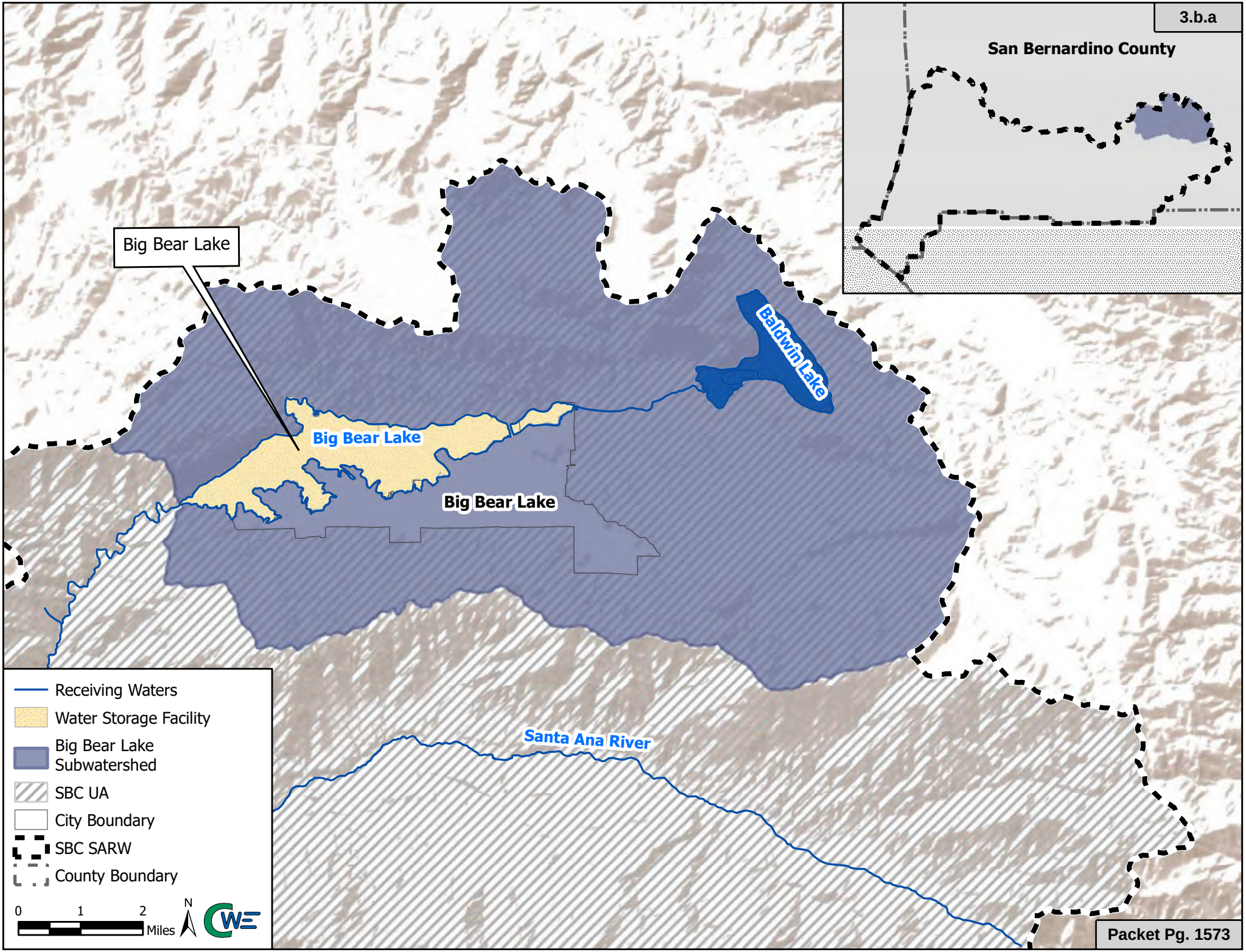
Commercial

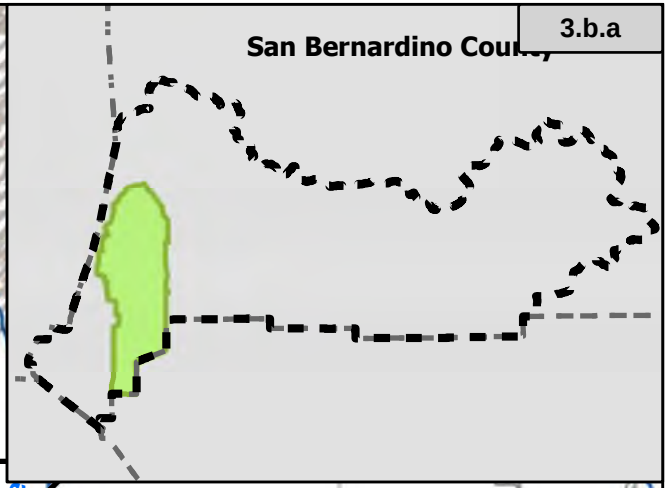
Industrial

Residential

Vacant

N


San Bernardino County
Big Bear Lake
Baldwin Lake
Big Bear Lake
Big Bear Lake
Santa Ana River
Receiving Waters
Water Storage Facility
Big Bear Lake Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary
0
1
2
Miles
N



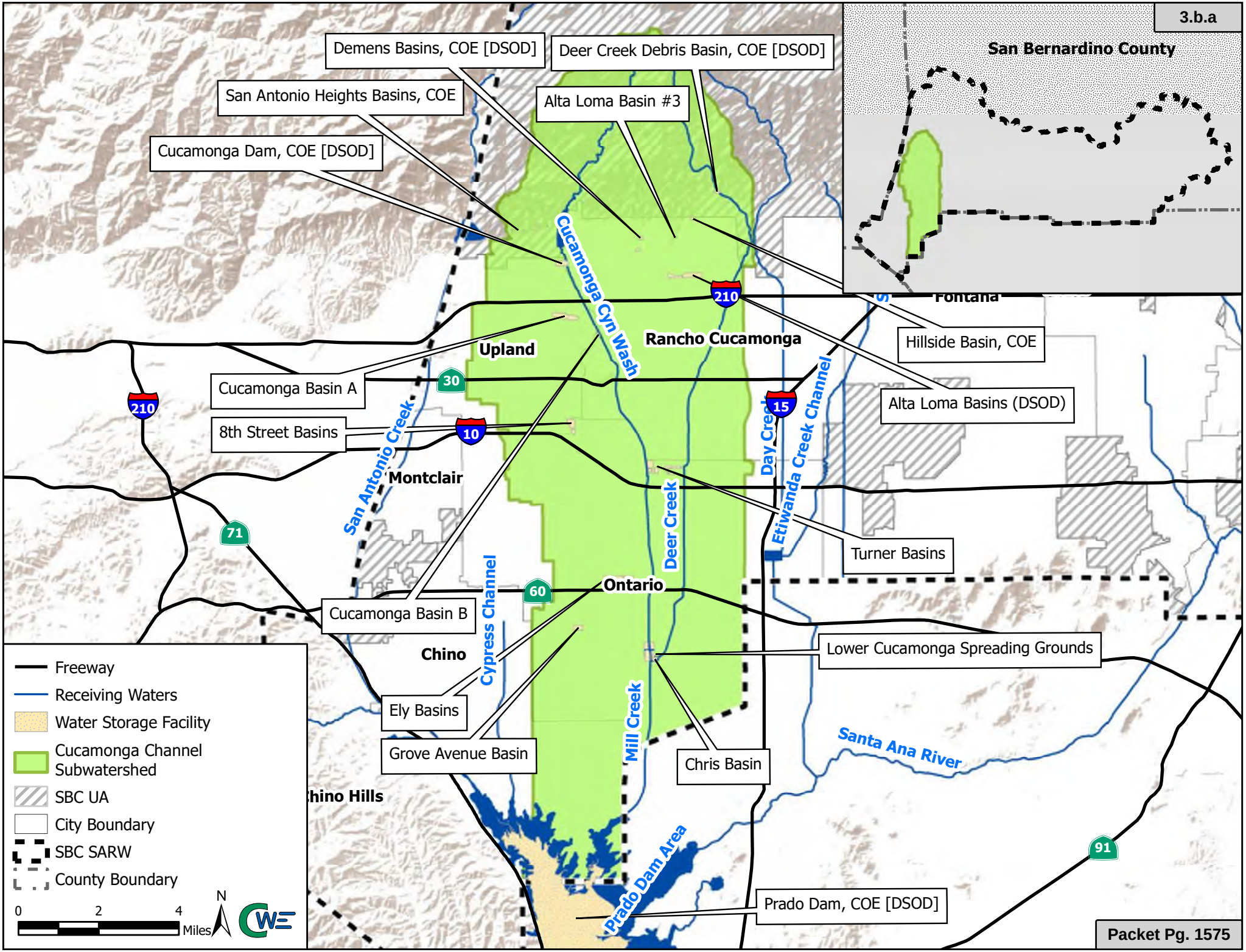
Upland
Rancho Cucamonga
Montclair
Ontario
Chino
Fontana
Rialto
Colton
San Antonio Creek
Cucamonga Cyn Wash
San Sevaine
Rialto Channel
Deer Creek
Cypress Channel
Mill Creek
Day Creek
Santa Ana River
210
30
10
15
71
60
91

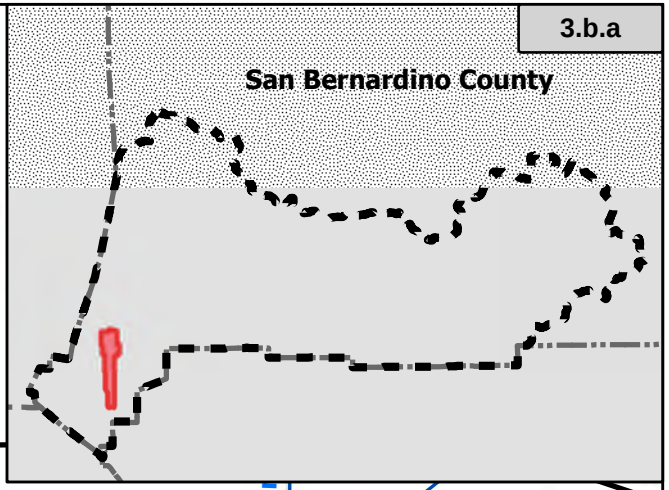
Freeway
Receiving Waters
Cucamonga Channel Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary

Land Use
Agriculture
Commercial
Education
Industrial
Residential
Transportation
Vacant

0 2 4 Miles

N


San Bernardino County
Demens Basins, COE [DSOD]
Deer Creek Debris Basin, COE [DSOD]
San Antonio Heights Basins, COE
Alta Loma Basin #3
Cucamonga Dam, COE [DSOD]
Cucamonga Cyn Wash
Fontana
Hillside Basin, COE
Rancho Cucamonga
Upland
Cucamonga Basin A
Alta Loma Basins (DSOD)
8th Street Basins
San Antonio Creek
Day Creek
Etiwanda Creek Channel
Montclair
Deer Creek
Turner Basins
Cypress Channel
Ontario
Cucamonga Basin B
Lower Cucamonga Spreading Grounds
Chino
Ely Basins
Mill Creek
Santa Ana River
Grove Avenue Basin
Chris Basin
Chino Hills
Prado Dam Area
Prado Dam, COE [DSOD]
210
30
10
15
71
60
91
Freeway
Receiving Waters
Water Storage Facility
Cucamonga Channel Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary
0
2
4
Miles
N



Montclair

Ontario

Chino

60

71

Cucamonga Cr

Cypress Channel

Mill Creek

Carbon Cyn Creek

San Antonio Creek

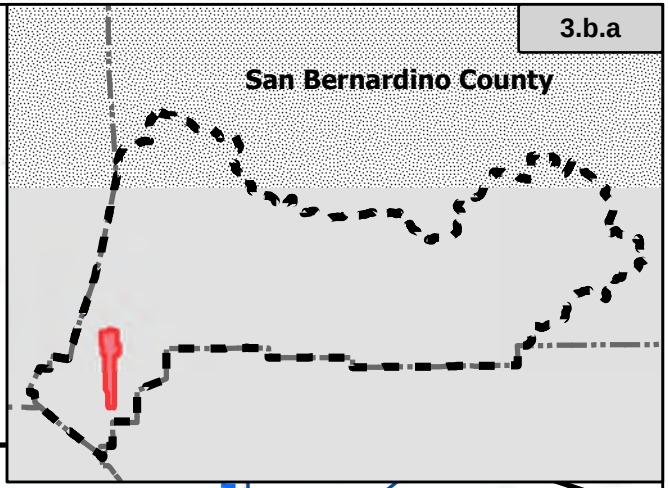
Prado Dam Area

Freeway
Receiving Waters
Cypress Channel Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary

Land Use
Agriculture
Commercial
Education
Industrial
Residential
Transportation
Vacant

0 1 2 Miles

N



Montclair

Ontario

60

Cypress Channel

Cucamonga C

Mill Creek

Chino

Carbon Cyn Creek

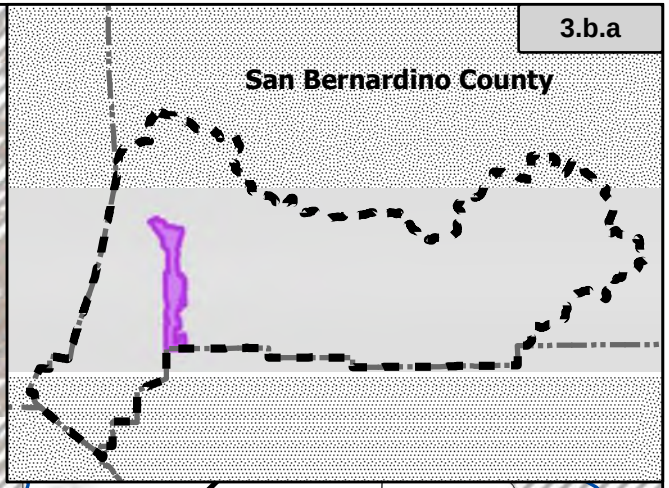
San Antonio Creek

Prado Dam Area

Freeway
Receiving Waters
Water Storage Facility
Cypress Channel Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary

0 1 2 Miles

N



Rialto

Fontana

Rancho Cucamonga

Upland

Ontario

Deer Creek

Cucamonga Cyn Wash

Day Creek

Etiwanda Creek Channel

Cucamonga Creek

210

15

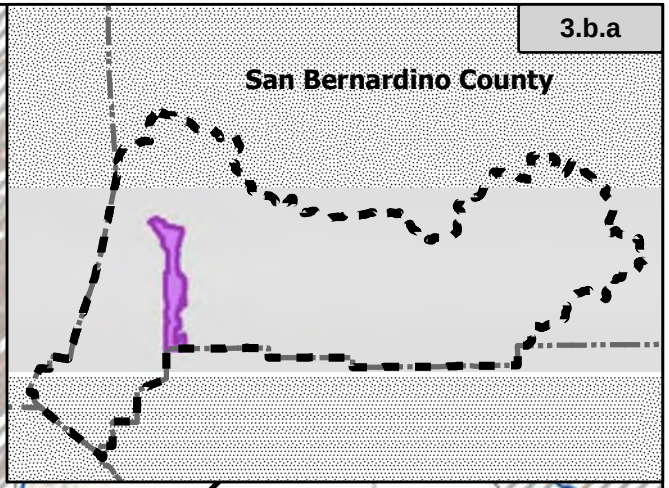
30

Freeway
Receiving Waters
Day Creek Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary

Land Use
Commercial
Education
Industrial
Residential
Transportation
Vacant

0 1 2 Miles

N



Day Creek Dam [DSOD]

Day Creek Basins

Cucamonga Cyn Wash

Deer Creek

Day Creek

Etiwanda Creek Channel

Cucamonga Creek

Rialto

Fontana

Rancho Cucamonga

Upland

Ontario

Wineville Basin

210

15

30

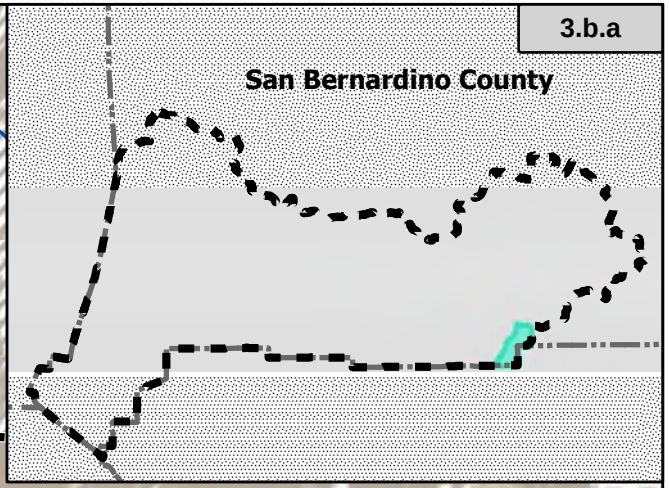
10

60

Freeway
Receiving Waters
Water Storage Facility
Day Creek Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary

0 1 2 Miles

N



Yucaipa

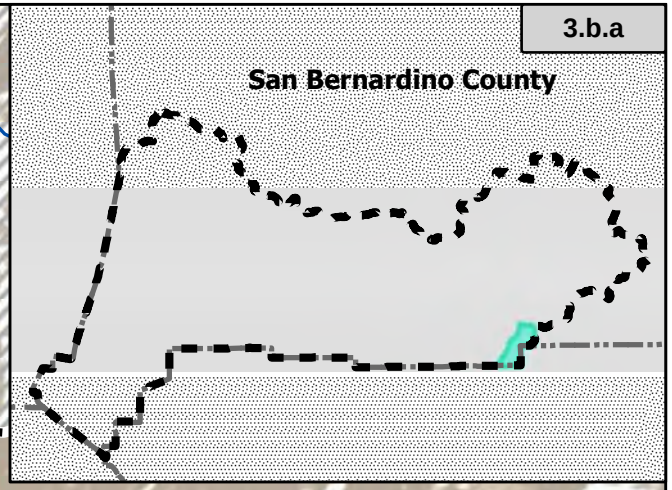
Little San Gorgonio Creek

Receiving Waters
Little San Gorgonio Creek Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary

Land Use
Commercial
Residential
Vacant

0 1 2 Miles

N



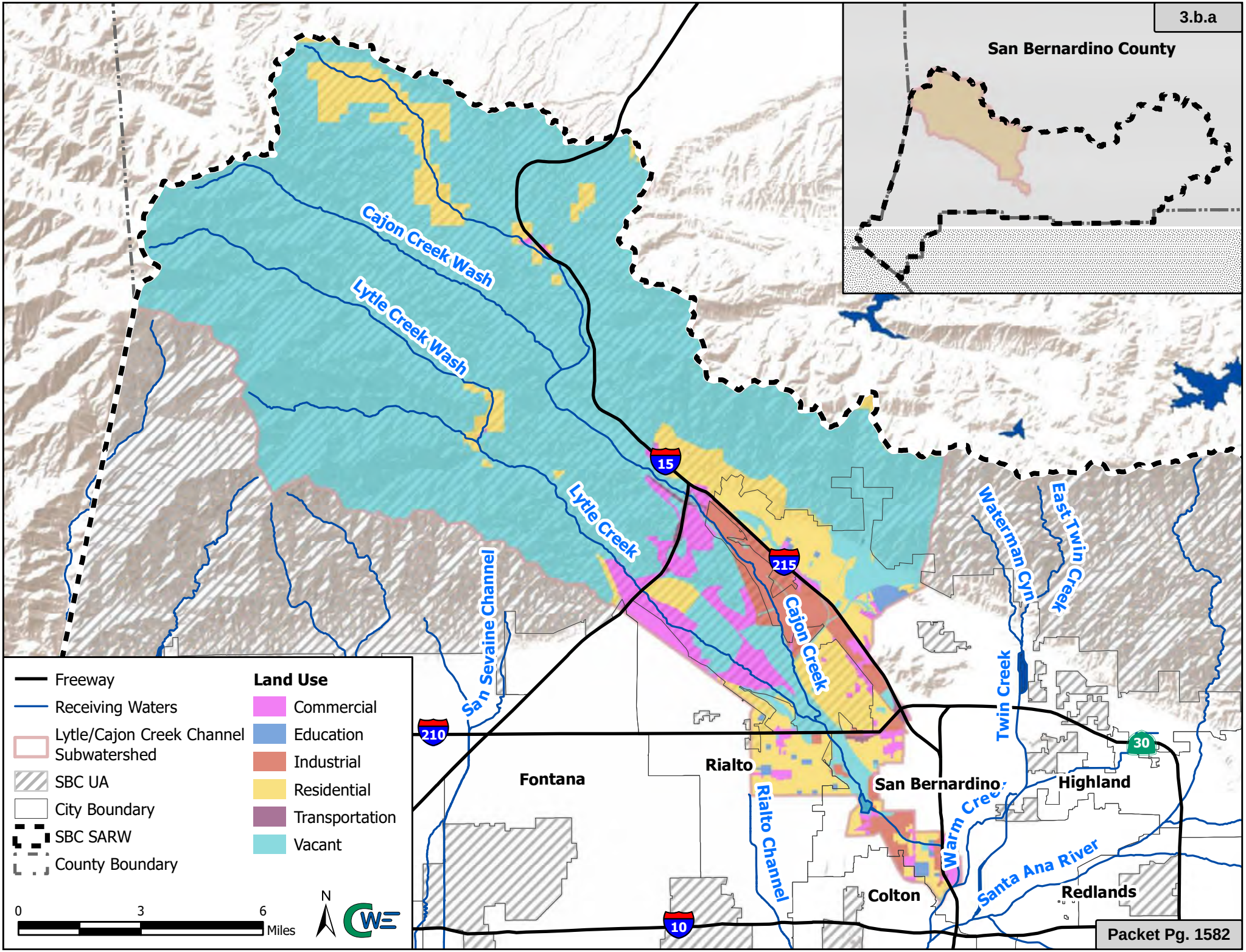
Yucaipa

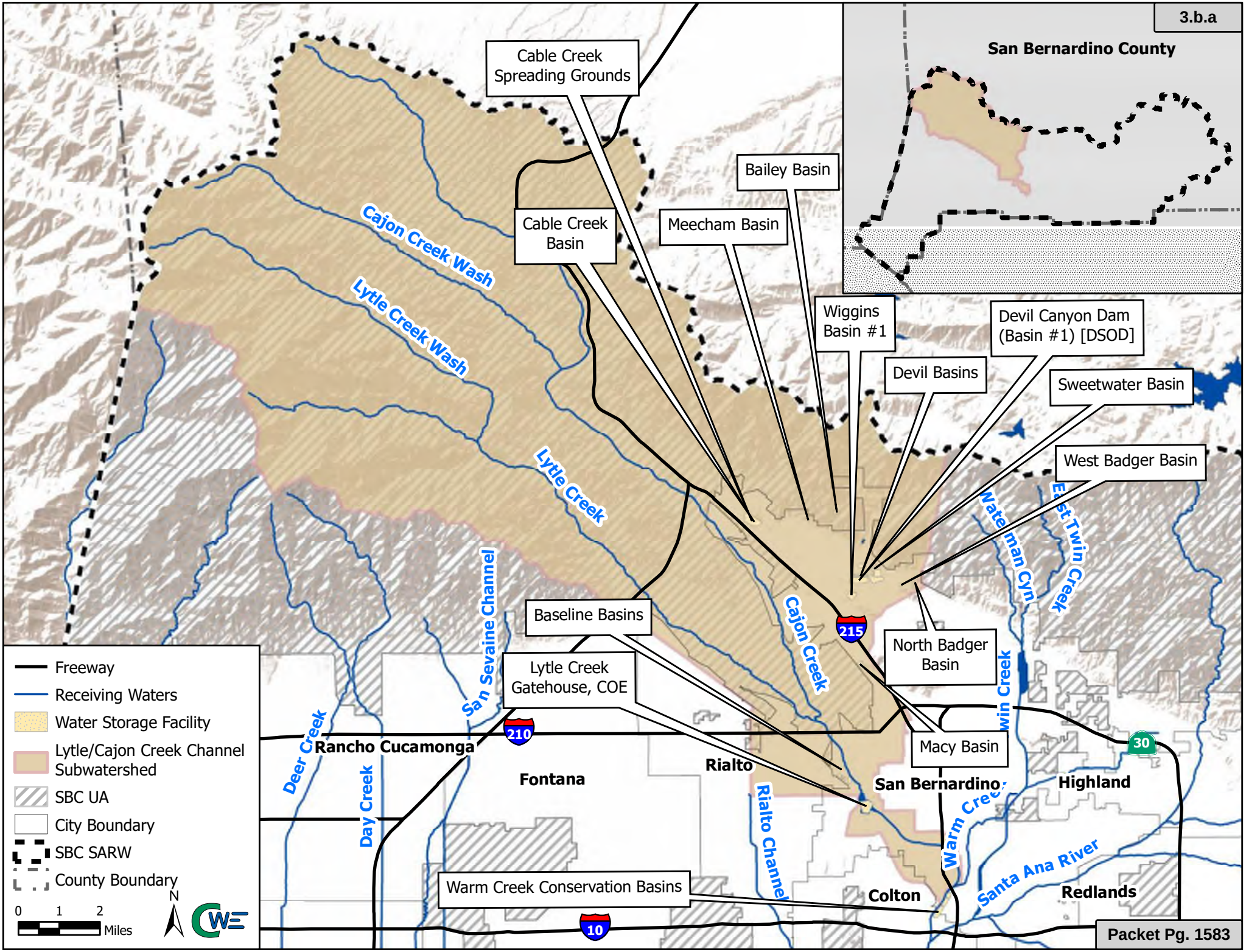
Little San Gorgonio Creek

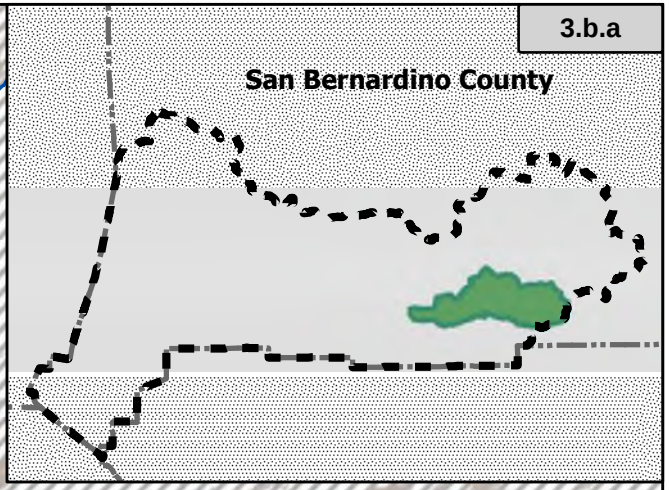
Receiving Waters
Water Storage Facility
Little San Gorgonio Creek Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary

0 1 2 Miles

N


San Bernardino County
Cajon Creek Wash
Lytle Creek Wash
Lytle Creek
San Sevaine Channel
Cajon Creek
Waterman Cyn
East Twin Creek
Twin Creek
Warm Creek
Rialto Channel
Santa Ana River
15
210
215
10
30
Fontana
Rialto
San Bernardino
Highland
Colton
Redlands
Freeway
Receiving Waters
Lytle/Cajon Creek Channel Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary
Land Use
Commercial
Education
Industrial
Residential
Transportation
Vacant
0
3
6
Miles
N


San Bernardino County
Cable Creek Spreading Grounds
Bailey Basin
Cable Creek Basin
Meecham Basin
Wiggins Basin #1
Devil Canyon Dam (Basin #1) [DSOD]
Devil Basins
Sweetwater Basin
West Badger Basin
Cajon Creek Wash
Lytle Creek Wash
Lytle Creek
Waterman Cyn
East Twin Creek
Baseline Basins
Lytle Creek Gatehouse, COE
North Badger Basin
Macy Basin
San Sevaine Channel
Cajon Creek
Twin Creek
Deer Creek
Day Creek
Rancho Cucamonga
Fontana
Rialto
San Bernardino
Highland
Rialto Channel
Warm Creek
Santa Ana River
Redlands
Colton
Warm Creek Conservation Basins
215
210
30
10
Freeway
Receiving Waters
Water Storage Facility
Lytle/Cajon Creek Channel Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary
N
0 1 2
Miles



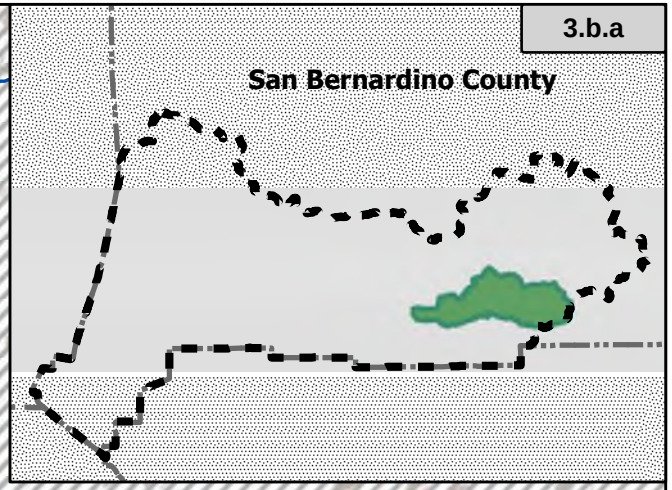
Plunge Creek
Bear Creek
Santa Ana River
Seven Oaks Dam
Santa Ana River
Highland
Mill Creek
Redlands
Yucaipa
Little San Gorgonio Creek

Freeway
Receiving Waters
Mill Creek Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary

Land Use
Agriculture
Commercial
Education
Residential
Vacant

0 1 2 Miles

N

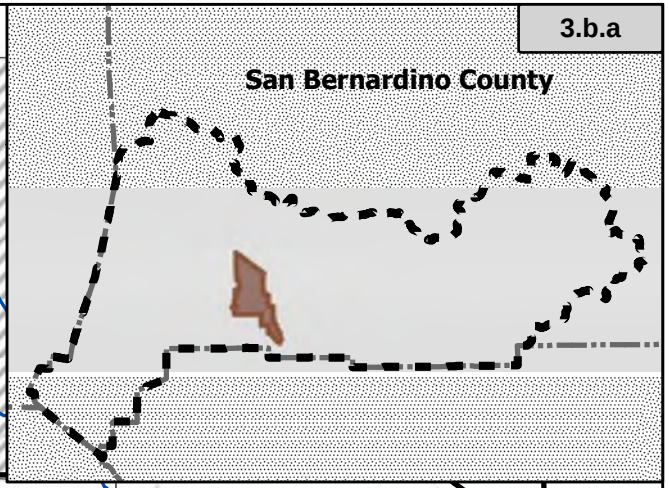


Plunge Creek
Bear Creek
Santa Ana River
Seven Oaks Dam
Santa Ana River
Highland
Mill Creek
Redlands
Yucaipa
Little San Gorgonio Creek

Freeway
Receiving Waters
Water Storage Facility
Mill Creek Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary

0 1 2 Miles

N



Rancho Cucamonga

Lytle Creek

15

210

San Bernardino

Rialto

Fontana

Rialto Channel

215

10

Colton

Santa Ana River

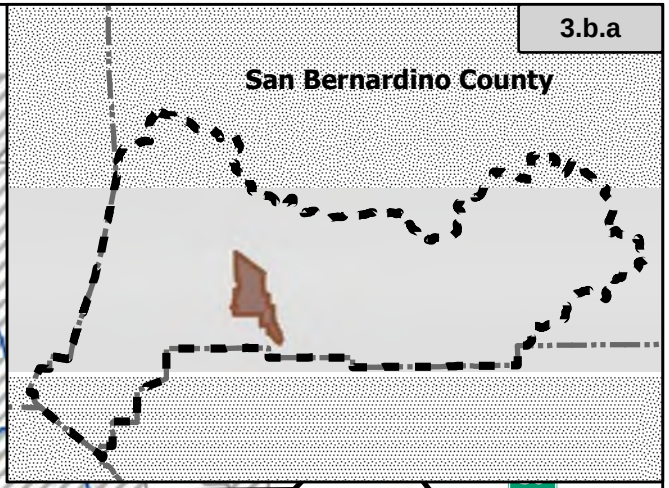
Gran

Freeway
Receiving Waters
Rialto Channel Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary

Land Use
Commercial
Education
Industrial
Residential
Transportation
Vacant

0 1 2 Miles

N



Lytle Creek

Rancho Cucamonga

15

210

San Bernardino

Cactus Basins

Rialto

Fontana

215

Rialto Channel

Linden Basin

Merrill Basin

10

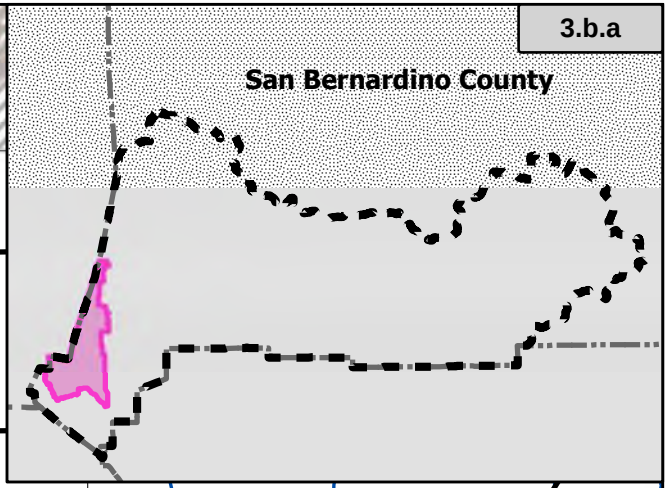
Colton

Santa Ana River

Freeway
Receiving Waters
Water Storage Facility
Rialto Channel Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary

0 1 2 Miles

N



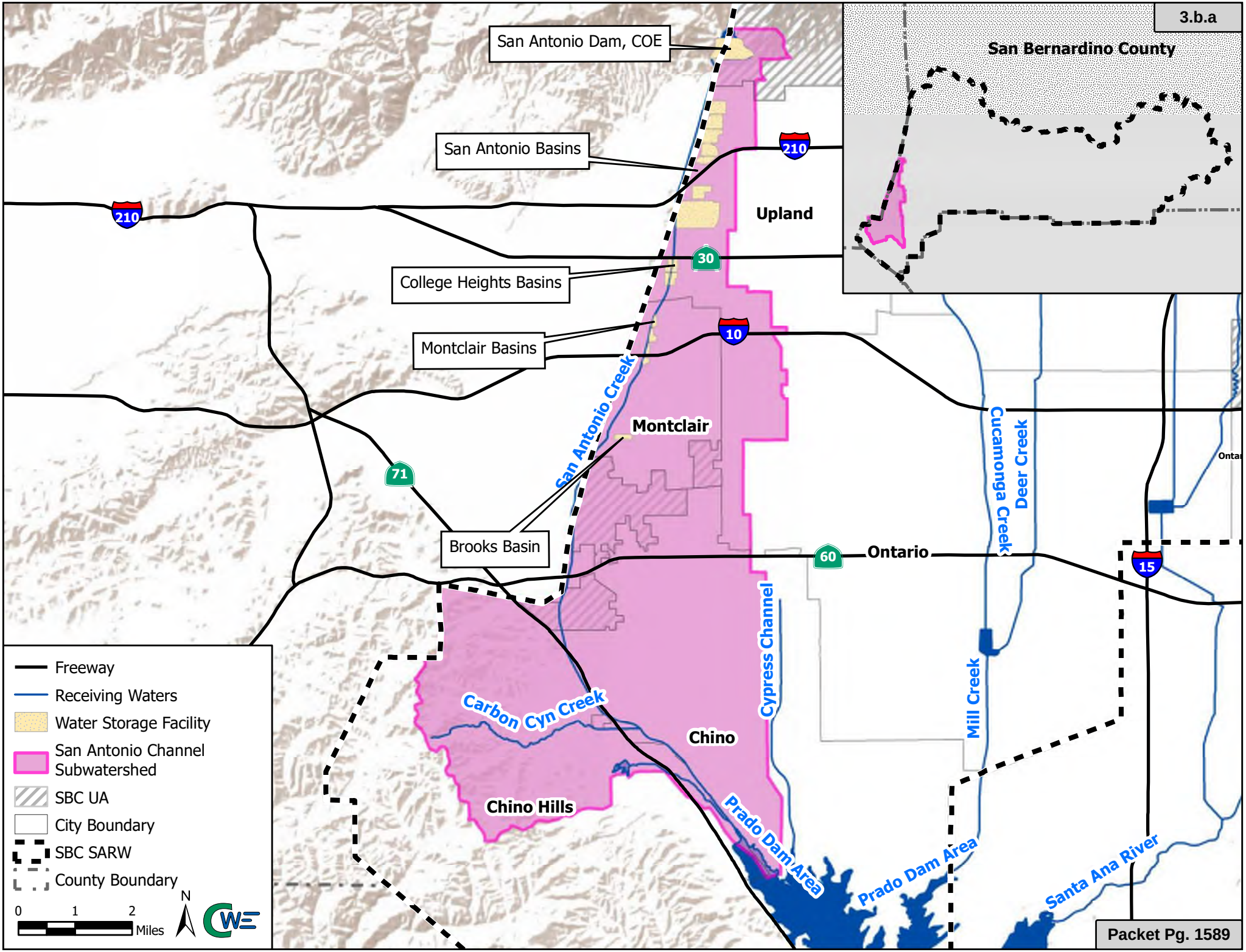
Upland
Montclair
Ontario
Chino
Chino Hills
San Antonio Creek
Cucamonga Creek
Deer Creek
Cypress Channel
Mill Creek
Carbon Cyn Creek
Prado Dam Area
Prado Dam Area
Santa Ana River
210
210
30
10
71
60
15

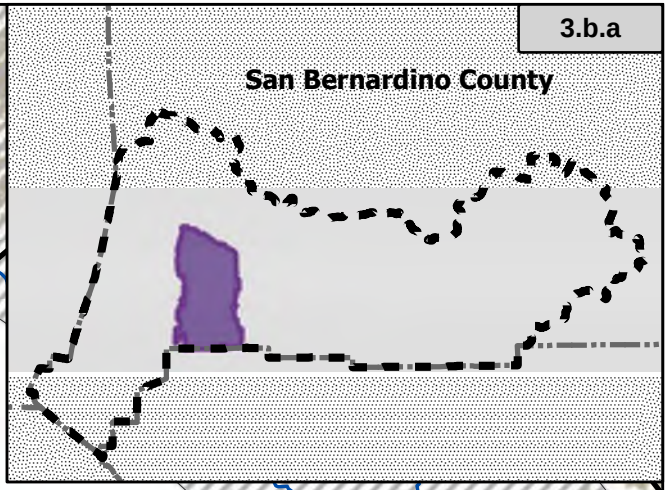
Freeway
Receiving Waters
San Antonio Channel Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary

Land Use
Agriculture
Commercial
Education
Industrial
Residential
Transportation
Vacant

0 1 2 Miles

N


San Antonio Dam, COE
San Antonio Basins
College Heights Basins
Montclair Basins
Brooks Basin
Upland
Montclair
Ontario
Chino
Chino Hills
San Antonio Creek
Carbon Cyn Creek
Cypress Channel
Cucamonga Creek
Deer Creek
Mill Creek
Prado Dam Area
Prado Dam Area
Santa Ana River
210
210
30
10
71
60
15
San Bernardino County
Freeway
Receiving Waters
Water Storage Facility
San Antonio Channel Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary
0
1
2
Miles
N



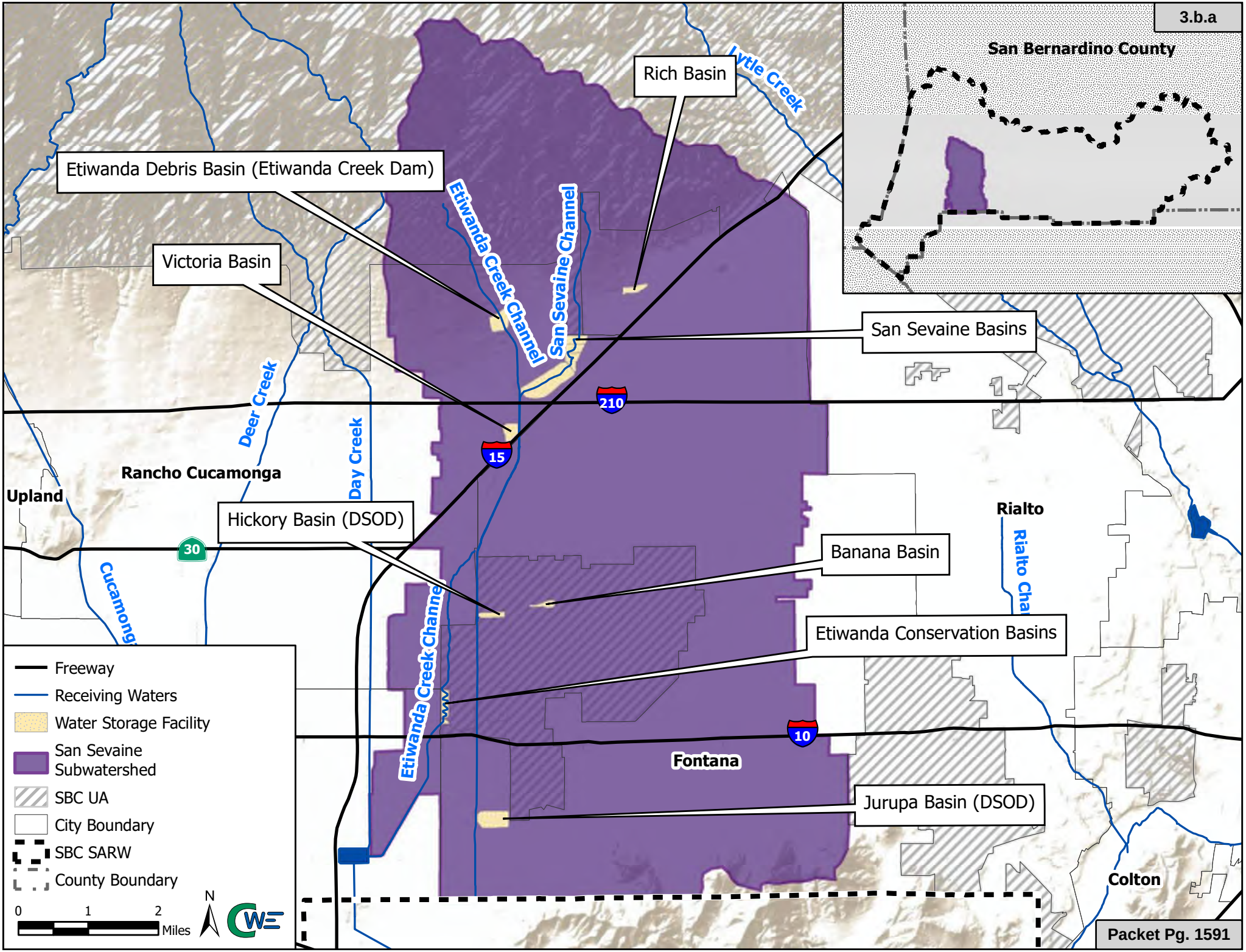
Lytle Creek
Etiwanda Creek Channel
San Sevaine Channel
Deer Creek
Day Creek
210
15
30
10
Upland
Rancho Cucamonga
Rialto
Rialto Channel
Fontana
Colton

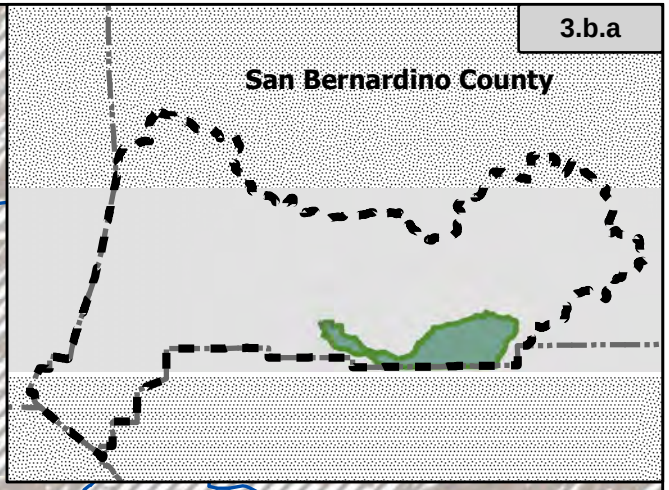
Freeway
Receiving Waters
San Sevaine Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary

Land Use
Commercial
Education
Industrial
Residential
Transportation
Vacant

0 1 2 Miles

N


San Bernardino County
Rich Basin
Lytle Creek
Etiwanda Debris Basin (Etiwanda Creek Dam)
Etiwanda Creek Channel
San Sevaine Channel
Victoria Basin
San Sevaine Basins
Deer Creek
Day Creek
210
15
Rancho Cucamonga
Upland
Hickory Basin (DSOD)
30
Cucamonga
Rialto
Rialto Cha
Banana Basin
Etiwanda Conservation Basins
Etiwanda Creek Channe
10
Fontana
Jurupa Basin (DSOD)
Colton
Freeway
Receiving Waters
Water Storage Facility
San Sevaine Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary
0
1
2
Miles
N



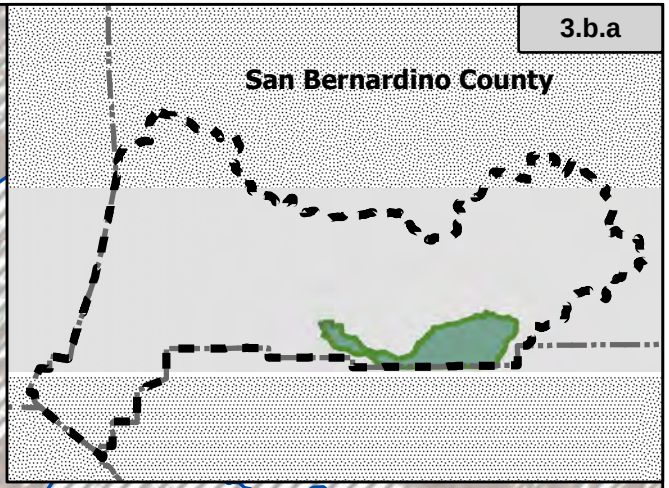
San Bernardino
Highland
Redlands
Loma Linda
Colton
Yucaipa
Twin Creek
Warm Creek
City Creek
Plunge
Seven Oaks Dam
Santa Ana River
Mill Creek
San Timoteo Creek
Little San Gorgonio Creek
215
30
10
60

Freeway
Receiving Waters
San Timoteo Creek Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary

Land Use
Agriculture
Commercial
Education
Industrial
Residential
Transportation
Vacant

0 1 2 Miles

N

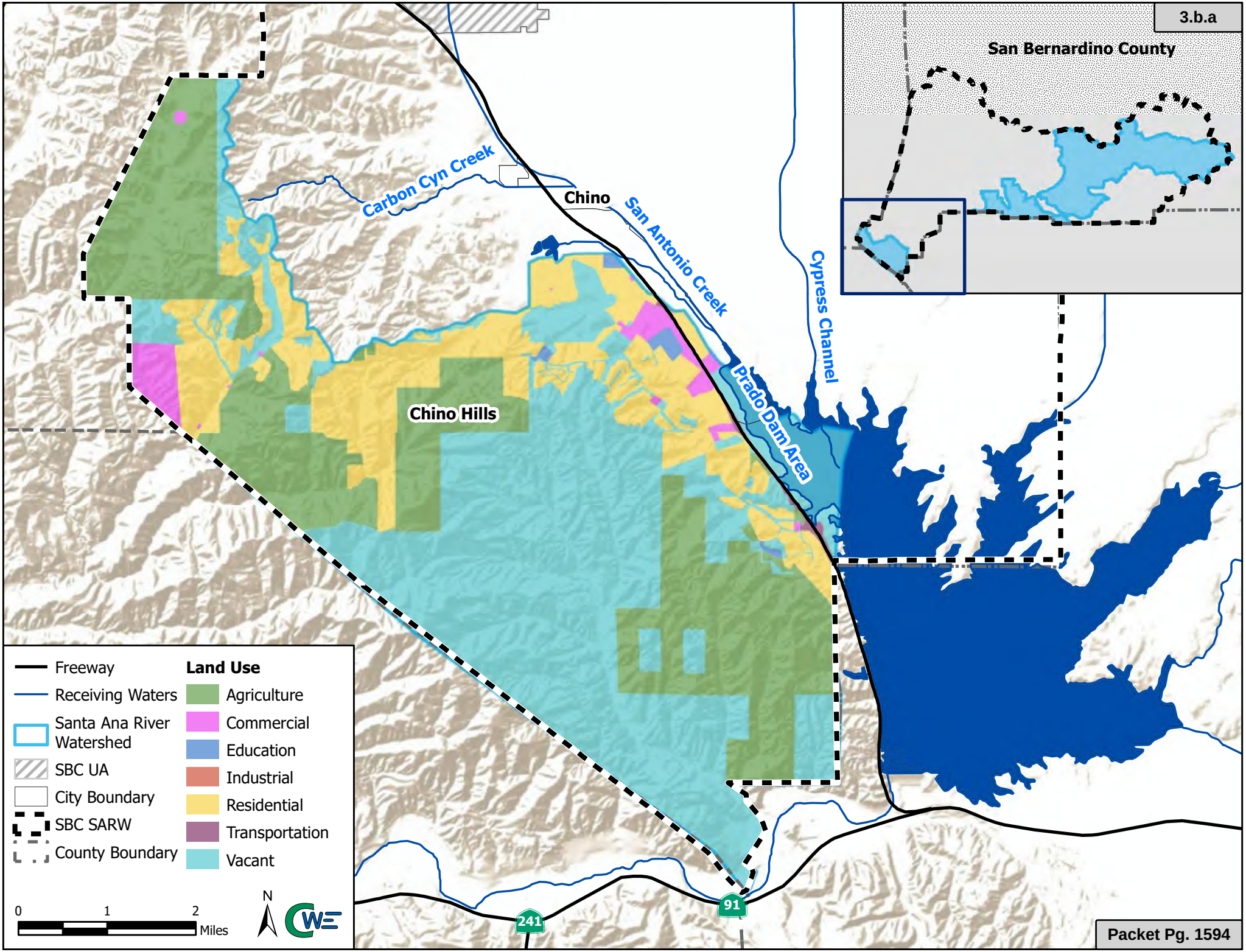


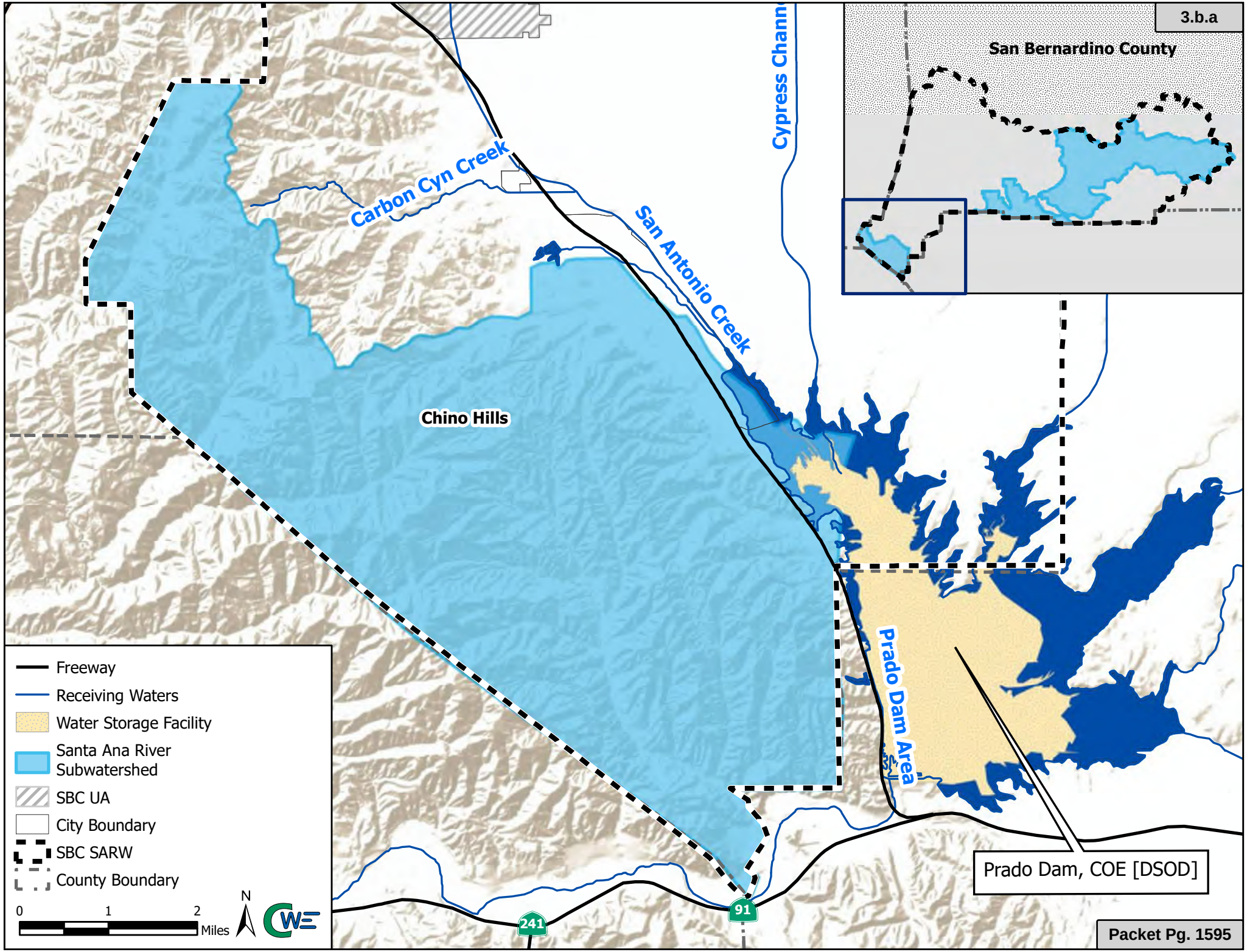
Twin Creek
San Bernardino
Warm Creek
30
Highland
City Creek
Plung
Wilson Creek Spreading Grounds (Wilson Basins)
San Timoteo Sediment Basins
Seven Oaks Dam
Potato Creek Spreading Grounds
Loma Linda Basins
Santa Ana River
Oak Glen Basin/Wilson II (WC-II)
Wilson Creek Basins
Mill Creek
215
Redlands
Dunlap Basin (D-5)
San Timoteo Creek
13th Street Basin
Loma Linda
Dunlap Basins
Yucaipa
Little San Gorgonio Creek
Colton
Lee Hill Canyon Basin
Dunlap Basin (D-1)
Wildwood Creek Basins
Chicken Springs Basin
Scott Canyon Basin
Yucaipa Creek Basin (Y-3)
Mountain View Basin
Yucaipa Creek Basins
Wildwood Creek Basin (WW-1)
10

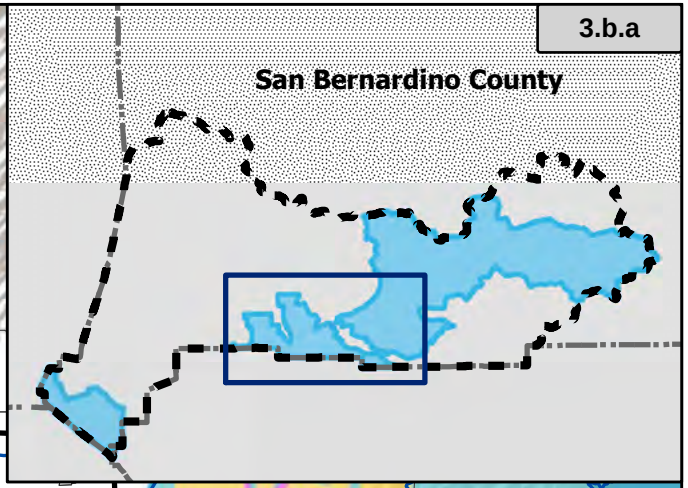
Freeway
Receiving Waters
Water Storage Facility
San Timoteo Creek Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary

0 1 2 Miles

N


San Bernardino County
Carbon Cyn Creek
Chino
San Antonio Creek
Cypress Channel
Prado Dam Area
Chino Hills
Freeway
Receiving Waters
Santa Ana River Watershed
SBC UA
City Boundary
SBC SARW
County Boundary
Land Use
Agriculture
Commercial
Education
Industrial
Residential
Transportation
Vacant
0
1
2
Miles
N
241
91


San Bernardino County
Carbon Cyn Creek
San Antonio Creek
Cypress Channel
Chino Hills
Prado Dam Area
Prado Dam, COE [DSOD]
91
241
Freeway
Receiving Waters
Water Storage Facility
Santa Ana River Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary
0
1
2
Miles
N



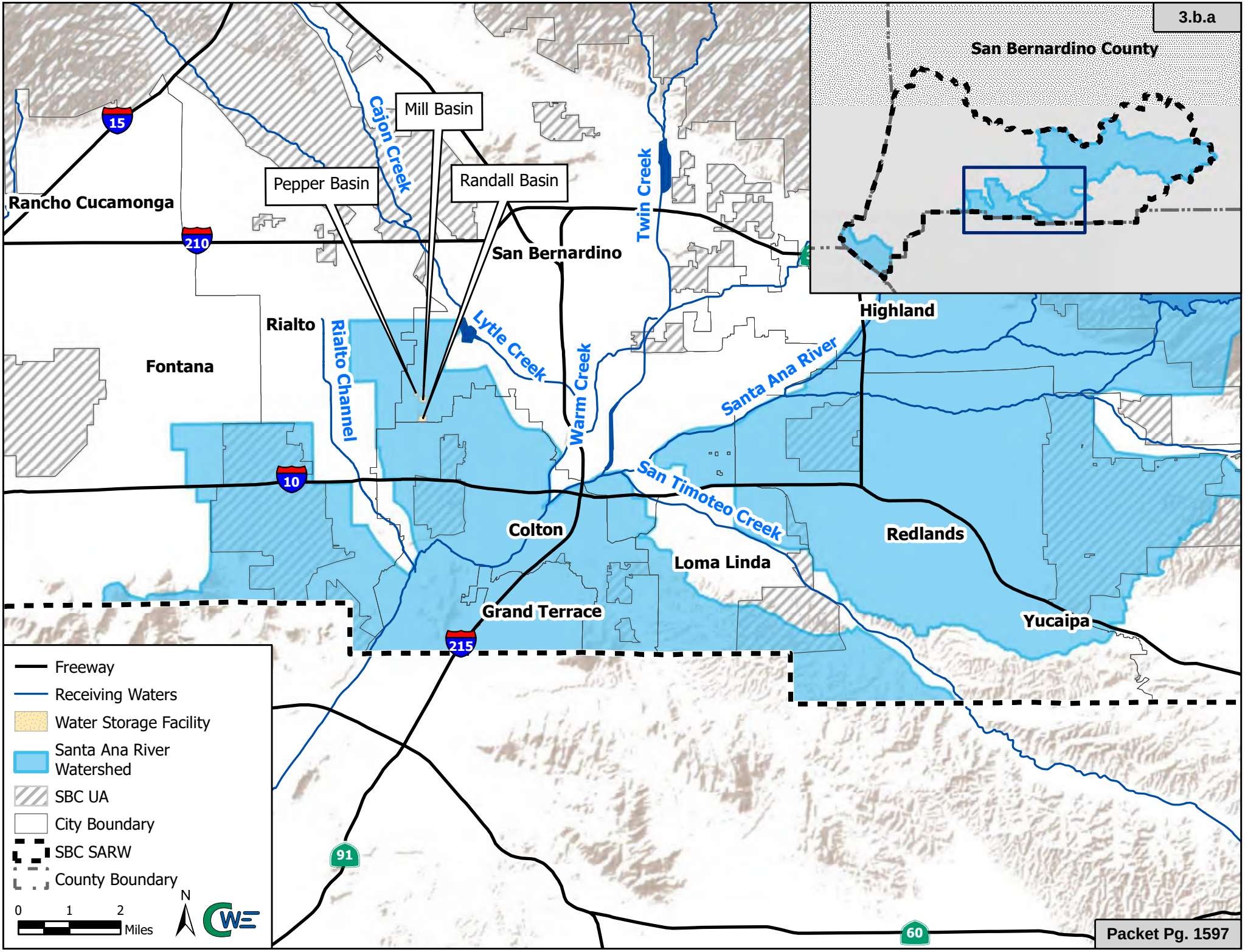
Rancho Cucamonga
San Bernardino
Highland
Rialto
Fontana
Colton
Loma Linda
Redlands
Grand Terrace
Yucaipa
Cajon Creek
Twin Creek
Lytle Creek
Rialto Channel
Warm Creek
Santa Ana River
San Timoteo Creek
15
210
10
215
91

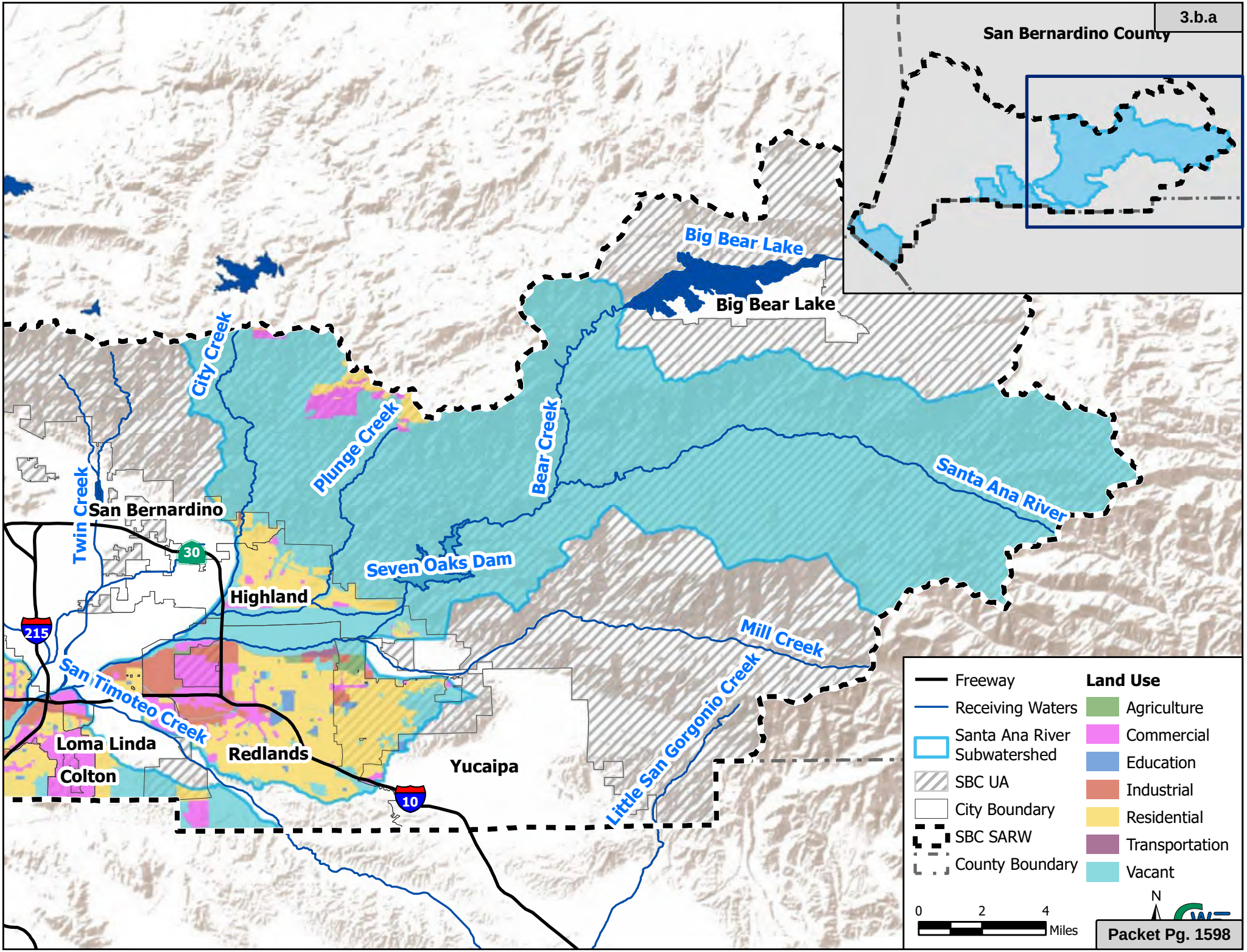
Freeway
Receiving Waters
Santa Ana River Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary

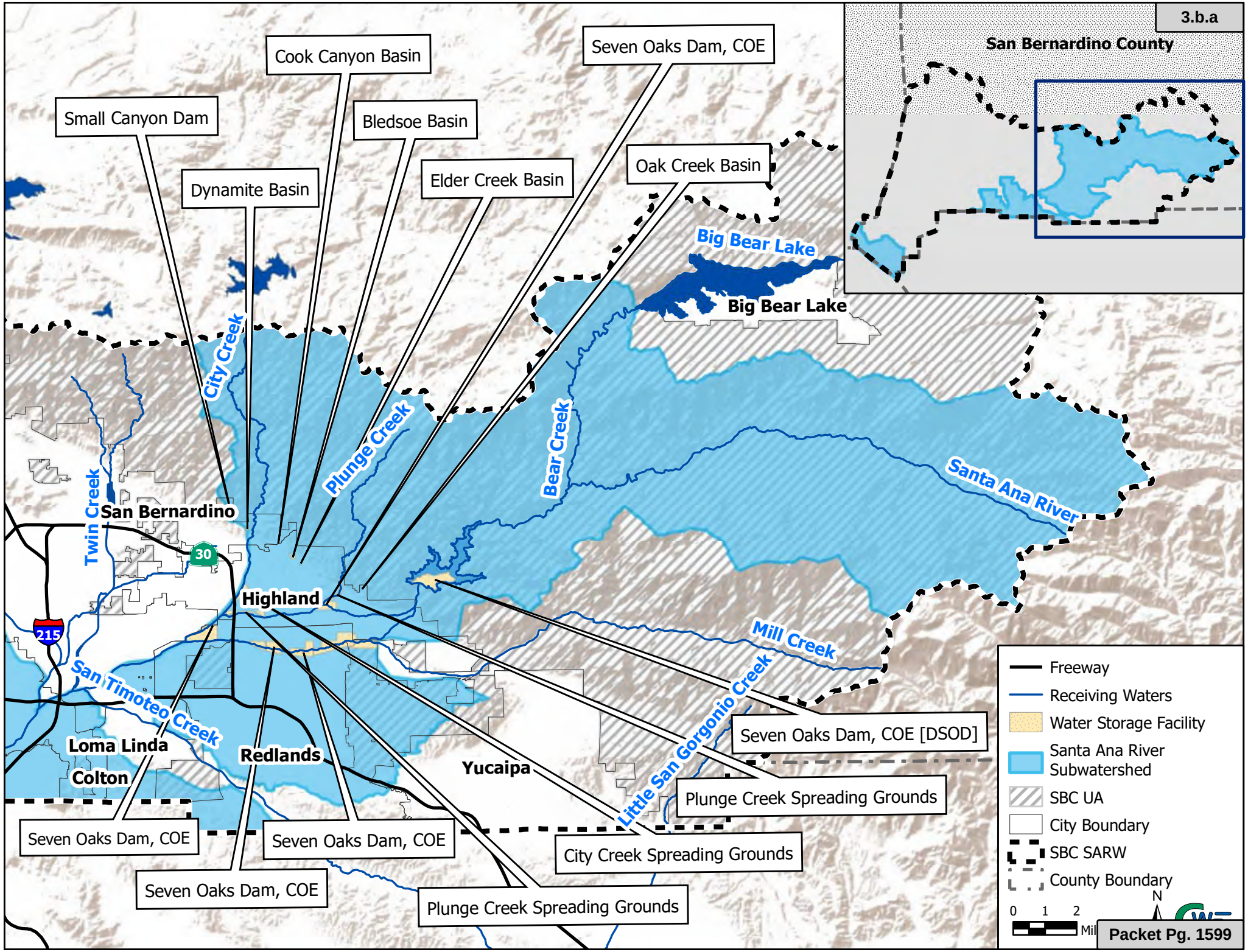
Land Use
Agriculture
Commercial
Education
Industrial
Residential
Transportation
Vacant

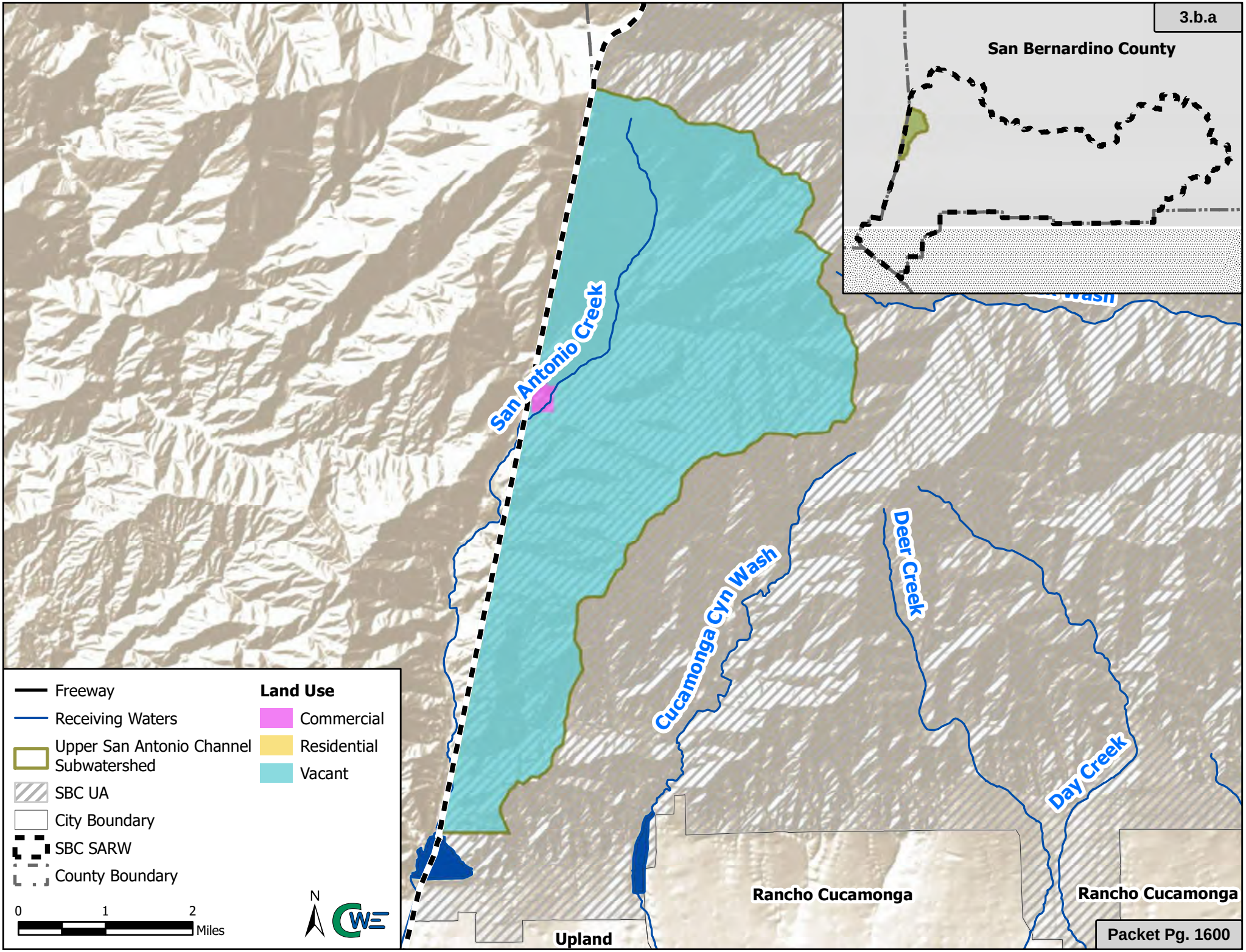
0 1 2 Miles

N


San Bernardino County
Mill Basin
Pepper Basin
Randall Basin
Cajon Creek
Twin Creek
Rancho Cucamonga
San Bernardino
Highland
Rialto
Rialto Channel
Lytle Creek
Warm Creek
Santa Ana River
Fontana
San Timoteo Creek
Colton
Redlands
Loma Linda
Grand Terrace
Yucaipa
15
210
10
215
91
60
Freeway
Receiving Waters
Water Storage Facility
Santa Ana River Watershed
SBC UA
City Boundary
SBC SARW
County Boundary
0 1 2 Miles
N


San Bernardino County
Big Bear Lake
Big Bear Lake
City Creek
Plunge Creek
Bear Creek
Santa Ana River
Twin Creek
San Bernardino
30
Seven Oaks Dam
Highland
215
Mill Creek
San Timoteo Creek
Loma Linda
Colton
Redlands
Yucaipa
10
Little San Gorgonio Creek
Freeway
Receiving Waters
Santa Ana River Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary
Land Use
Agriculture
Commercial
Education
Industrial
Residential
Transportation
Vacant
0
2
4
Miles
N


San Bernardino County
Cook Canyon Basin
Seven Oaks Dam, COE
Small Canyon Dam
Bledsoe Basin
Dynamite Basin
Elder Creek Basin
Oak Creek Basin
Big Bear Lake
Big Bear Lake
City Creek
Plunge Creek
Bear Creek
Santa Ana River
Twin Creek
San Bernardino
30
Highland
215
Mill Creek
San Timoteo Creek
Little San Gorgonio Creek
Loma Linda
Colton
Redlands
Yucaipa
Seven Oaks Dam, COE [DSOD]
Plunge Creek Spreading Grounds
Seven Oaks Dam, COE
Seven Oaks Dam, COE
City Creek Spreading Grounds
Seven Oaks Dam, COE
Plunge Creek Spreading Grounds
Freeway
Receiving Waters
Water Storage Facility
Santa Ana River Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary
N
0 1 2
Mil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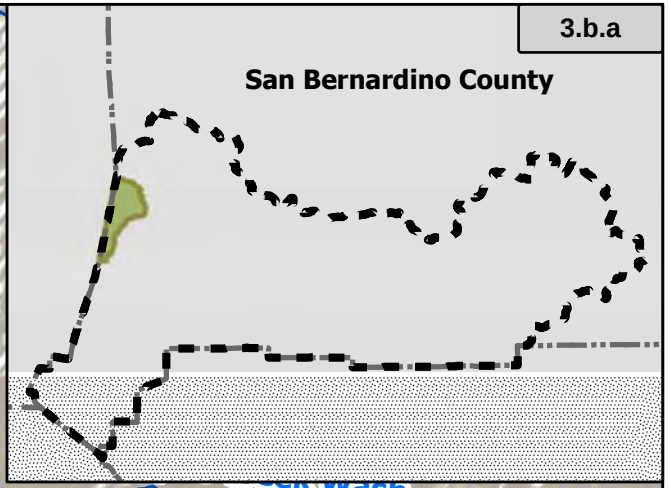
San Antonio Creek
Cucamonga Cyn Wash
Deer Creek
Day Creek
Rancho Cucamonga
Rancho Cucamonga
Upland
Freeway
Receiving Waters
Upper San Antonio Channel Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary
Land Use
Commercial
Residential
Vacant
N
0
1
2
Miles



San Antonio Creek

Cucamonga Cyn Wash

Deer Creek

Day Creek

Rancho Cucamonga

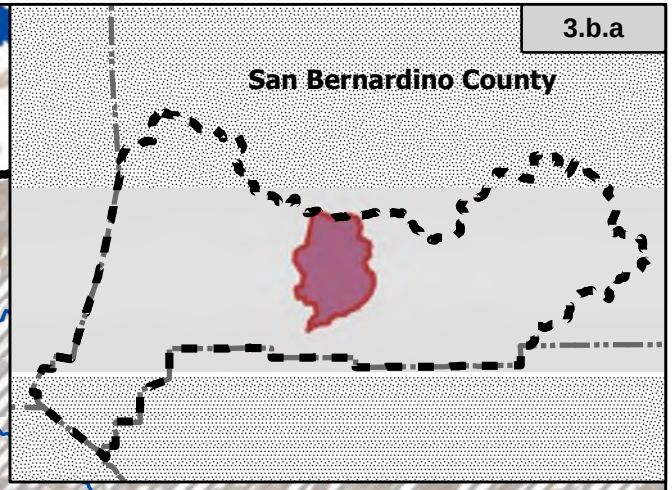
Rancho Cucamonga

Upland

Freeway
Receiving Waters
Water Storage Facility
Upper San Antonio Channel Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary

0 1 2 Miles

N

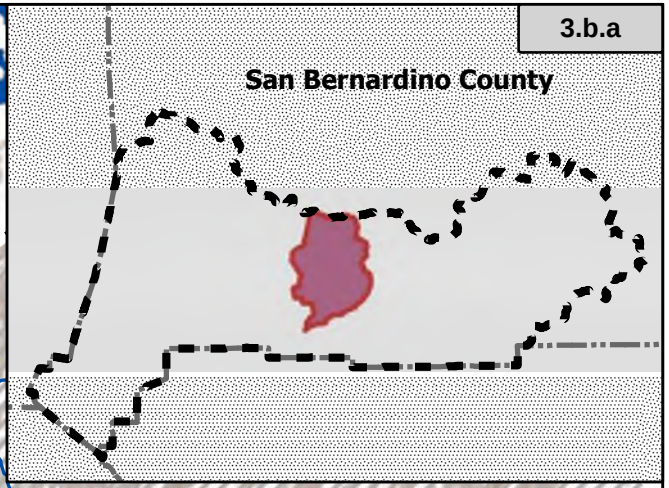


Freeway
Receiving Waters
Warm Channel Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary

Land Use
Commercial
Education
Industrial
Residential
Transportation
Vacant

0 1 2 Miles

N



Waterman Spreading Grounds
Waterman Basins
Perris Hill Basin
Daley Basin
Harrison Basin
East Twin Creek
Brush Canyon Basin
Waterman Cyn
Little Sand Canyon Basin
Cajon Creek
Sycamore Basin
East Badger Basin
South Badger Basin
Twin Creek Spreading Grounds
MacQuiddy Basin #1 (combined with #2, 3 & 4)
Sand Canyon Basin
Lemon Basin
Little Mountain Dam (DSOD)
Twin Creek
San Bernardino
Warm Creek
Rialto
Highland
Patton Basin
Lytle Creek
Lynwood Basins
Warm Creek
Santa Ana River
29th Street Basins
Mill Creek
Warm Creek Conservation Basins
Redlands
San Timoteo Creek
Colton

15
210
30

Freeway
Receiving Waters
Water Storage Facility
Warm Channel Subwatershed
SBC UA
City Boundary
SBC SARW
County Boundary

0 1 2 Miles

N

Attachment D

Water Quality Data Analysis

Summary of Dry-Weather Water Quality Data Analysis

Constituent	Data Range	Number of Exceedances/Number of Samples																	
		Cucamonga Creek	Cucamonga Channel	SAR @ Pedley Reach 3	SAR @ Mt Vernon Crossing Reach 4	Deer Creek	Lower Deer Creek	Warm Creek Bypass	Rialto Channel	East Rialto Channel	San Bernardino Channel	Warm Creek Channel	Del Rosa Channel	Lytle Cajon Channel	Live Oak Canyon Creek	San Timoteo Creek	Mission Creek Channel	Zanja Creek	SAR @ Mountain View Reach 5
Field (In-Situ) Measurements																			
pH	All	5/6 H	2/4 H	0/5	--	1/2 H	2/2 H	--	--	--	--	--	--	--	--	1/1 H	--	--	--
	5-yrs	5/6 H	2/3 H	0/5	--	1/2 H	2/2 H	--	--	--	--	--	--	--	--	1/1 H	--	--	--
Cations																			
Total Hardness	All	0/10	0/8	0/9	--	0/4	0/4	--	--	2/2	--	--	--	--	--	1/1	--	--	--
	5-yrs	0/10	0/3	0/9	--	0/4	0/4	--	--	2/2	--	--	--	--	--	1/1	--	--	--
Sodium	All	0/10	0/8	7/9	--	0/4	0/4	--	--	2/2	--	--	--	--	--	1/1	--	--	--
	5-yrs	0/10	0/3	7/9	--	0/4	0/4	--	--	2/2	--	--	--	--	--	1/1	--	--	--
Anions																			
Chloride	All	0/10	0/8	1/9	--	0/4	0/4	--	--	2/2	--	--	--	--	--	1/1	--	--	--
	5-yrs	0/10	0/3	1/9	--	0/4	0/4	--	--	2/2	--	--	--	--	--	1/1	--	--	--
Sulfate	All	0/10	0/8	0/9	--	0/4	0/4	--	--	2/2	--	--	--	--	--	0/1	--	--	--
	5-yrs	0/10	0/3	0/9	--	0/4	0/4	--	--	2/2	--	--	--	--	--	0/1	--	--	--
Solids																			
TDS	All	--	0/8	0/9	0/2	--	--	0/3	--	1/2	0/3	0/3	--	--	--	1/1	--	--	--
	5-yrs	--	0/3	0/9	0/2	--	--	0/3	--	1/2	0/3	0/3	--	--	--	1/1	--	--	--
Aggregate Organic Compounds																			
COD	All	--	5/8	0/9	2/2	--	--	0/3	--	2/2	3/3	1/3	--	--	--	1/1	--	--	--
	5-yrs	--	2/3	0/9	2/2	--	--	0/3	--	2/2	3/3	1/3	--	--	--	1/1	--	--	--
General Inorganics																			
Cyanide	All	1/10	0/8	0/9	0/2	0/4	0/4	0/3	--	0/2	0/3	0/3	--	--	--	0/1	--	--	--
	5-yrs	1/10	0/3	0/9	0/2	0/4	0/4	0/3	--	0/2	0/3	0/3	--	--	--	0/1	--	--	--
Nutrients																			
Total Inorganic Nitrogen, calc	All	0/10	0/8	0/9	0/2	--	--	0/3	--	0/2	0/3	0/3	--	--	--	0/1	--	--	--
	5-yrs	0/10	0/3	0/9	0/2	--	--	0/3	--	0/2	0/3	0/3	--	--	--	0/1	--	--	--
Metals and Metalloids (Total)																			
Chromium 6+	All	0/5	0/3	0/4	0/1	0/2	0/2	0/1	--	0/0	0/1	0/1	--	--	--	0/1	--	--	--
	5-yrs	0/5	0/2	0/4	0/1	0/2	0/2	0/1	--	0/0	0/1	0/1	--	--	--	0/1	--	--	--
Mercury	All	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	5-yrs	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	All	0/5	0/3	0/4	0/1	0/2	0/2	0/1	--	0/0	0/1	0/1	--	--	--	0/1	--	--	--
	5-yrs	0/5	0/2	0/4	0/1	0/2	0/2	0/1	--	0/0	0/1	0/1	--	--	--	0/1	--	--	--
Metals and Metalloids (Dissolved)																			
Arsenic (CTR, 1-hr Avg, WWE)	All	0/5	0/3	0/4	0/1	0/2	0/2	0/1	--	0/0	0/1	0/1	--	--	--	0/1	--	--	--
	5-yrs	0/5	0/2	0/4	0/1	0/2	0/2	0/1	--	0/0	0/1	0/1	--	--	--	0/1	--	--	--
Cadmium	All	1/5	0/3	0/4	0/1	0/2	0/2	0/1	--	0/0	0/1	0/1	--	--	--	0/1	--	--	--
	5-yrs	1/5	0/2	0/4	0/1	0/2	0/2	0/1	--	0/0	0/1	0/1	--	--	--	0/1	--	--	--

Constituent	Data Range	Number of Exceedances/Number of Samples																	
		Cucamonga Creek	Cucamonga Channel	SAR @ Pedley Reach 3	SAR @ Mt Vernon Crossing Reach 4	Deer Creek	Lower Deer Creek	Warm Creek Bypass	Rialto Channel	East Rialto Channel	San Bernardino Channel	Warm Creek Channel	Del Rosa Channel	Lytle Cajon Channel	Live Oak Canyon Creek	San Timoteo Creek	Mission Creek Channel	Zanja Creek	SAR @ Mountain View Reach 5
Copper	All	4/10	0/8	0/9	0/2	2/4	0/4	0/3	--	0/2	0/3	1/3	--	--	--	0/1	--	--	--
	5-yrs	4/10	0/3	0/9	0/2	2/4	0/4	0/3	--	0/2	0/3	1/3	--	--	--	0/1	--	--	--
Lead	All	1/10	0/8	0/9	0/2	0/4	0/4	0/3	--	0/2	0/3	0/3	--	--	--	0/1	--	--	--
	5-yrs	1/10	0/3	0/9	0/2	0/4	0/4	0/3	--	0/2	0/3	0/3	--	--	--	0/1	--	--	--
Nickel	All	0/5	0/3	0/4	0/1	0/2	0/2	0/1	--	0/0	0/1	0/1	--	--	--	0/1	--	--	--
	5-yrs	0/5	0/2	0/4	0/1	0/2	0/2	0/1	--	0/0	0/1	0/1	--	--	--	0/1	--	--	--
Silver	All	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	5-yrs	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	All	0/10	0/8	0/9	0/2	0/4	0/4	0/3	--	0/2	0/3	0/3	--	--	--	0/1	--	--	--
	5-yrs	0/10	0/3	0/9	0/2	0/4	0/4	0/3	--	0/2	0/3	0/3	--	--	--	0/1	--	--	--
Organochlorine Pesticides and PCBs[1]																			
VOCs[1]																			
Semivolatile Organic Compounds[1]																			
Organo-Phosphorus Pesticides[1]																			
Bacteria																			
E. coli	All	2/3	4/8	9/9	0/2	1/4	2/4	1/3	--	1/2	1/3	0/3	--	--	--	1/1	--	--	--
	5-yrs	2/3	2/3	9/9	0/2	1/4	2/4	1/3	--	1/2	1/3	0/3	--	--	--	1/1	--	--	--
Fecal Coliform	All	1/3	3/5	6/6	1/2	1/4	3/4	1/1	--	0/0	0/1	0/1	--	--	--	1/1	--	--	--
	5-yrs	1/3	2/3	6/6	1/2	1/4	3/4	1/1	--	0/0	0/1	0/1	--	--	--	1/1	--	--	--

[1] No target analytes detected above detection limit.

Summary of Wet-Weather Water Quality Data Analysis

Constituent	Data Range	Number of Exceedances/Number of Samples												
		Cucamonga Creek	Cucamonga Channel	SAR @ Pedley Reach 3	SAR @ Mt Vernon Crossing Reach 4	Deer Creek	Lower Deer Creek	Warm Creek Bypass	Rialto Channel	East Rialto Channel	San Bernardino Channel	Warm Creek Channel	Del Rosa Channel	Lytle Cajon Channel
Field (In-Situ) Measurements														
pH	All	1/12 L, 1/12 H	2/18 H	1/26 L	2/11 H	1/6 L	2/5 H	--	--	--	--	--	--	--
	5-yrs	1/4 L	0/4	1/13 L	2/11 H	1/6 L	2/5 H	--	--	--	--	--	--	--
Cations														
Total Hardness	All	0/49	1/21	4/40	--	0/7	0/6	--	--	0/2	--	--	0/2	--
	5-yrs	0/22	0/4	1/16	--	0/7	0/6	--	--	0/2	--	--	0/2	--
Sodium	All	0/49	0/20	0/39	--	0/7	0/6	--	--	0/2	--	--	0/2	--
	5-yrs	0/22	0/4	0/15	--	0/7	0/6	--	--	0/2	--	--	0/2	--
Anions														
Chloride	All	0/49	0/21	0/40	0/0	0/7	0/6	--	--	0/2	--	--	0/2	--
	5-yrs	0/22	0/4	0/16	0/0	0/7	0/6	--	--	0/2	--	--	0/2	--
Sulfate	All	0/49	0/21	0/40	--	0/7	0/6	--	--	0/2	--	--	0/2	--
	5-yrs	0/22	0/4	0/16	--	0/7	0/6	--	--	0/2	--	--	0/2	--
Solids														
TDS	All	--	0/21	0/40	0/12	--	--	0/2	0/2	0/2	0/2	0/2	0/2	--
	5-yrs	--	0/4	0/16	0/12	--	--	0/2	0/2	0/2	0/2	0/2	0/2	--
Aggregate Organic Compounds														
COD	All	--	18/21	33/40	10/12	--	--	2/2	2/2	2/2	2/2	2/2	2/2	--
	5-yrs	--	4/4	13/16	10/12	--	--	2/2	2/2	2/2	2/2	2/2	2/2	--
General Inorganics														
Cyanide	All	0/10	0/10	0/9	0/10	0/5	0/4	0/2	0/2	0/2	0/2	0/2	0/2	--
	5-yrs	0/10	0/2	0/9	0/10	0/5	0/4	0/2	0/2	0/2	0/2	0/2	0/2	--
Nutrients														
Total Inorganic Nitrogen, calc	All	0/49	0/21	0/40	0/12	0/7	0/6	0/2	0/2	0/2	0/2	0/2	0/2	--
	5-yrs	0/22	0/4	0/16	0/12	0/7	0/6	0/2	0/2	0/2	0/2	0/2	0/2	--
Metals and Metalloids (Total)														
Chromium 6+	All	0/6	0/5	0/4	0/5	0/3	0/2	0/1	0/1	0/1	0/1	0/1	0/1	--
	5-yrs	0/6	0/2	0/4	0/5	0/3	0/2	0/1	0/1	0/1	0/1	0/1	0/1	--
Mercury	All	--	--	--	--	--	--	--	--	--	--	--	--	--
	5-yrs	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	All	0/37	0/14	1/32	0/5	0/3	0/2	0/1	0/1	0/1	0/1	0/1	0/1	--
	5-yrs	0/12	0/2	0/9	0/5	0/3	0/2	0/1	0/1	0/1	0/1	0/1	0/1	--
Metals and Metalloids (Dissolved)														
Arsenic (CTR, 1-hr Avg, WWE)	All	0/23	0/16	0/17	0/7	0/5	0/4	0/1	0/1	0/1	0/1	0/1	0/1	--
	5-yrs	0/18	0/4	0/11	0/7	0/5	0/4	0/1	0/1	0/1	0/1	0/1	0/1	--
Cadmium	All	6/22	3/16	0/17	0/7	0/5	0/4	0/1	0/1	0/1	0/1	0/1	0/1	--
	5-yrs	2/17	0/4	0/11	0/7	0/5	0/4	0/1	0/1	0/1	0/1	0/1	0/1	--

Constituent	Data Range	Number of Exceedances/Number of Samples												
		Cucamonga Creek	Cucamonga Channel	SAR @ Pedley Reach 3	SAR @ Mt Vernon Crossing Reach 4	Deer Creek	Lower Deer Creek	Warm Creek Bypass	Rialto Channel	East Rialto Channel	San Bernardino Channel	Warm Creek Channel	Del Rosa Channel	Lytle Cajon Channel
Copper	All	16/26	6/21	0/22	0/12	3/7	4/6	2/2	1/2	2/2	0/2	1/2	1/2	--
	5-yrs	12/21	0/4	0/16	0/12	3/7	4/6	2/2	1/2	2/2	0/2	1/2	1/2	--
Lead	All	0/26	0/21	0/22	0/12	0/7	0/6	0/2	0/2	0/2	0/2	0/2	0/2	--
	5-yrs	0/21	0/4	0/16	0/12	0/7	0/6	0/2	0/2	0/2	0/2	0/2	0/2	--
Nickel	All	0/6	0/5	0/4	0/5	0/3	0/2	0/1	0/1	0/1	0/1	0/1	0/1	--
	5-yrs	0/6	0/2	0/4	0/5	0/3	0/2	0/1	0/1	0/1	0/1	0/1	0/1	--
Silver	All	12/16	6/14	0/15	0/5	2/4	6/6	0/1	0/0	0/1	0/1	0/1	0/0	--
	5-yrs	7/11	0/2	0/9	0/5	2/4	6/6	0/1	0/0	0/1	0/1	0/1	0/0	--
Zinc	All	13/26	9/21	1/22	3/12	4/6	5/6	2/2	2/2	2/2	1/2	2/2	2/2	--
	5-yrs	12/21	0/4	1/16	3/12	4/6	5/6	2/2	2/2	2/2	1/2	2/2	2/2	--
Organochlorine Pesticides and PCBs[1]														
VOCs[1]														
Semivolatile Organic Compounds[1]														
Organo-Phosphorus Pesticides[1]														
Bacteria														
E. coli	All	37/37	15/15	39/39	11/11	7/7	6/7	2/2	2/2	2/2	1/1	2/2	2/2	--
	5-yrs	15/15	4/4	16/16	11/11	7/7	6/7	2/2	2/2	2/2	1/1	2/2	2/2	--
Fecal Coliform	All	32/36	12/12	35/35	8/8	4/4	3/4	2/2	2/2	2/2	1/1	2/2	2/2	--
	5-yrs	13/13	4/4	13/13	8/8	4/4	3/4	2/2	2/2	2/2	1/1	2/2	2/2	--

[1] No target analytes detected above detection limit.

Attachment E

Stakeholder and Public Outreach, Education, and Engagement Plan

SAN BERNARDINO COUNTY

STAKEHOLDER AND PUBLIC OUTREACH, EDUCATION, AND ENGAGEMENT PLAN

FOR THE SBC SARW SWRP

1561 E. Orangethorpe Avenue, Suite 240
Fullerton, California 92831
(714) 526-7500
www.cw

Stakeholder and Public Outreach, Education, and Engagement Plan

for the SBC SARW SWRP

Prepared for:

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Prepared by:

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Fullerton, California, 92831

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July 2017

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Acronyms

BBMWD	Big Bear Municipal Water District
DAC	Disadvantaged Community
District or SBCFCD	San Bernardino County Flood Control District
DWR	Department of Water Resources
IEUA	Inland Empire Utilities Agency
MHI	Median Household Income
NPDES	National Pollutant Discharge Elimination System
RCFCWCD	Riverside County Flood Control and Water Conservation District
RWQCB	Regional Water Quality Control Board (Santa Ana)
SAWPA	Santa Ana Watershed Project Authority
SB	Senate Bill
SBC SARW	San Bernardino County Santa Ana River Watershed
SBVMWD	San Bernardino Valley Municipal Water District
SPOEEP	Stakeholder and Public Outreach, Education, and Engagement Plan
SWRCB	State Water Resources Control Board
SWRP	Stormwater Resource Plan
TAC	Technical Advisory Committee
TMDL	Total Maximum Daily Load
WMWD	Western Municipal Water District

1. Introduction

California voters passed the Water Quality, Supply, and Infrastructure Improvement Act of 2014 (Proposition 1) during the general election of November 4, 2014. As a precursor to the passage of Proposition 1, the California Legislature adopted Senate Bill (SB) 985 entitled the Stormwater Resource Planning Act (SB 985), requiring the development of a Stormwater Resource Plan (SWRP) to be eligible to receive grants from a bond act approved after January 1, 2014, for stormwater and dry-weather runoff capture projects. A SWRP is a stormwater management document developed on a watershed basis that identifies a prioritized list of projects to address stormwater and dry-weather runoff, while also providing multiple benefits, such as water supply, flood management, and environmental and community enhancements. The State Water Resources Control Board (SWRCB) developed Stormwater Resource Plan Guidelines (2015) to help facilitate the proper preparation of SWRPs or equivalent documents. Proposition 1 includes numerous categories of projects to be funded, one being the Stormwater Grant Program. Planning and implementation grants were included in the Stormwater Grant Program. Planning grants are to be used for developing SWRPs and/or conducting studies prior to project implementation while the implementation grants are used to fund projects identified in a SWRP or equivalent document.

The San Bernardino County Flood Control District (SBCFCD or District) was awarded planning grant funds through the Stormwater Grant Program for the development of the San Bernardino County Santa Ana River Watershed (SBC SARW) SWRP (Grant Agreement No. D1612627). The SBC SARW SWRP encompasses the upper limits of the SARW that lies within the San Bernardino County jurisdictional boundary.

This Stakeholder and Public Outreach, Education, and Engagement Plan (SPOEEP) has been developed to support the outreach efforts that will be conducted throughout the SWRP development, consistent with the SWRP Guidelines (2015), applicable Water Code (Sections 10561-10573), and the Proposition 1 Grant Agreement. The Grant Agreement identifies the following tasks (Task 5) associated with stakeholder and public outreach, education, and participation:

- Provide a stakeholder outreach, education, and engagement plan and submit to the Grant Manager for review and approval.
- Conduct a minimum of two (2) stakeholder meetings and one (1) public outreach meeting for interested stakeholders over the course of the SWRP development. At a minimum, one outreach meeting shall include a request for stakeholders to propose multi-benefit stormwater management projects.
- Submit a summary of stakeholder outreach, education and public participation and collaboration activities including meeting agenda(s) and materials, meeting summaries, sign-in sheets, and photos in the associated quarterly progress report(s).

The Grant Agreement also discusses the development of a Technical Advisory Committee (TAC) which involves stakeholders (Task 2). The SPOEEP summarizes efforts associated with the TAC, as they relate to stakeholder outreach, while the tasks identified in the bulleted list above are the main focus.

1.1 SPOEEP Goals

The SPOEEP provides the scope of work for the stakeholder and public outreach and education that will be implemented throughout the SWRP development. The SPOEEP identifies how input, ideas, and information will be solicited and collected from stakeholders and the public focusing on multi-benefit projects that provide water quality, water supply, flood management, environmental, and community benefits. The SPOEEP also describes the efforts that will be made during the SWRP development to educate stakeholders and the public. The information collected through SPOEEP implementation will be considered, and incorporated as applicable, throughout the SWRP development.

A key goal of the SPOEEP is to outline the steps that will be taken to involve interested stakeholders and the public in the development and review of the SWRP. These efforts include reaching out to a broad range of stakeholders, including elected and appointed officials, municipal and county staff, watershed groups, local water agencies, and non-governmental organizations, along with the public (e.g., residents, businesses, homeowners associations, etc.). Each of these audiences has a slightly different point of view and motivation for participating in the SBC SARW SWRP development. Understanding the different points of view will allow the SWRP to be prepared in a way that benefits the community and encourages support during SWRP development and implementation.

It is important to understand the roles the stakeholders will play versus how the public will be involved. **Section 2** defines the different groups involved in these efforts and the sections of the SPOEEP clarify how the District will interact with the public versus the stakeholders. Additional outreach efforts are required with stakeholders, as they will provide technical information to support the SWRP development. The public will be involved in the SWRP in a different capacity, which is further detailed herein. The District will use the development of the SWRP as an educational opportunity for both the stakeholders and the public. Information regarding the goals, projects, programs, and needs identified in the SWRP will be shared and the public (including stakeholders) will be given an opportunity to provide feedback on the plan itself, while not being as involved in the technical aspects. Goals associated with each specific type of outreach/education effort are detailed within their appropriate sections.

1.2 SPOEEP Structure

The development of the SBC SARW SWRP provides an opportunity to collect regional data, promote discussion between agencies, and creates a platform for transparency concerning both the SWRP and future project/program implementation. The SPOEEP structure is as follows:

- **Section 2 – Definitions**: defines key terms such as "public," "stakeholders," and "TAC" to clarify how outreach, education, and engagement will be tailored to each group.
- **Section 3 – Stakeholder Involvement in TAC**: summarizes goals and strategies related with the stakeholder involvement in the TAC, which is separate from general stakeholder outreach, education, and engagement efforts.
- **Section 4 – Stakeholder Outreach**: describes who, what, when, why, and how relating to the two (2) stakeholder outreach events that will be conducted during SWRP development.
- **Section 5 – Public Outreach**: describes who, what, when, why, and how relating to the one (1) public outreach event that will be held during the SWRP development.

- **Section 6 – Education**: details the efforts that will be made in educating stakeholders and the public, such as print material, webpage, and social media.
- **Section 7 – Alignment with SWRP Guidelines**: summarizes how the stakeholder and public outreach, education, and engagement efforts meet the SWRP Guidelines and corresponding sections of the Water Code.

2. Definitions

This section defines key terms that will be used throughout the SPOEEP. The terms defined below have similar definitions and understanding the differences will provide clarity regarding the outreach and education efforts that will be made during the SBC SARW SWRP development.

Public: Ordinary people in general; the community. Examples include residents, businesses, homeowners associations, etc.

Stakeholders: A person, group, or organization that has interest or concern in an organization and/or project (such as the SBC SARW SWRP). Stakeholders can affect or be affected by the organization's and/or project's actions, objectives, and policies. Examples include, and are not limited to, elected and appointed officials, municipal and county staff, watershed groups, local water agencies, and non-governmental organizations.

TAC Stakeholders: Key stakeholders (see definition above) that have service areas that overlaps (at least in part) with the SBC SARW. These stakeholders work closely with the District and partnerships have been/are in place for projects/programs that have been and continue to be implemented.

3. Stakeholder Involvement in TAC

The SBC SARW SWRP TAC was formed to solicit expert advice and technical support throughout the SWRP development. In addition to the requirements identified in the Grant Agreement for stakeholder and public outreach (refer to **Section 1**), the Grant Agreement requires that the District:

1. Establish a TAC for the SWRP development that includes the SWRCB, Regional Water Quality Control Board (RWQCB), and other interested parties, such as municipalities, water suppliers, local agencies, non-governmental organizations, public utilities, and regulatory agencies. A list of TAC members, their roles and responsibilities, and affiliations must be submitted to the Grant Manager.
2. Convene a kickoff meeting to develop the SWRP water management goals and objectives, formalize roles, and develop a schedule for future meetings. A summary of SWRP objectives, meeting schedule, and updates to the TAC participant list must be submitted to the Grant Manager.
3. Conduct a minimum of three (3) additional meetings and submit the agendas, meeting notes, sign-in sheets, and a list of current action items for each meeting to the Grant Manager.

Information pertaining to the TAC is presented in this SPOEEP to clarify how the effort being made to involve stakeholders in the TAC is separate from other stakeholder outreach efforts (detailed in **Section 4**). TAC member roles and responsibilities and the TAC schedule are presented in subsections below. Additional information required based on the Grant Agreement is submitted separately to the Grant Manager.

3.1 Roles and Responsibilities

Key stakeholders were invited to serve on the TAC based on proximity to the SBC SARW, involvement in similar efforts (watershed planning, multi-benefit projects, etc.), and existing relationships/partnerships. It is important that the TAC is able to provide region-specific input and understands the current challenges faced in the SBC SARW. The District has agreements in place with the TAC stakeholders and anticipates future partnership opportunities will come out of the SWRP development. **Table 3-1** summarizes the key stakeholders invited to participate in the TAC and their role/responsibility.

Table 3-1 TAC Roles and Responsibilities

Agency	Status	Role/Responsibility
Bureau of Reclamation	Unable to Participate	Not applicable
Chino Basin Water Conservation District	Active	Guidance on water accounting and project selection
Inland Empire Utilities Agency (IEUA)	Active	Guidance on water supply, waste water, recycled water and joint use project selection
Riverside County Flood Control and Water Conservation District (RCFCWCD)	Invited, No Response	Not applicable
RWQCB	Active	Guidance on permit requirements and project selection

Agency	Status	Role/Responsibility
Santa Ana Watershed Project Authority (SAWPA)	Active	Guidance on regional water and project selection
San Bernardino County Department of Public Works, National Pollutant Discharge Elimination System (NPDES)	Active	TAC lead
San Bernardino County Flood Control District, Flood Planning	Active	Guidance on flood control and project selection
San Bernardino Valley Municipal Water District (SBVMWD)	Active	Guidance on water supply, groundwater recharge and project selection
Western Municipal Water District (WMWD)	Pending	Guidance on groundwater recharge in service area and project selection

3.2 Tentative Schedule

Table 3-2 summarizes the TAC meeting schedule and meeting purpose, which includes the kickoff meeting and three additional meetings. At the time this SPOEEP was prepared, the kickoff meeting and one additional meeting had been held. The schedule and scope for the last two meetings are tentative and may change.

Table 3-2 Tentative TAC Meeting Schedule and Purpose

TAC Meeting	Schedule	Purpose
Kickoff Meeting	April 12, 2017	➢ Present background/overview of SBC SARW SWRP ➢ Define roles and responsibilities ➢ Discuss water management goals and objectives ➢ Outline TAC involvement and schedule
Meeting #2	July 6, 2017	➢ Examine quantifiable benefit goals and targets to be included in the SWRP ➢ Review multi-benefit projects identified in other planning documents that may be included in the SBC SARW SWRP ➢ Identify data needed for projects to quantify benefits
Meeting #3	Late August 2017	➢ Present/discuss results associated with benefit quantification for example projects ➢ Collaborate on project concepts ➢ Evaluate opportunities to enhance projects to provide additional benefits
Meeting #4	December 2017	➢ Walk through the Draft SBC SARW SWRP ➢ Discuss structure and key sections ➢ Solicit feedback, comments, questions, and suggestions

4. Stakeholder Outreach

Two (2) stakeholder outreach events will be held during the development of the SBC SARW SWRP, consistent with the Grant Agreement requirements. The goals of the stakeholder outreach event are:

1. Collect information regarding challenges faced in relationship to water quality, water supply, flood management, environmental, and the community;
2. Gather details pertaining to current projects and programs conceptualized, planned, and implemented;
3. Solicit project/program ideas to be included in the SWRP; and
4. Obtain data pertinent to quantifying project/program benefits, including, but not limited to, monitoring data, flood studies, project/program concepts, system operations, etc.

The District will utilize the stakeholder events to solicit technical information and identify projects/programs that include partnerships with the District and/or are mutually beneficial. The stakeholder events will also promote education, as the District will share details pertaining to the SBC SARW SWRP, which will increase awareness and encourage support. It is important to include local stakeholders in the region throughout the SWRP development, as partnerships may be formed and local support will lead to a successful plan and projects/programs implementation.

4.1 Potential Participants

Potential participants in the stakeholder event will include the stakeholders participating in the TAC along with additional local stakeholders. Opportunities to include elected and appointed officials, municipal and county staff, watershed groups, local water agencies, and non-governmental organizations, along with other stakeholders, have been and will continue to be evaluated. The TAC will work together to compile lists of stakeholders that have participated in outreach efforts of similar scope/magnitude. **Table 4-1** identifies potential participants. This list will be further refined prior to the stakeholder outreach event.

Table 4-1 Potential Participants for the Stakeholder Outreach Events

Stakeholder Category	Potential Stakeholders
Elected/appointed officials	To be determined
Local municipalities	Big Bear Lake, Chino, Chino Hills, Colton, Fontana, Grand Terrace, Highland, Loma Linda, Montclair, Ontario, Rancho Cucamonga, Redlands, Rialto, San Bernardino, Upland, and Yucaipa
Neighboring counties	Orange County (Department of Public Works and Flood Control District) Riverside County (RCFCWCD)
Non-governmental organizations	Council for Watershed Health Inland Empire Waterkeeper
Regulators	RWQCB (Santa Ana) SWRCB United States Army Corps of Engineers

Stakeholder Category	Potential Stakeholders
SBC departments	Flood Control District Public Health (Mosquito and Vector Control) Public Works Regional Parks Special Districts
Water agencies and member agencies	Big Bear Municipal Water District (BBMWD) – Big Bear Municipal Water Company
	Chino Basin Water Conservation District/Watermaster
	IEUA – Cities of Chino, Chino Hills, Ontario, and Upland, Crawford Canyon Municipal Water Company, Cucamonga Valley Water District, Fontana Water Company, Monte Vista Water District, and San Antonio Water Company
	SBVMWD – Cities of Colton, Loma Linda, Redlands, and Rialto, East Valley Water District, Marygold Mutual Water Company, Muscoy Mutual Water Company, Riverside Highland Water Company, San Bernardino Municipal Water District, San Bernardino Valley Conservation District, South Mesa Water Company, Terrace Water Company, West Valley Water District, Western Heights Water Company, and Yucaipa Valley Water District
	Six Basins Watermaster
	WMWD
	Warren Valley Basin Watermaster
	Other – City of Big Bear Lake Water Department, Big Bear City Community Service District, Fallsvale Service Company, Lake Arrowhead Community Services District, Lytle Creek Springs Water Company, and Running Springs Water District
Watershed groups	Middle Santa Ana River Total Maximum Daily Load (TMDL) Task Force SAWPA
Other agencies	Bureau of Reclamation California Department of Transportation California State Parks Department of Water Resources (DWR) School Districts United States Forest Service (Trails Unlimited)

The District will contact potential participant agencies/organizations in an effort to identify the personnel that would best serve as the stakeholder representative. If these potential participant agencies have been involved in outreach efforts implemented by members of the TAC, then contact information obtained at those events will be utilized if possible. Invitations will be distributed by email, when possible, and mail. The District will evaluate opportunities to utilize Doodle Poll or a similar web application to collect information on availability. A running list of agencies/organizations and personnel invited will be tracked along with their responses.

4.2 Event Format

The main purpose of the stakeholder events will be to identify projects/programs for inclusion in the SWRP. The District will seek opportunities to partner with local stakeholders in the implementation of projects/programs that provide multiple benefits (combination of water quality, water supply, flood management, community, and environmental benefits). It is anticipated that the stakeholder outreach events will be no longer than 1.5 hours. The tentative agenda is provided below. Ample time will be set aside to answer questions and listen to comments and concerns. In contrast to the format of the public outreach event described in **Section 5.2**, the stakeholder event will be structured more like a conversation rather than a presentation, while a presentation will be used to support discussions.

1. Project background (Proposition 1)
2. Goals of stakeholder outreach
3. Goals of the SBC SARW SWRP
4. SWRP overview
5. Quantifiable benefits
    a. Water quality
    b. Water supply
    c. Flood management
    d. Environmental
    e. Community
6. Potential projects
    a. Project types
    b. Partnerships
    c. Data needs
7. Next steps
8. Questions and answers

Only one agenda is identified in this section, as the District will conduct two stakeholder events that focus on the same topic, as further detailed in **Section 4.3**. A sign-in sheet will be used to gather information on the participants, which will be used to send out updates on the SWRP, as it would be beneficial if the stakeholders reviewed the SWRP during the public review period. Hard copies of the agenda will be distributed along with informational handouts as determined to be helpful. The information identified in the agenda will be presented utilizing a PowerPoint presentation, while discussions will be encouraged. Comment cards will be available to encourage attendees to leave feedback.

4.3 Tentative Schedule

The stakeholder outreach events will be held in mid-August. Due to the large area the SBC SARW covers, the two stakeholder outreach events will be of a similar format and hosted at two different locations, one on the east side of the SBC SARW and the other on the west. This will encourage

stakeholders throughout the watershed to participate. It is anticipated that these events will be held during business hours and the locations will be further evaluated. The District will evaluate opportunities to utilize Doodle Poll or a similar web application to collect information on availability, which will provide useful information regarding the schedule of the stakeholder events. Invitations will be distributed a few weeks in advance, such that a preliminary head count can be determined prior to the event.

5. Public Outreach

One (1) public outreach event will be held during the SBC SARW SWRP development, as required in the Grant Agreement. The goals of the public outreach event are:

1. Educate the public (additional education information in **Section 6**);
2. Rally community support for the SBC SARW SWRP; and
3. Encourage the public to review the document and provide input.

It is important that the public is aware of the effort being made by the District to develop the SWRP and are in support of the development and implementation. The SWRP will be posted for public review and the public outreach event will serve as an advertisement and introduction. The public is more likely to review the SWRP and provide meaningful comments if they have a base understanding of the efforts made, SWRP development process, and contents. This section details how potential participants will be invited, event format, and schedule.

5.1 Potential Participants

The general public will be solicited for involvement in the public outreach event rather than specific audiences. Alternatively, the goal will be to advertise as much as possible for the outreach event in an effort to identify participants. Existing platforms will be used when possible, as mentioned below. Invitations for the public outreach event will be posted online on the District's website, distributed via email, and will be available in printed format at the District office.

The San Bernardino County Areawide Stormwater Program (Areawide Program) consists of the District, San Bernardino County, and 16 municipalities within the County, all of which are located within the SBC SARW SWRP. The Areawide Program has been implementing an outreach program for several years that pertains mostly to stormwater quality. Over the past few years, the Areawide Program has focused on collecting email addresses, which are used to share information related to the Arewide Program and associated events. The District will work with the Areawide Program to distribute invitations to the SWRP public outreach event to the community currently involved in outreach efforts implemented by the Areawide Program. This is a good audience to focus on, as they have some knowledge of stormwater quality and shown interest in the stormwater program.

The SBC SARW SWRP TAC will be solicited for similar types of mailing groups. Agencies involved in the TAC implementation projects and programs that include community outreach. The District will look for opportunities to leverage those existing relationships in an effort to encourage participation in the SBC SARW SWRP public outreach event. These email lists will be utilized, if available, to distribute the invitation.

In addition to email invites, invitations will be posted on Facebook. The District will post invitations on the San Bernardino County and San Bernardino County Department of Public Works Facebook pages. The District will also coordinate with the Areawide Program to post on their Facebook page. The SBC SARW SWRP TAC members will be consulted to determine if their agencies can post on their Facebook pages and/or they will be tagged in the original post in an effort to reach a larger audience. Opportunities to utilize other social media platforms, such as Twitter, will also be explored.

Print invitations will also be utilized. The invitation will be posted in local newspapers and printed versions will be available at the District office near other print materials. A website will be created that will allow potential participants to RSVP, such as Eventbrite or a similar platform. This will allow the District to have a general idea as to how many participants will attend the event. The sign-in sheet at the public outreach event will ask how each participant heard of the event. This will provide useful data that may be referenced for future public outreach events, such as those that may be conducted during the SWRP implementation.

5.2 Event Format

As described in the goals above, the event will be structured in a way that will educate attendees by providing general background information and details specific to the SBC SARW SWRP. It is anticipated that the public outreach event will be no longer than 1.5 hours. The tentative agenda is provided below. Ample time will be set aside to answer questions and listen to public comments and concerns.

1. Project background (Proposition 1)
2. Goals of public outreach
3. Goals of the SBC SARW SWRP
4. SWRP overview (aligns with SWRP structure)
    a. Watershed identification
    b. Water quality compliance
    c. Organizations, coordination, and collaboration
    d. Quantitative methods
    e. Identification and prioritization of projects
    f. Implementation strategy and schedule
    g. Education, outreach, and public participation
5. SWRP public review
6. Next steps
7. Questions and answers

A sign-in sheet will be used to gather information on the participants, which will be used to send out reminders regarding the public review of the SWRP. Hard copies of the agenda will be distributed along with informational handouts as determined to be helpful throughout the SWRP development. The information identified in the agenda will be presented utilizing a PowerPoint presentation. Comment cards will be available to encourage attendees to leave feedback.

5.3 Tentative Schedule

The SWRP public outreach event will be held near the date the draft SWRP is posted for public review (before or just after it is posted). The draft SWRP will tentatively be posted for public review in early February 2018. This event will be used to encourage the public to review the SWRP and provide

feedback. It will also be used to rally public support of the SWRP, which is important, as support will encourage long-term success. The District will evaluate opportunities to hold the outreach event during the day or in the evening. Different locations will also be evaluated, as the SBC SARW covers a large area and it will be important to find a central location.

6. Education

The District sees the SBC SARW SWRP development as an opportunity to educate local stakeholders and the public. In addition to the stakeholder and public outreach events described in **Section 4** and **Section 5**, education will be promoted through printed materials, a SWRP webpage, and social media, each of which are further described in the subsections below.

6.1 Printed Materials

Printed materials will be developed in an effort to educate stakeholders and the public. As the SBC SARW SWRP development progresses, the contents of the printed materials will be further defined. Printed materials may include graphic posters, postcards, and/or brochures. The goals of the printed materials are to simply convey through illustrations and minimal text:

1. What is a SWRP?
2. Why is a SWRP necessary?
3. What types of solutions are included in the SBC SARW SWRP?

Printed material will highlight the multiple benefits that will be provided through the SBC SARW SWRP implementation (water quality, water supply, flood management, environmental, and community benefits). Printed materials will also be used to advertise the stakeholder and public outreach events and solicit public review and comment of the SWRP. Printed material will be available at the District's office and outreach events. The District will evaluate opportunities to provide educational material to educational institutes, which may be dependent on their involvement in the outreach events. In addition to printed material, the contents of these materials will be posted on the SWRP webpage and social media accounts, as described in **Section 6.2** and **Section 6.3**, respectively. The District will evaluate opportunities to prepare materials in both English and Spanish.

6.2 SWRP Webpage

The District will develop a webpage on their website that provides information on the SBC SARW SWRP development, consistent with the SWRP Guidelines, which state that SWRP information must be accessible to the stakeholders and public. The webpage will provide an overview of what the SWRP is and will include announcements as necessary. For example, announcements will be posted regarding the outreach events and public comment period (schedule, start, end, etc.). The webpage will include links to download educational materials, as detailed in **Section 6.1**. During the public review period, the Draft SBC SARW SWRP will be posted on this webpage and the ability to provide comments and feedback will be enabled. The webpage will provide contact information, which will allow interested parties to contact key personnel. The webpage will allow stakeholder and the public to easily find information specific to the SBC SARW SWRP development and support the outreach and education efforts described in this SPOEEP.

6.3 Social Media

Opportunities to utilize social media will be evaluated throughout the SBC SARW SWRP development. It is anticipated that, at a minimum, Facebook will be utilized to support education and outreach efforts. Facebook would be used to post educational materials, as detailed in **Section 6.1**, encourage local engagement and support, and advertise events (outreach and public review). The District will work with the Areawide Program to utilize their Facebook page, either through a direct post or by sharing a post made on the San Bernardino County Department of Public Works Facebook page. Working with the Areawide Program would be beneficial, as there is a large following currently and the followers are aware of stormwater issues and programs, thus represent a target audience.

The District will also encourage the TAC agencies/organizations to share posts related to the SBC SARW SWRP, or these agencies/organizations may be tagged in the posts. This will allow the posted materials to reach a larger audience. **Table 6-1** summarizes the current number of followers for the San Bernardino County Department of Public Works, Areawide Program, and TAC agencies/organizations (as of July 2017). The District will also evaluate opportunities to utilize other social media platforms, such as Twitter.

Table 6-1 Summary of Facebook Pages and Number of Followers

Facebook Page	Number of Followers
San Bernardino County Department of Public Works	608
Areawide Program	13,103
TAC Agencies/Organizations	
Chino Basin Water Conservation District	1,222
IEUA	404
RWQCB (Santa Ana)	-
SAWPA	153
SBVMWD	-
WMWD	643

7. Alignment with SWRP Guidelines

Section VI.F of the SWRP Guidelines identifies guidance related to education, outreach, and public participation based on the Water Code. This section clearly explains how the stakeholder and public outreach, education, and engagement implemented throughout the SBC SARW SWRP development are in alignment with the SWRP Guidelines. The SWRP Guidelines identify the following goals for stakeholder and public outreach, education, and engagement. Subsections below address each item in order.

i. Public education and public participation opportunities to engage the public when considering major technical and policy issues related to the development and implementation of the plan;

ii. Mechanisms, processes, and milestones that have been or will be used to facilitate public participation and communication during development and implementation of the plan;

iii. Mechanisms to engage members of affected communities in project design and implementation;

iv. Identification and inclusion of specific audiences including local ratepayers, developers, locally regulated commercial and industrial stakeholders, non-governmental organizations, non-profit organizations, and the general public;

v. Strategies to engage disadvantaged and climate vulnerable communities within the SWRP boundaries and ongoing facilitation and tracking of their involvement in the planning process;

vi. Efforts to identify and address specific, runoff-related environmental injustice issues within the watershed; and

vii. A schedule for initial public engagement and education.

7.1 Consideration of Policy Issues

Stakeholders and the public will be consulted regarding technical and policy issues related to the development and implementation of the SWRP. Stakeholders through the TAC (**Section 3**) and at the stakeholder outreach events (**Section 4**) will be consulted on technical issues in different ways. The TAC is being consulted for guidance on the direction taken in the SWRP to quantify benefits, identify, and prioritize projects/programs from a technical standpoint. The public will also be engaged regarding technical and policy issues through the SWRP public review process. Guidance identified in this SPOEEP demonstrates that the District will work to engage stakeholder and the public in participating through printed materials, webpage, and social media (**Section 6**).

7.2 Mechanisms, Processes, and Milestones

Section 3, **Section 4**, and **Section 5** describe the mechanisms, processes, and milestones used to facilitate stakeholder and public participation and communication. The "Tentative Schedule" subsections in the sections referenced above describe the milestones utilized to schedule stakeholder and public outreach efforts. **Section 6** additionally details communication efforts through printed materials, webpage, and social media.

7.3 Engagement of Affected Communities

Section 6 describes the mechanisms used to engage the public and stakeholders, which will be used during the development of the SBC SARW SWRP and likely during implementation. These efforts may become more targeted during SWRP implementation within the affected communities, including both stakeholders and the public. Stakeholder and public outreach, education, and engagement efforts during the implementation of projects/programs identified in the SBC SARW SWRP will vary by project/program. The District will follow internal standard operating procedures, while projects/programs implemented by stakeholder partners will follow the lead implementing agency's procedures. Outreach efforts by either the District and/or partners will also follow guidelines identified by funding partners as applicable.

7.4 Identification and Inclusion of Specific Audiences

This SPOEEP identifies a variety of specific audiences to be included in both the stakeholder and public outreach, education, and engagement efforts, as identified in **Section 3**, **Section 4**, and **Section 5**. Audiences identified in the SWRP Guidelines, local ratepayers, developers, locally regulated commercial and industrial stakeholders, non-governmental organizations, non-profit organizations, and the general public, fall within the potential participants identified in the sections referenced above.

7.5 Strategies to Engage Disadvantaged Communities

Disadvantaged Communities (DACs) are defined as areas where the Median Household Income (MHI) is less than 80 percent of the statewide annual MHI. In addition, severely DACs are those areas where the MHI is less than 60 percent of the statewide annual MHI. DACs were mapped by DWR to better define geographies that meet DAC definitions based on census designated places (city/community boundaries), tracts (development areas), and blocks (smaller pockets of the community). As suggested in the definition, places are larger than tracts, which are larger than blocks. Based on the mapping published by DWR, illustrated in the figures below, 27 percent of the SBC SARW is considered a DAC tract and/or block. **Figure 7-1** illustrates the DAC tracts within the SBC SARW, while **Figure 7-2** illustrates the DAC blocks, and **Figure 7-3** illustrates the area covered by either a DAC tract and/or block.

The District will follow the approach described herein to communicate with stakeholders and the public in an effort to encourage outreach, education, and engagement with respect to the SBC SARW SWRP, which will include DACs. The District will ask for participants address and/or zip code in an effort to understand whether or not DACs were effectively reached and willing to participate. The District will evaluate opportunities to prepare printed material and webpage in both English and Spanish, which may better cater to existing DAC communities. Item iv described above also mentions climate vulnerable communities, which are not applicable in this region.

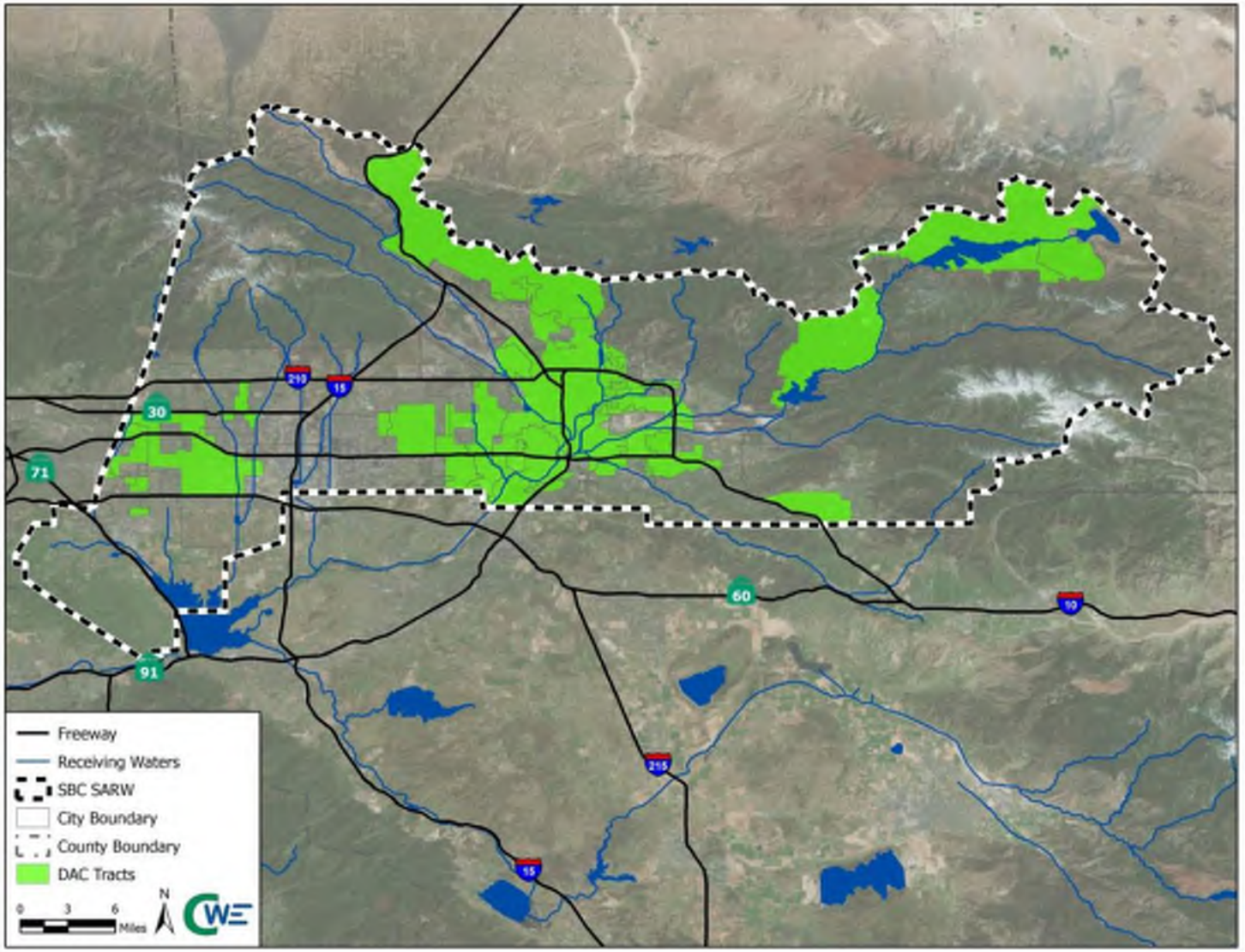


Figure 7-1 DAC Tracts within the SBC SARW

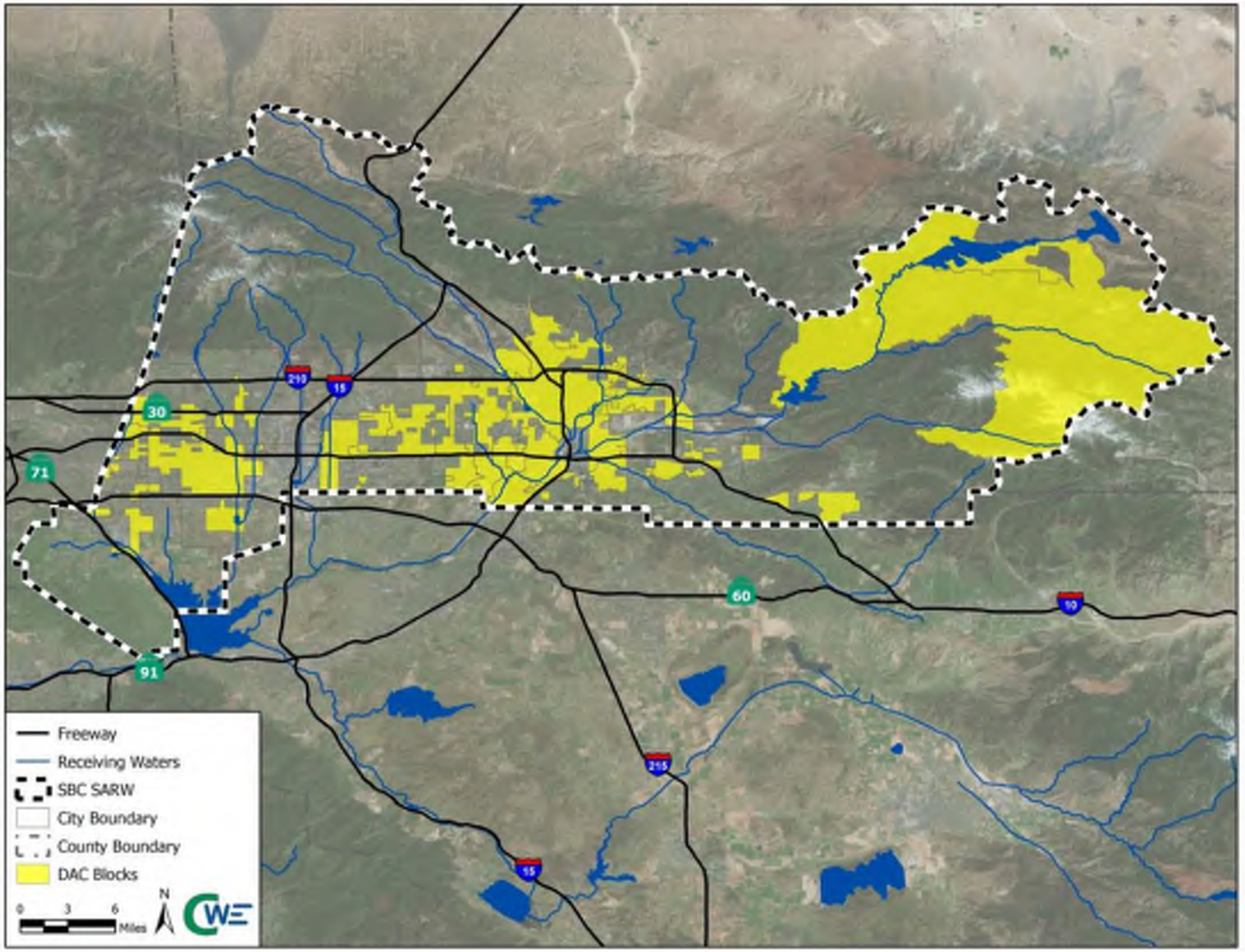


Figure 7-2 DAC Blocks within the SBC SARW

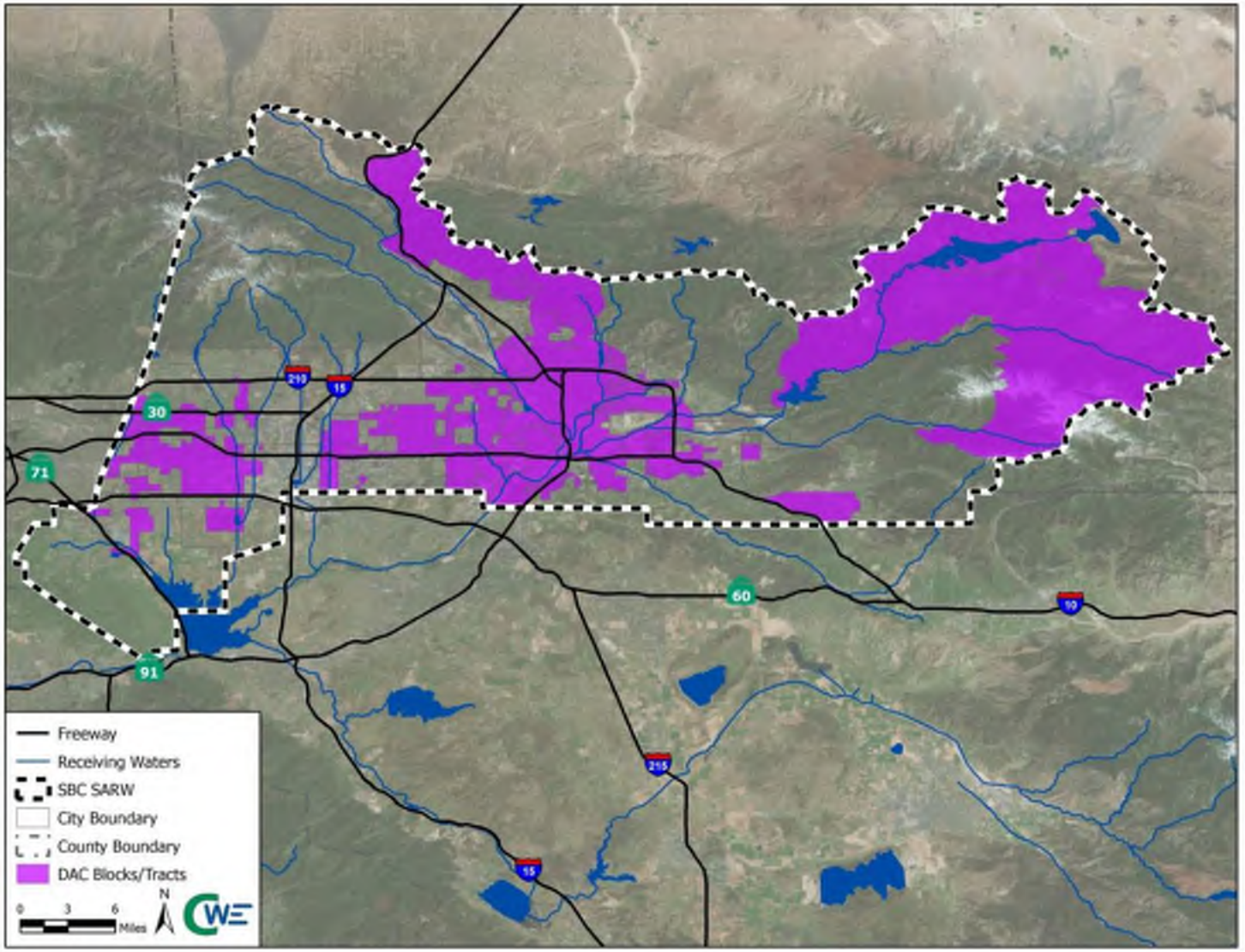


Figure 7-3 DAC Blocks and Tracts within the SBC SARW

7.6 Environmental Injustice Issues

When environmental injustice issues exist, it is common that they have a more significant impact on DACs. Including DACs in the stakeholder and public outreach, education, and engagement, as described in **Section 7.5**, may also address runoff-related environmental injustice issues, which may be of greater concern within DACs. Projects/programs will be identified in the SBC SARW SWRP which will address DACs and may in turn address and/or minimize runoff-related environmental injustice issues if they exist. Through the stakeholder and public outreach events, participants will be asked to share their concerns, such that solutions may be provided. These concerns may include runoff-related environmental injustice issues; therefore, by hosting these outreach events, these issues may be identified and addressed.

7.7 Schedule

The tentative schedule associated with stakeholder involvement in the TAC, stakeholder outreach, and public outreach is presented in **Section 3**, **Section 4**, and **Section 5**, respectively. The schedule for educational materials will be further evaluated during the SWRP development; however, it is anticipated the schedule for the release of material will closely follow the schedule for both the stakeholder and public outreach events. In summary, the schedule associated with stakeholder meetings through the TAC, stakeholder outreach events, and the public outreach event are summarized in **Table 7-1**.

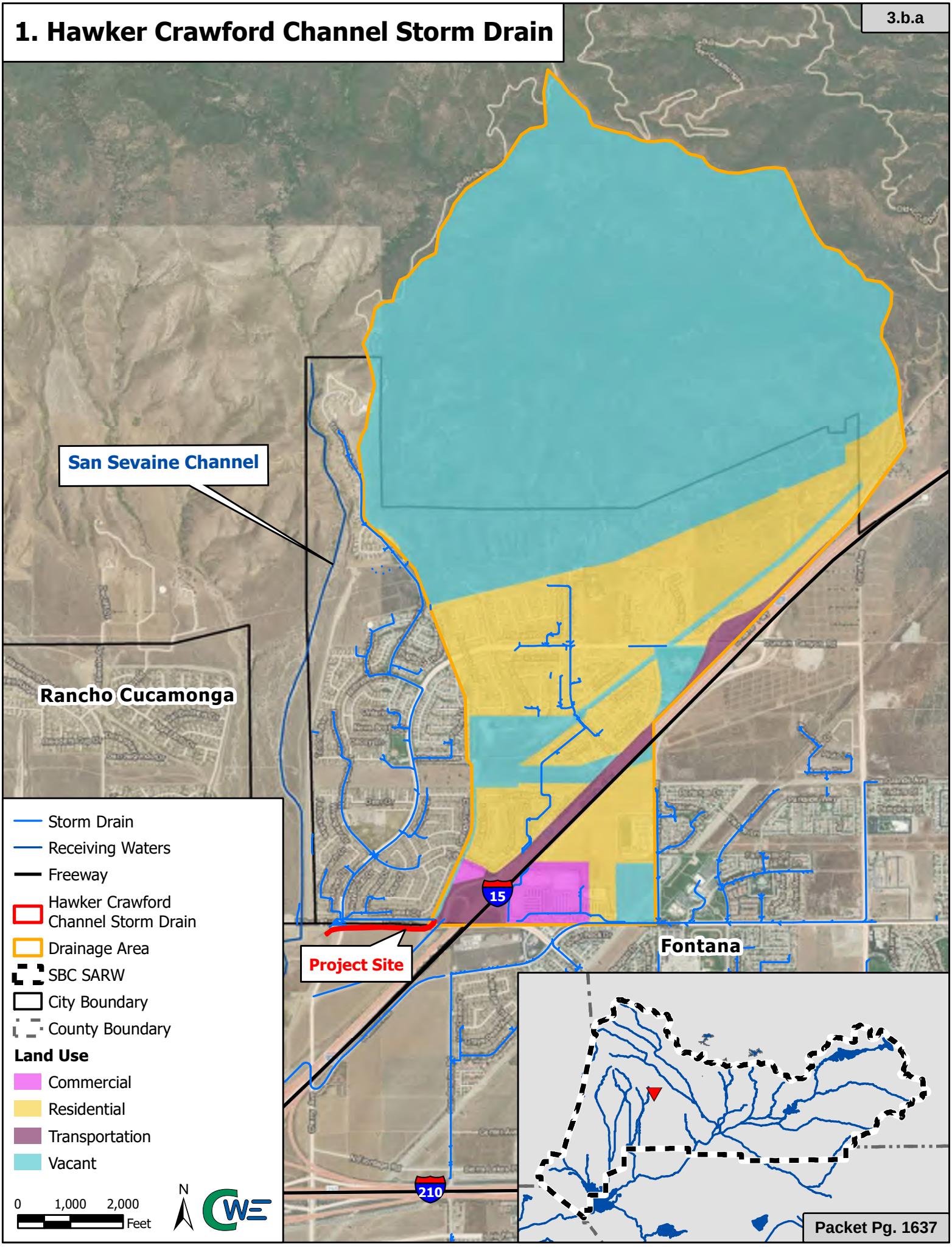
Table 7-1 Tentative Schedule

Audience	Event	Tentative Schedule
Stakeholder Meetings through the TAC	Kickoff Meeting	April 12, 2017
	Meeting #1	July 6, 2017
	Meeting #2	Late August 2017
	Meeting #3	December 2017
Stakeholder Outreach	Event #1	Mid-August 2017
	Event #2	
Public Outreach	Event #1	February 2018

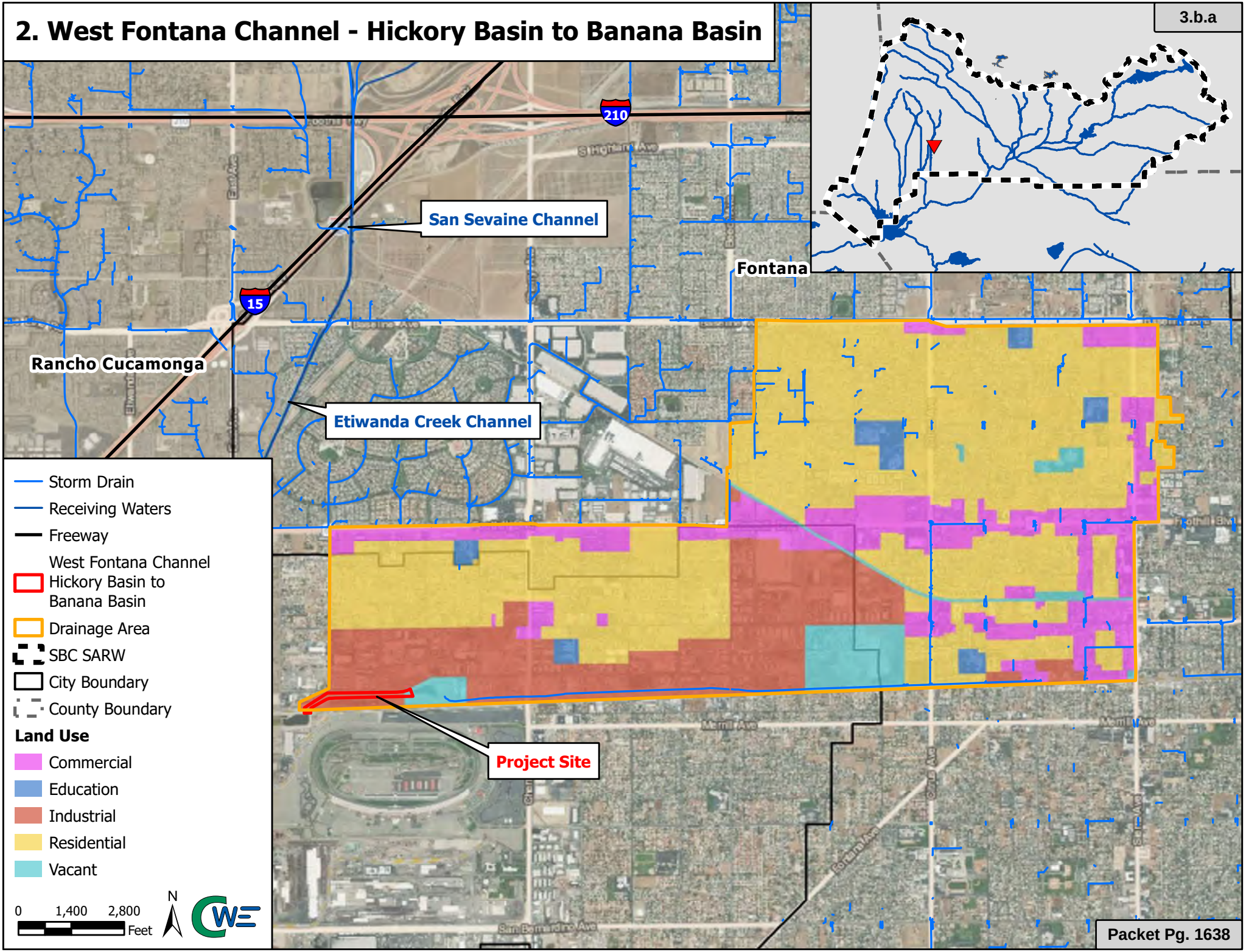
Attachment F

Project Figures

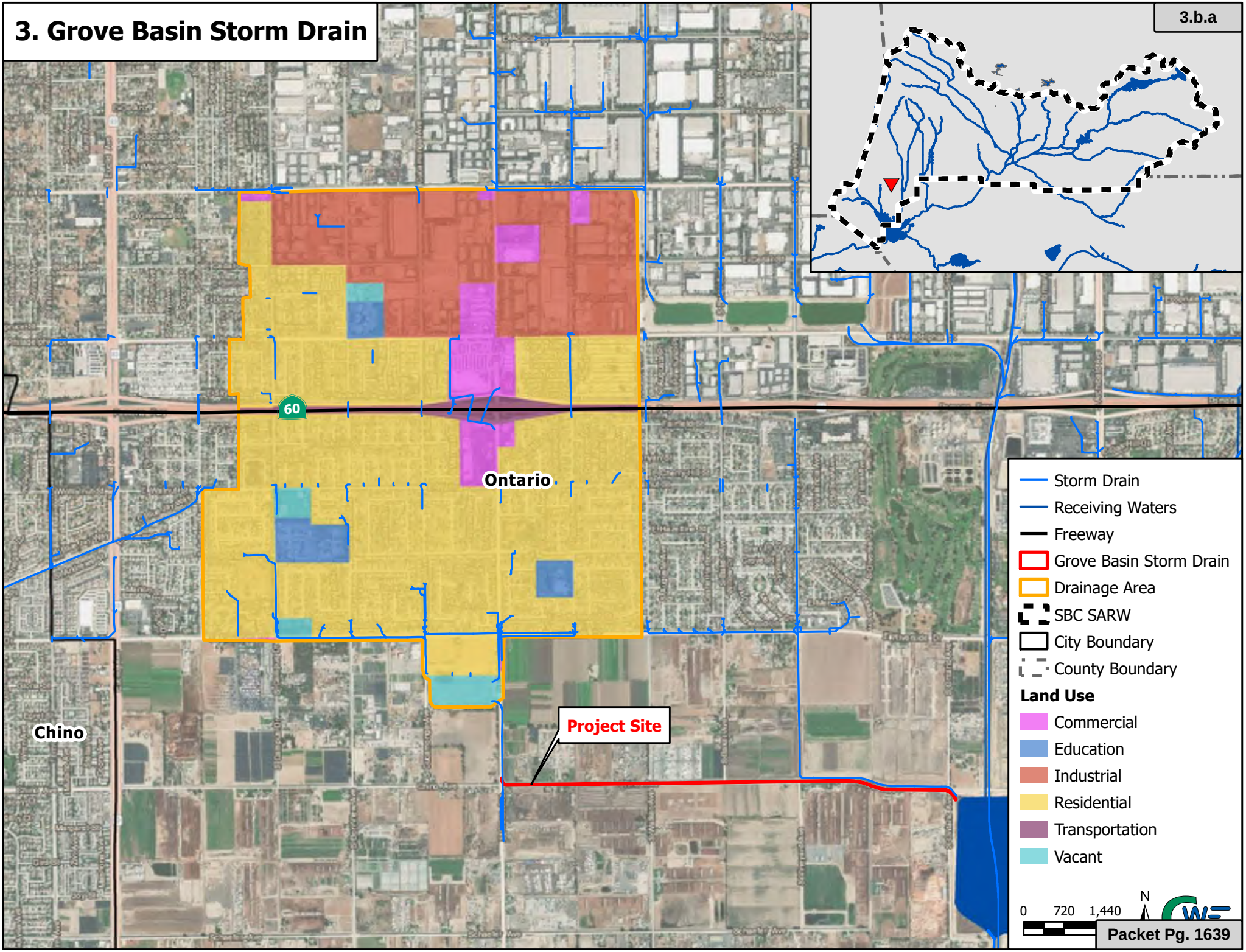
1. Hawker Crawford Channel Storm Drain



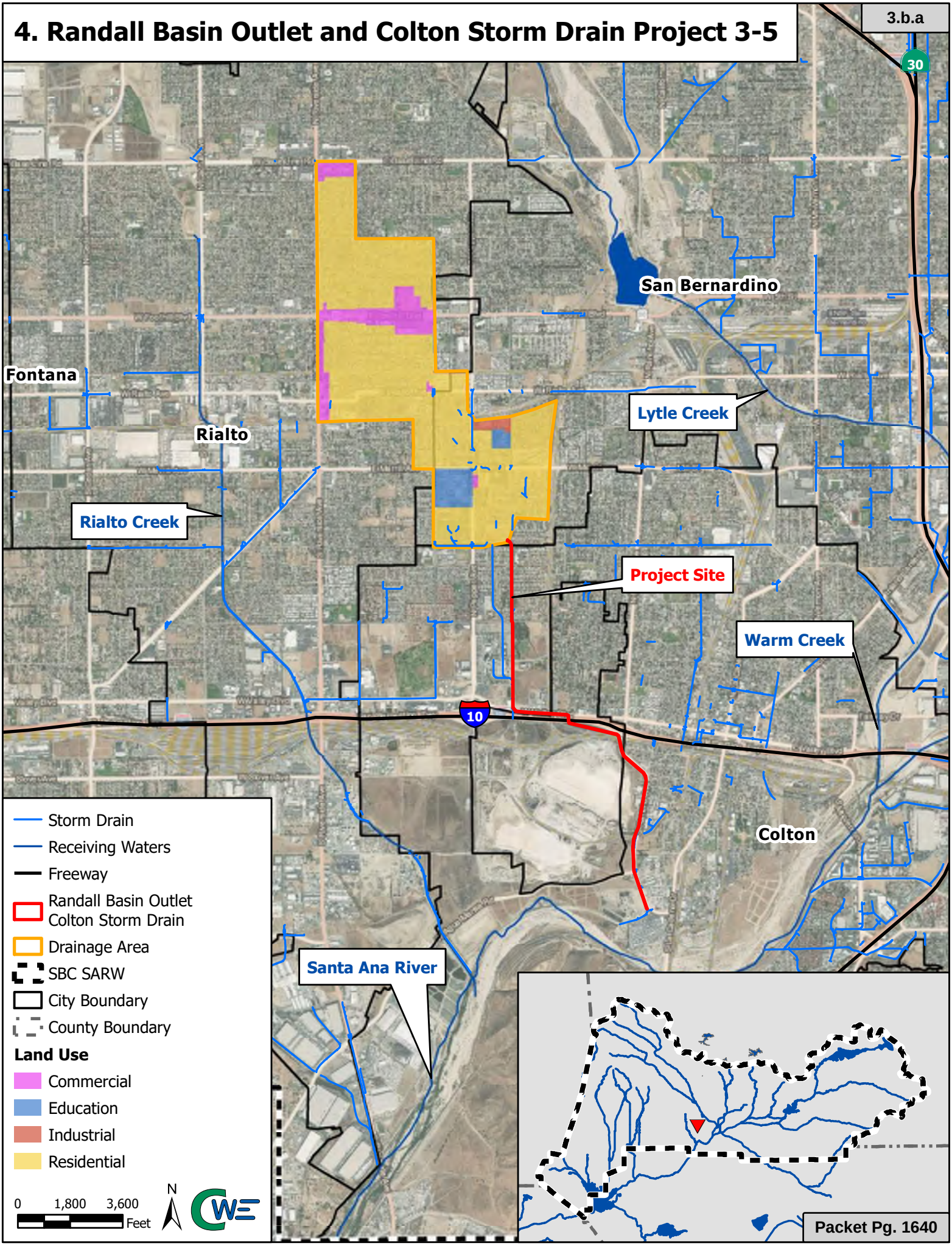
2. West Fontana Channel - Hickory Basin to Banana Basin



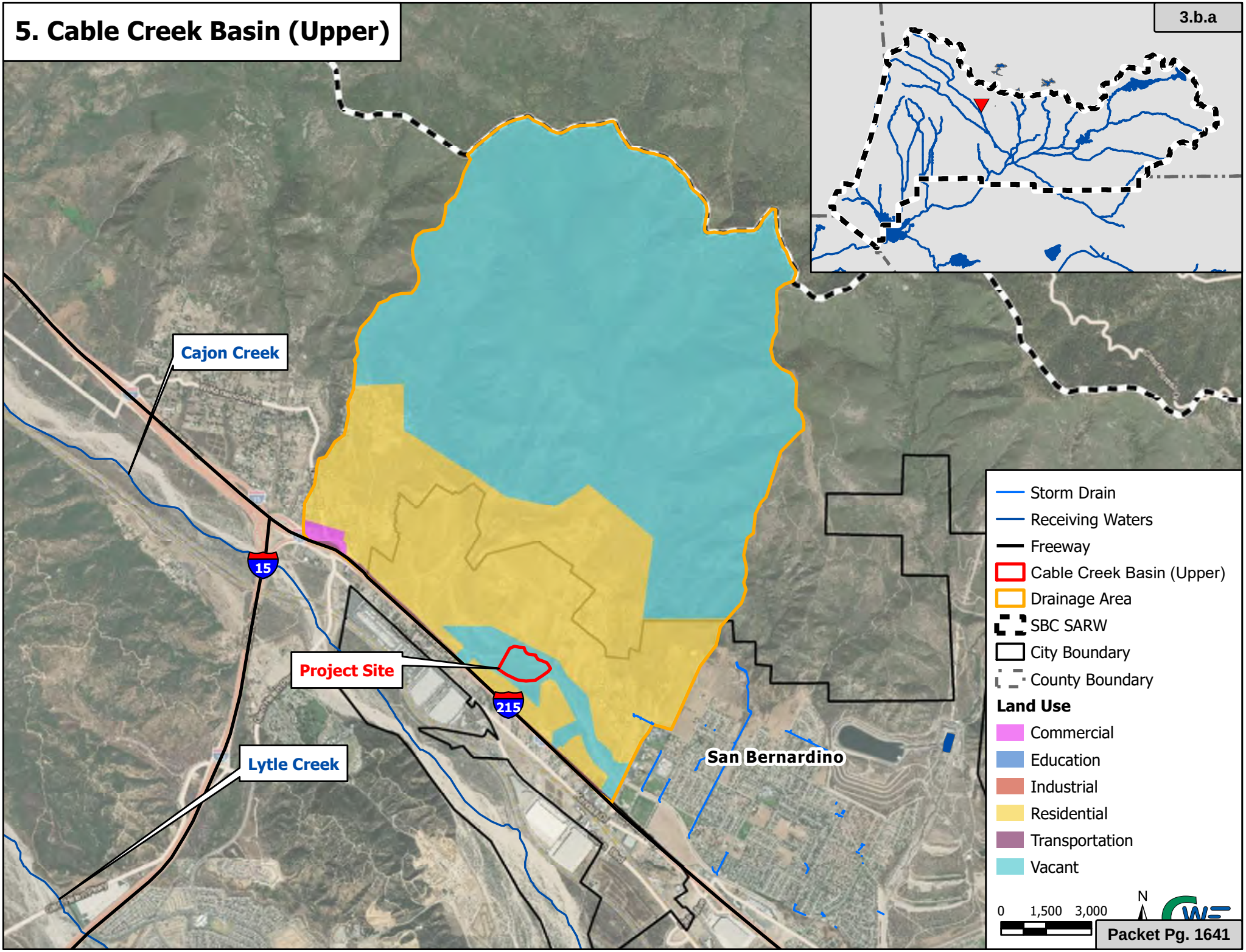
3. Grove Basin Storm Drain



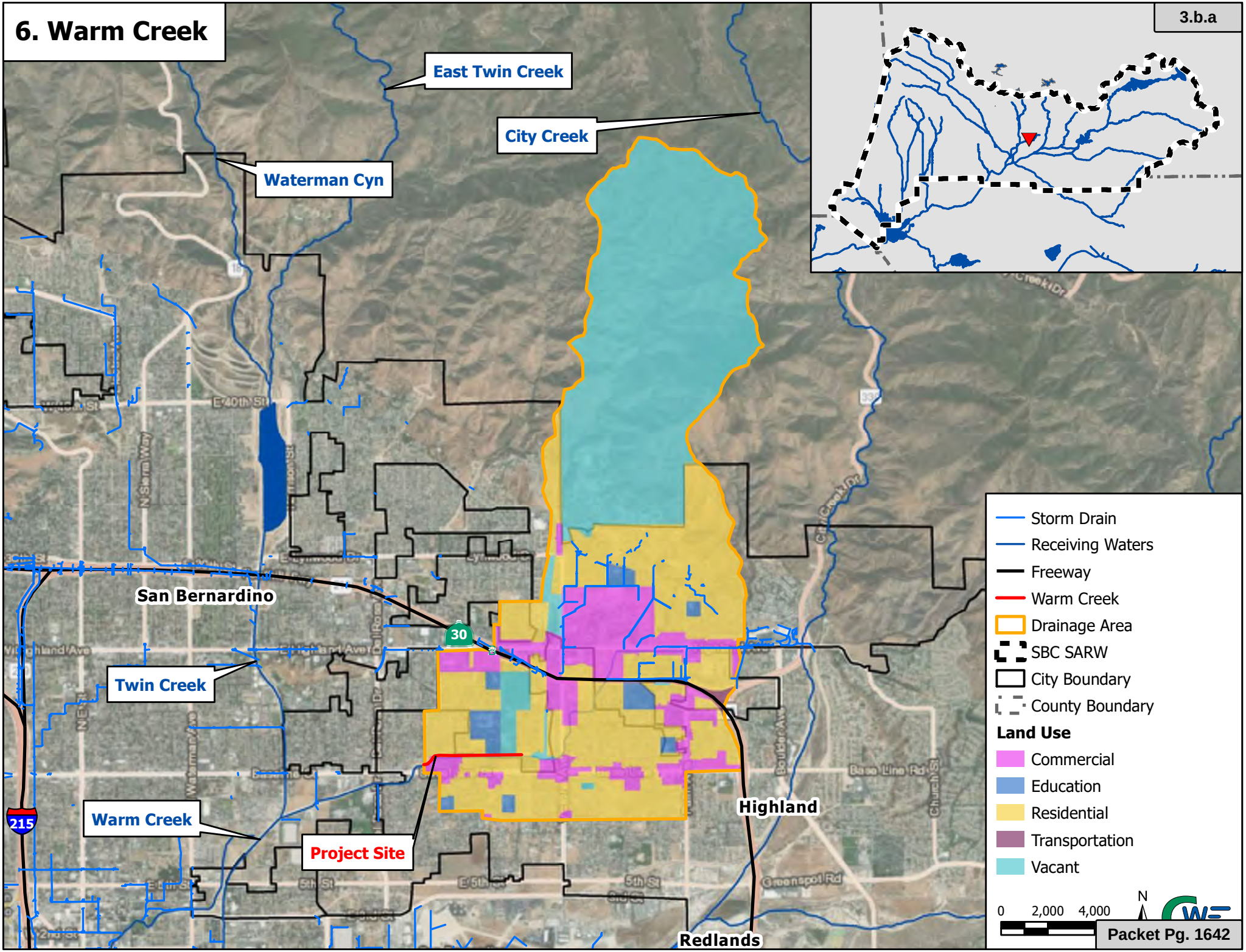
4. Randall Basin Outlet and Colton Storm Drain Project 3-5



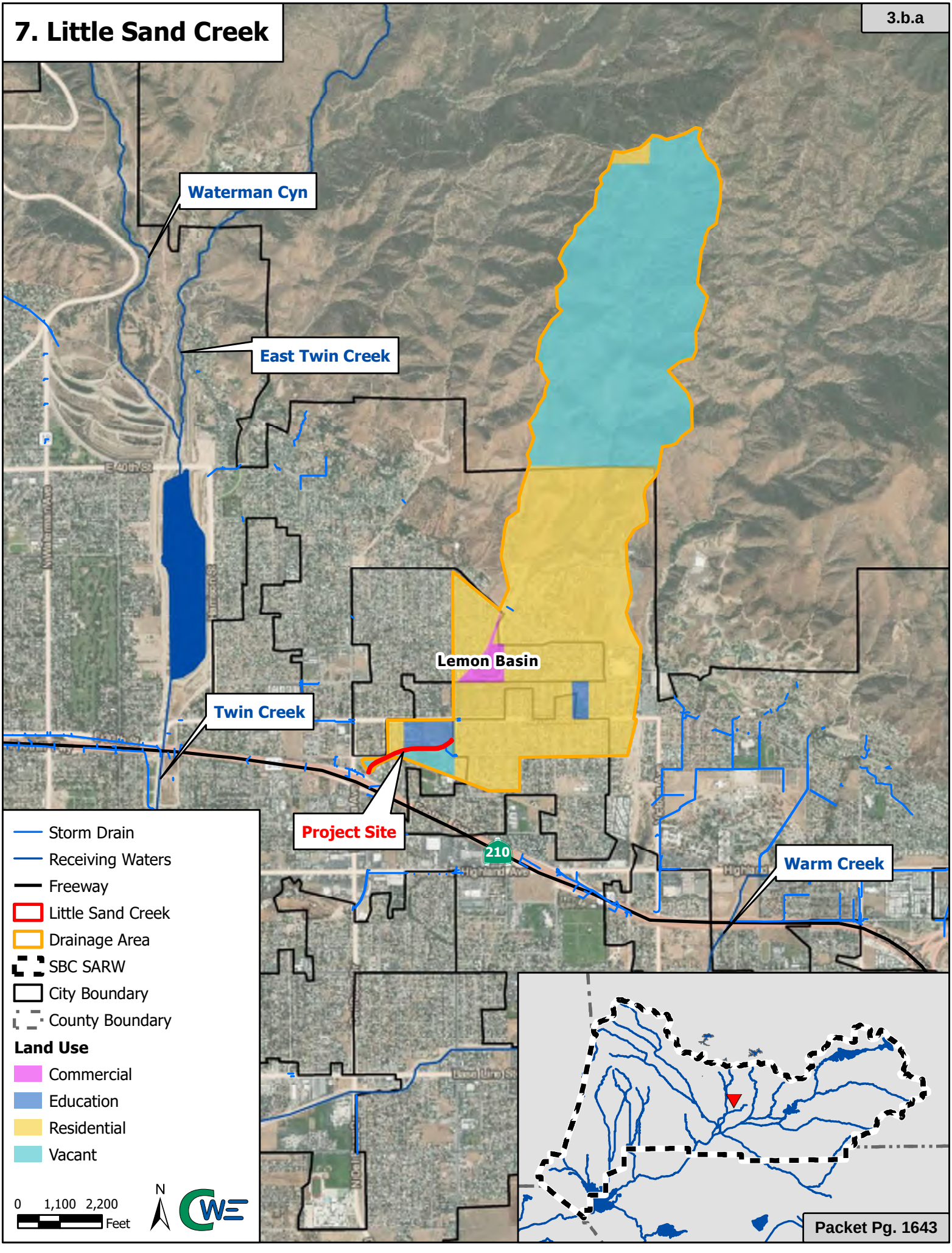
5. Cable Creek Basin (Upper)



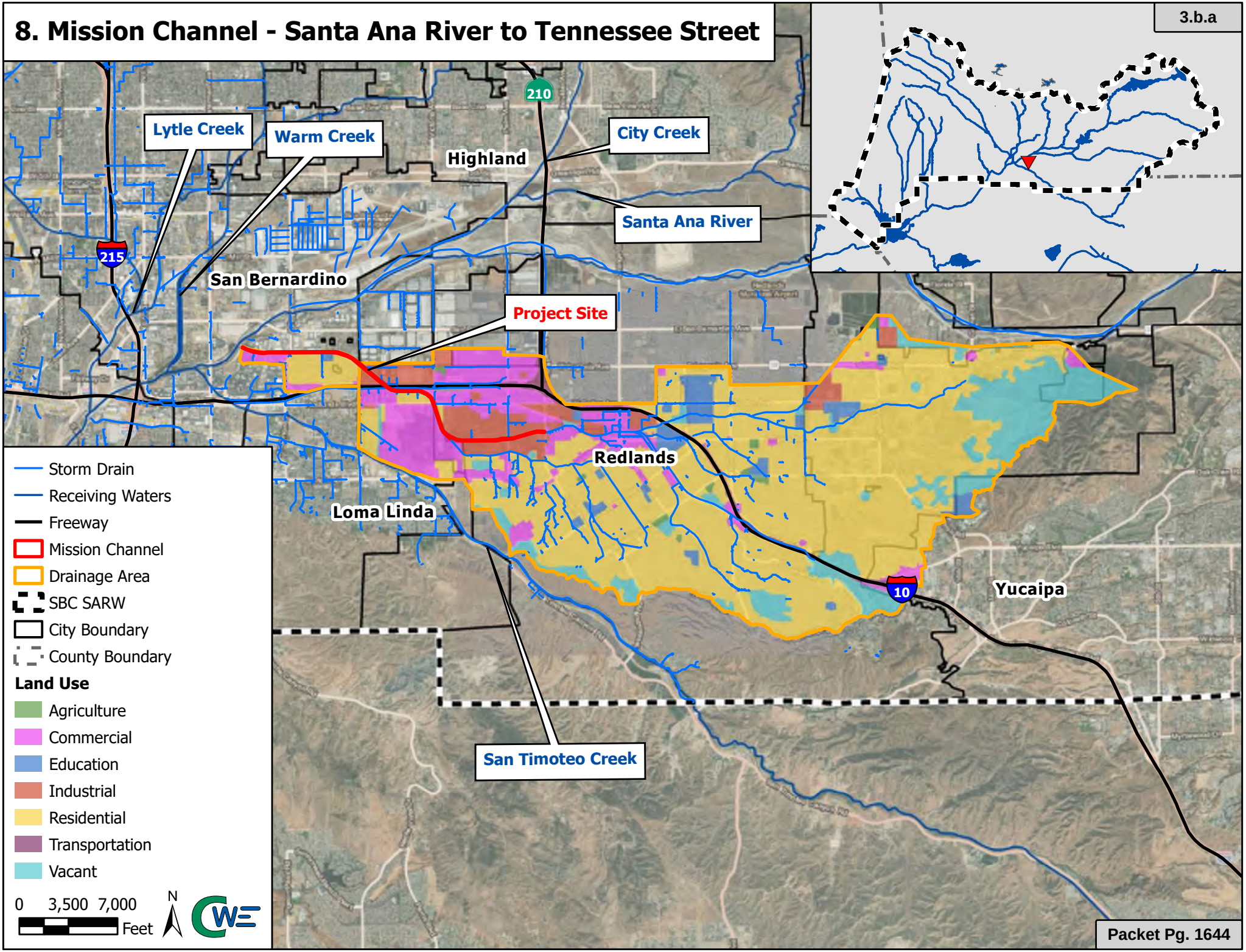
6. Warm Creek


East Twin Creek
City Creek
Waterman Cyn
San Bernardino
Twin Creek
Warm Creek
Project Site
Highland
Redlands
30
215
E 40th St
E Highland Ave
5th St
Base Line Rd
Greenspot Rd
Storm Drain
Receiving Waters
Freeway
Warm Creek
Drainage Area
SBC SARW
City Boundary
County Boundary
Land Use
Commercial
Education
Residential
Transportation
Vacant
0
2,000
4,000
N

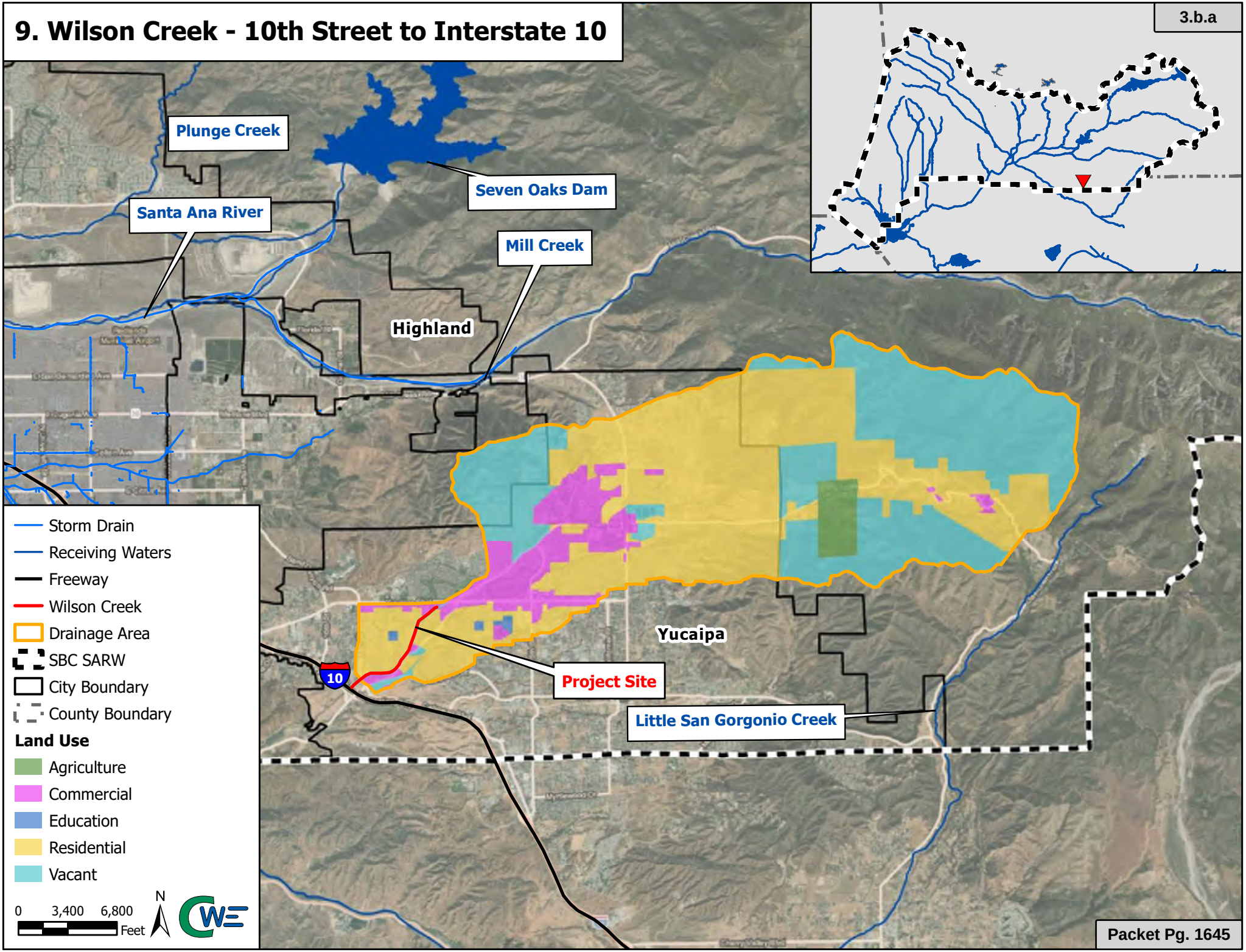
7. Little Sand Creek



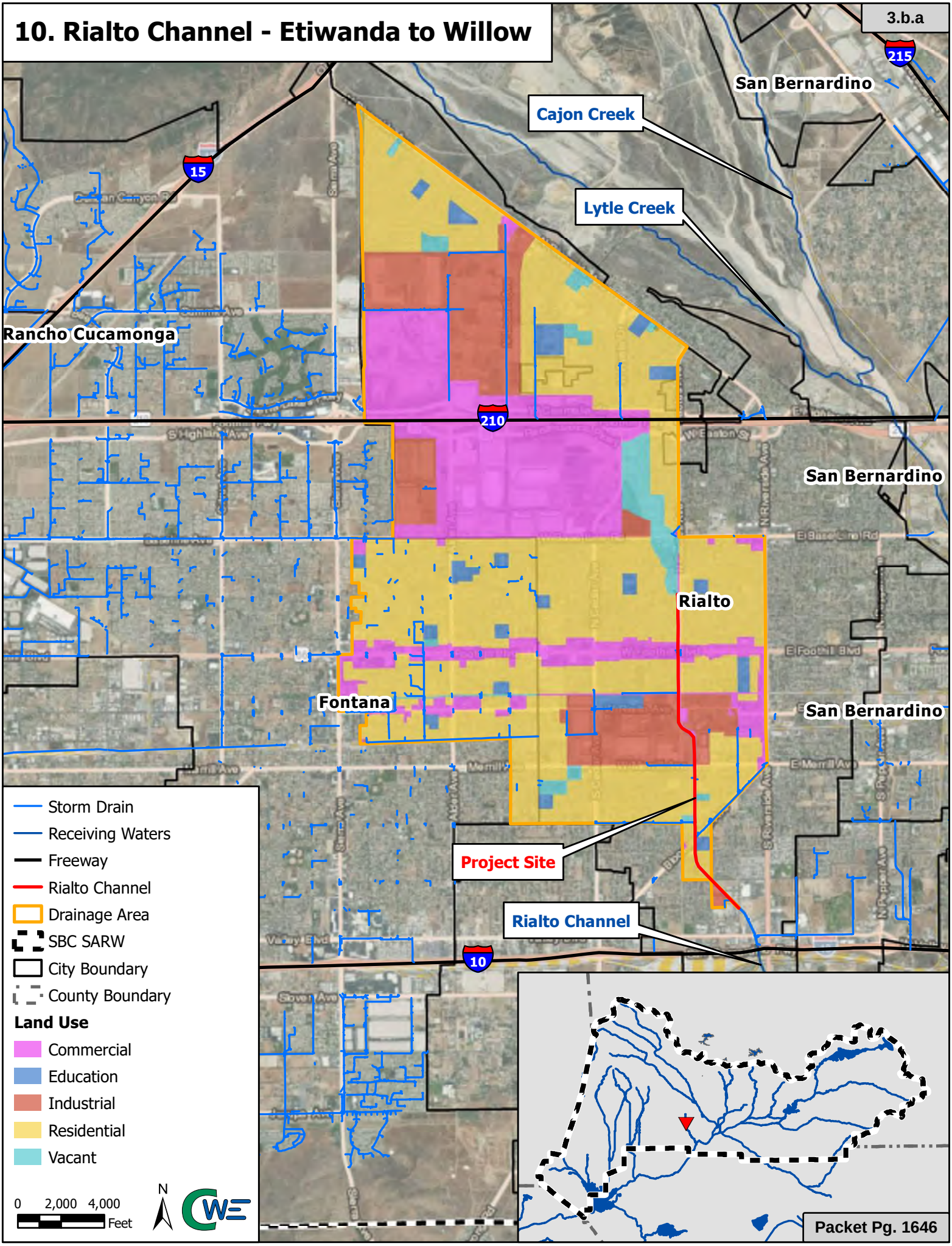
8. Mission Channel - Santa Ana River to Tennessee Street



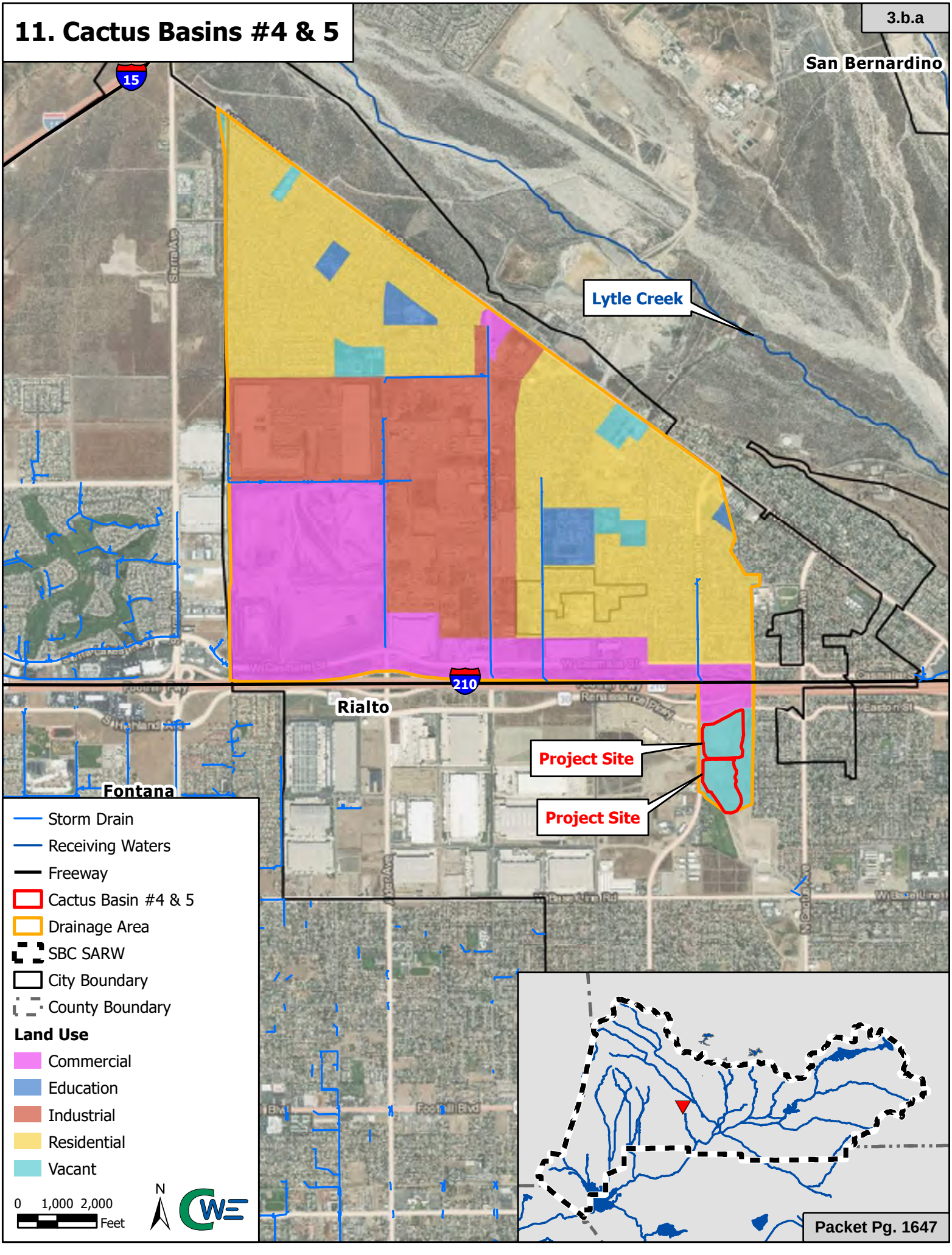
9. Wilson Creek - 10th Street to Interstate 10



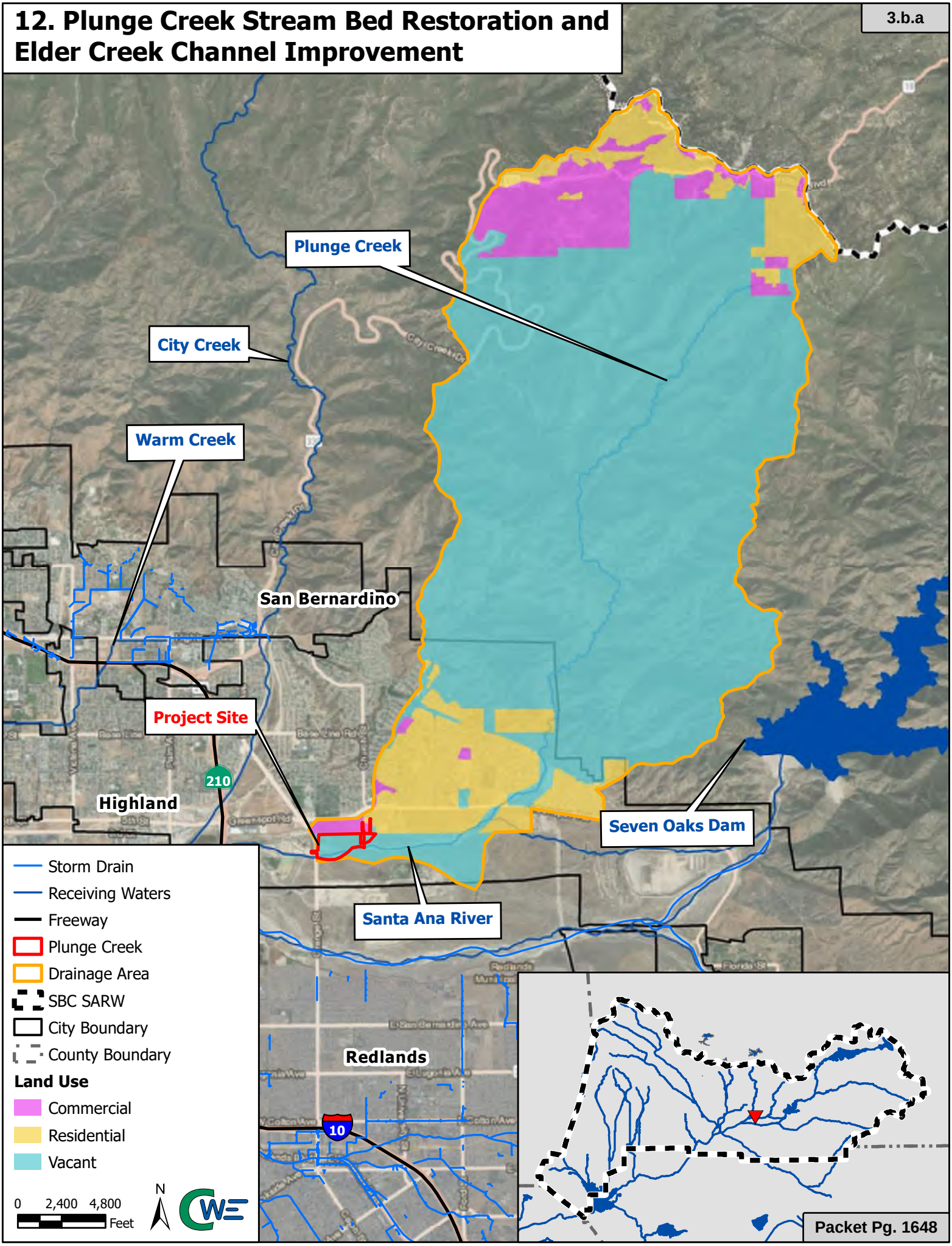
10. Rialto Channel - Etiwanda to Willow



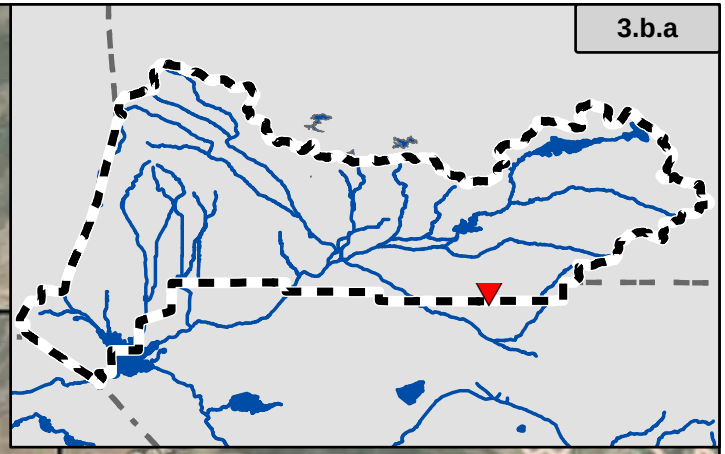
11. Cactus Basins #4 & 5

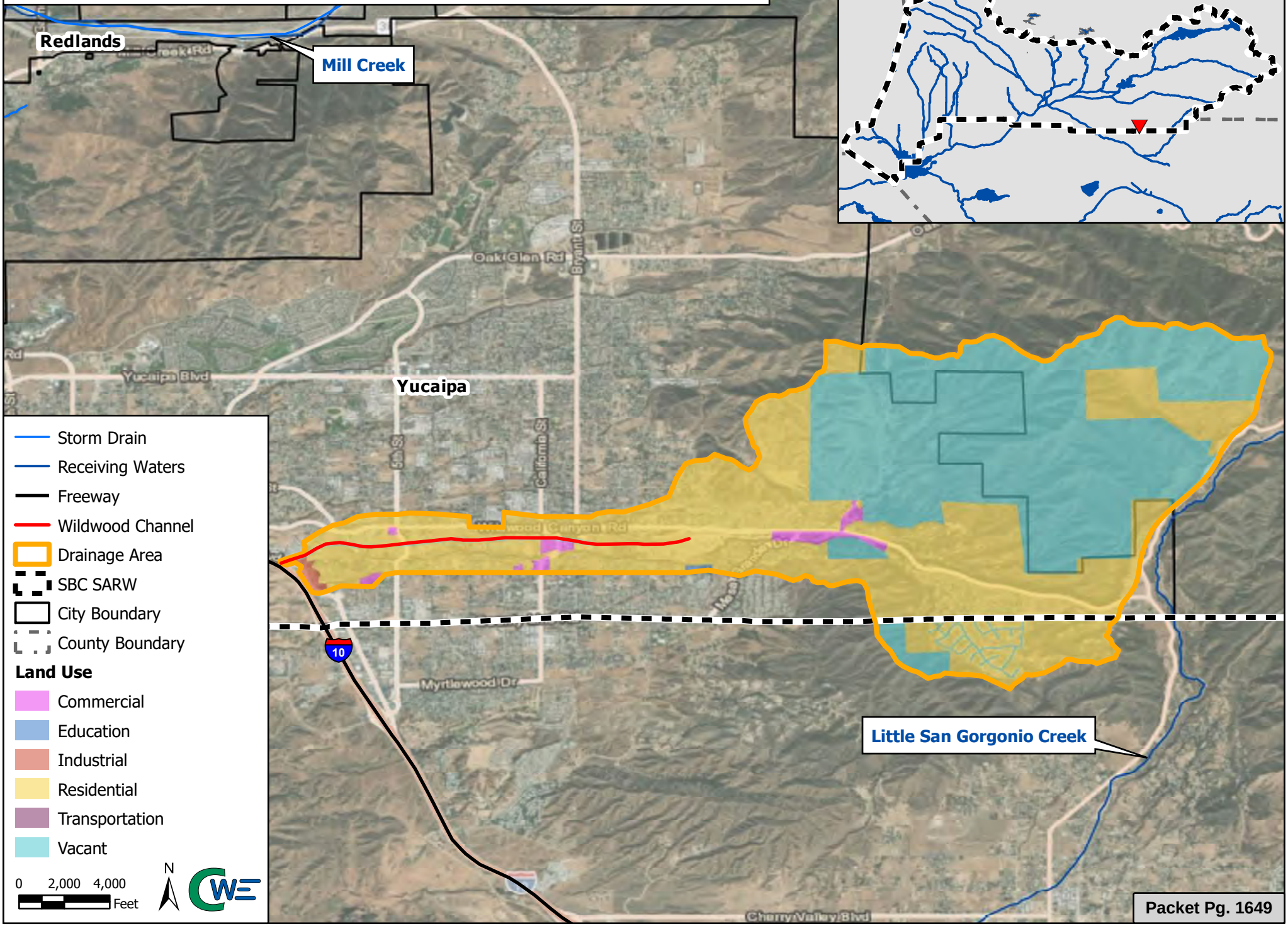


12. Plunge Creek Stream Bed Restoration and Elder Creek Channel Improvement

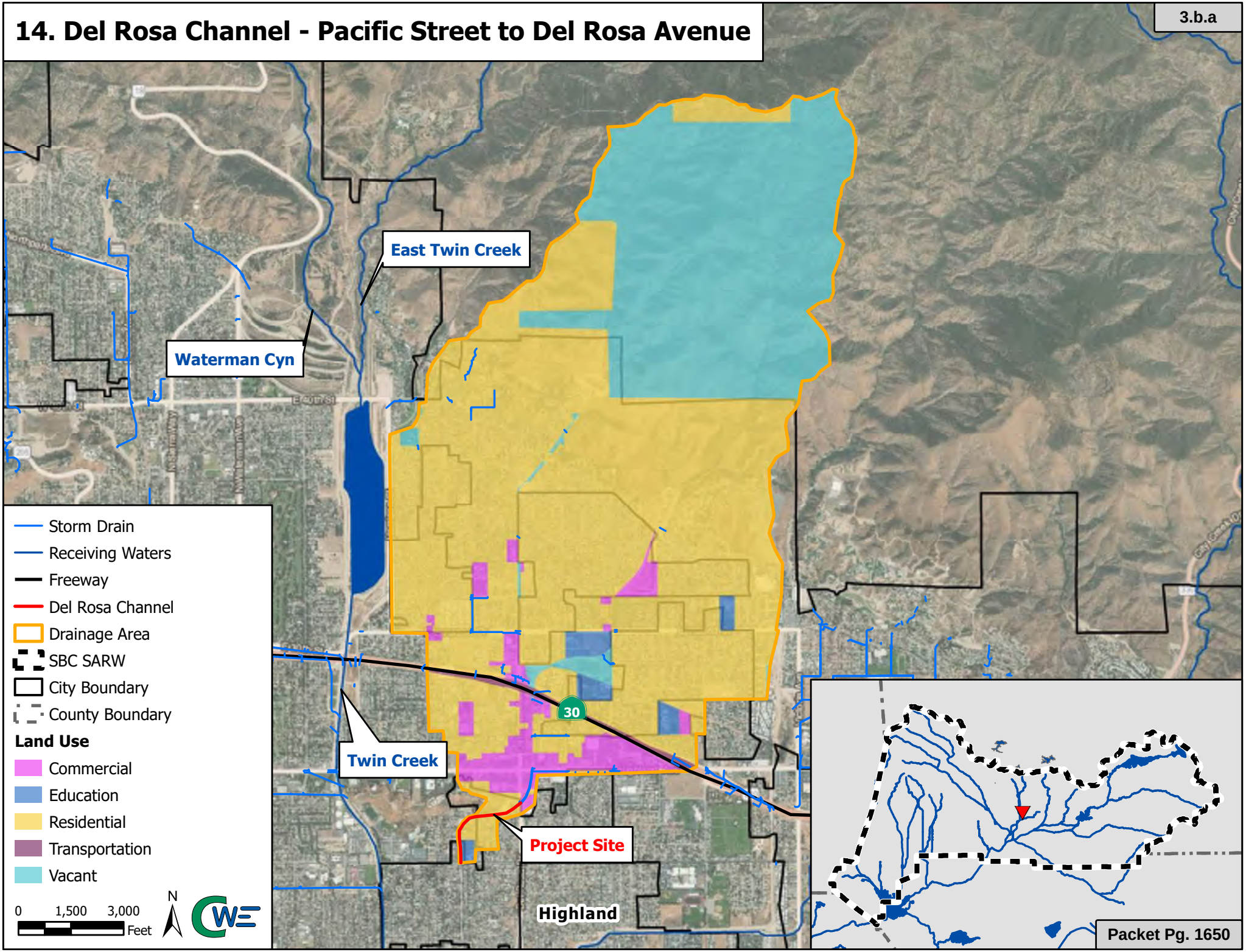


13. Wildwood Channel - Interstate 10 to Holmes Street

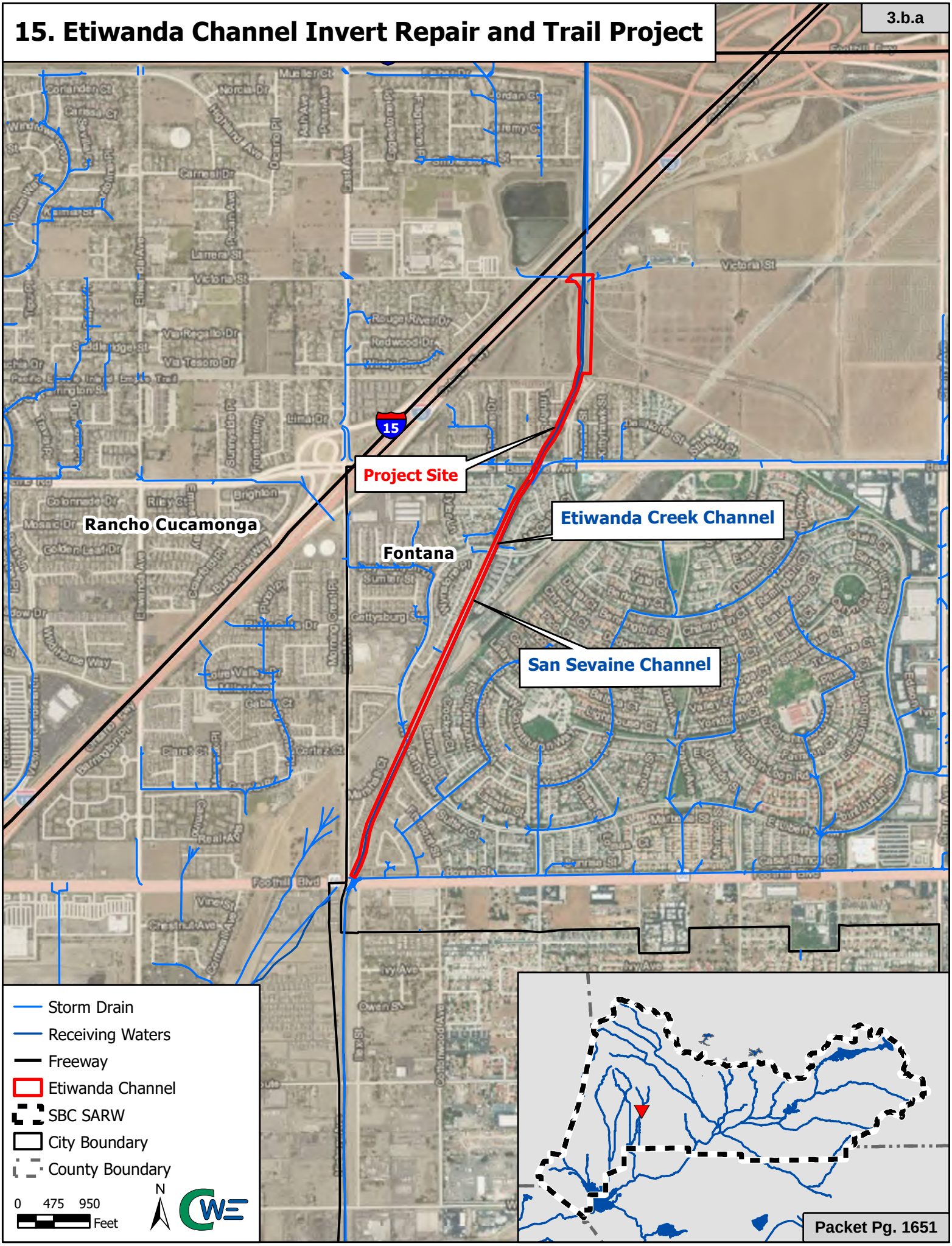




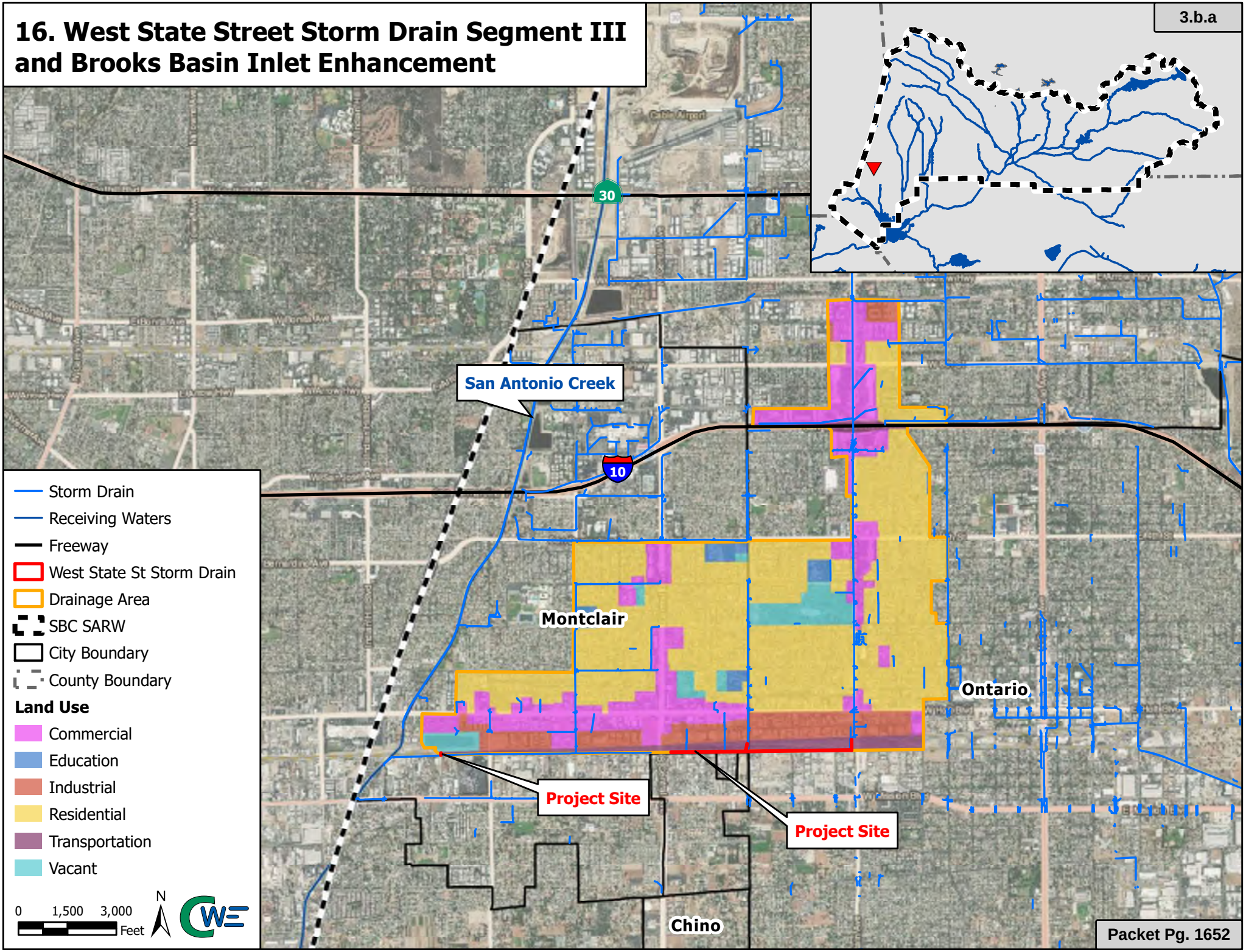
14. Del Rosa Channel - Pacific Street to Del Rosa Avenue



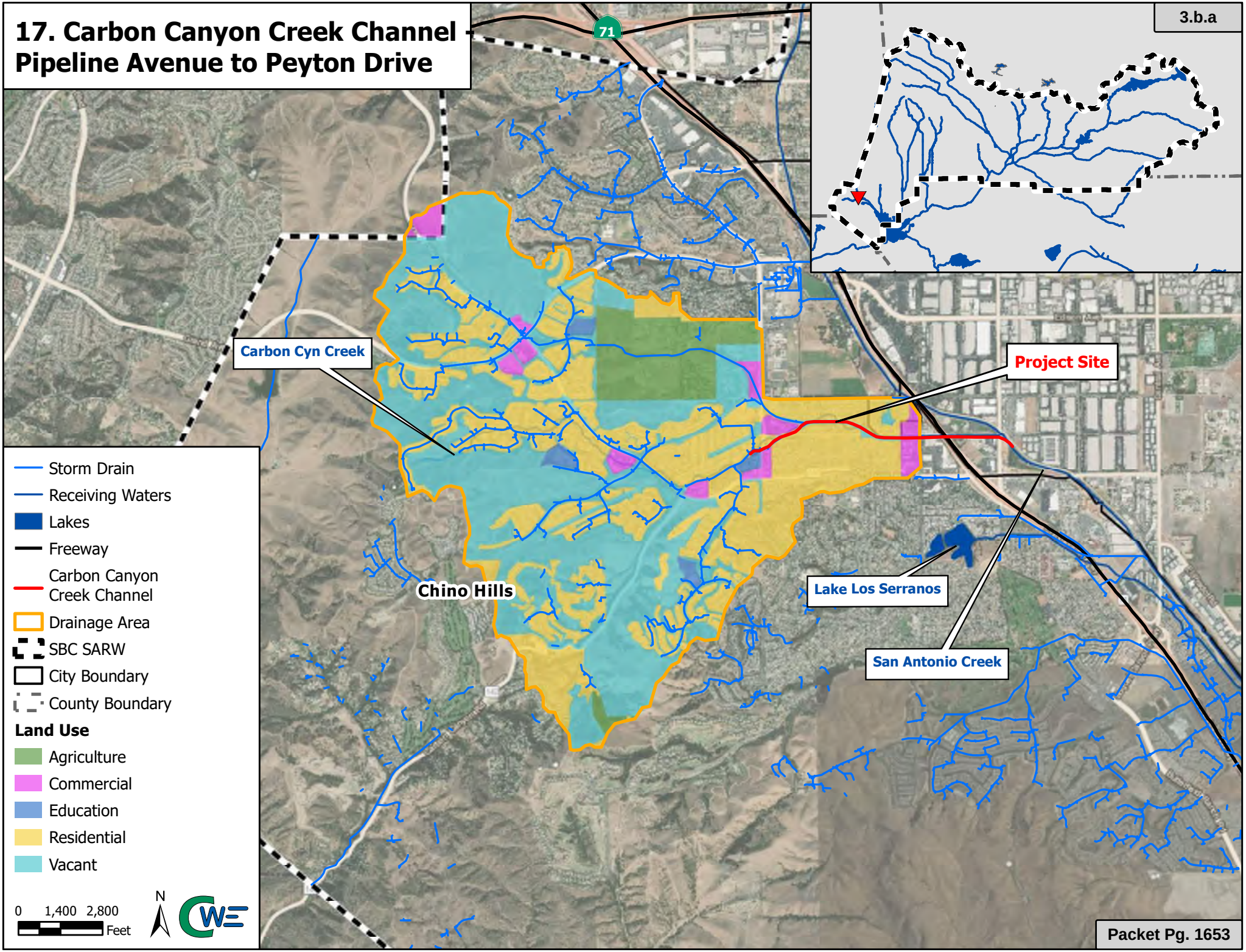
15. Etiwanda Channel Invert Repair and Trail Project



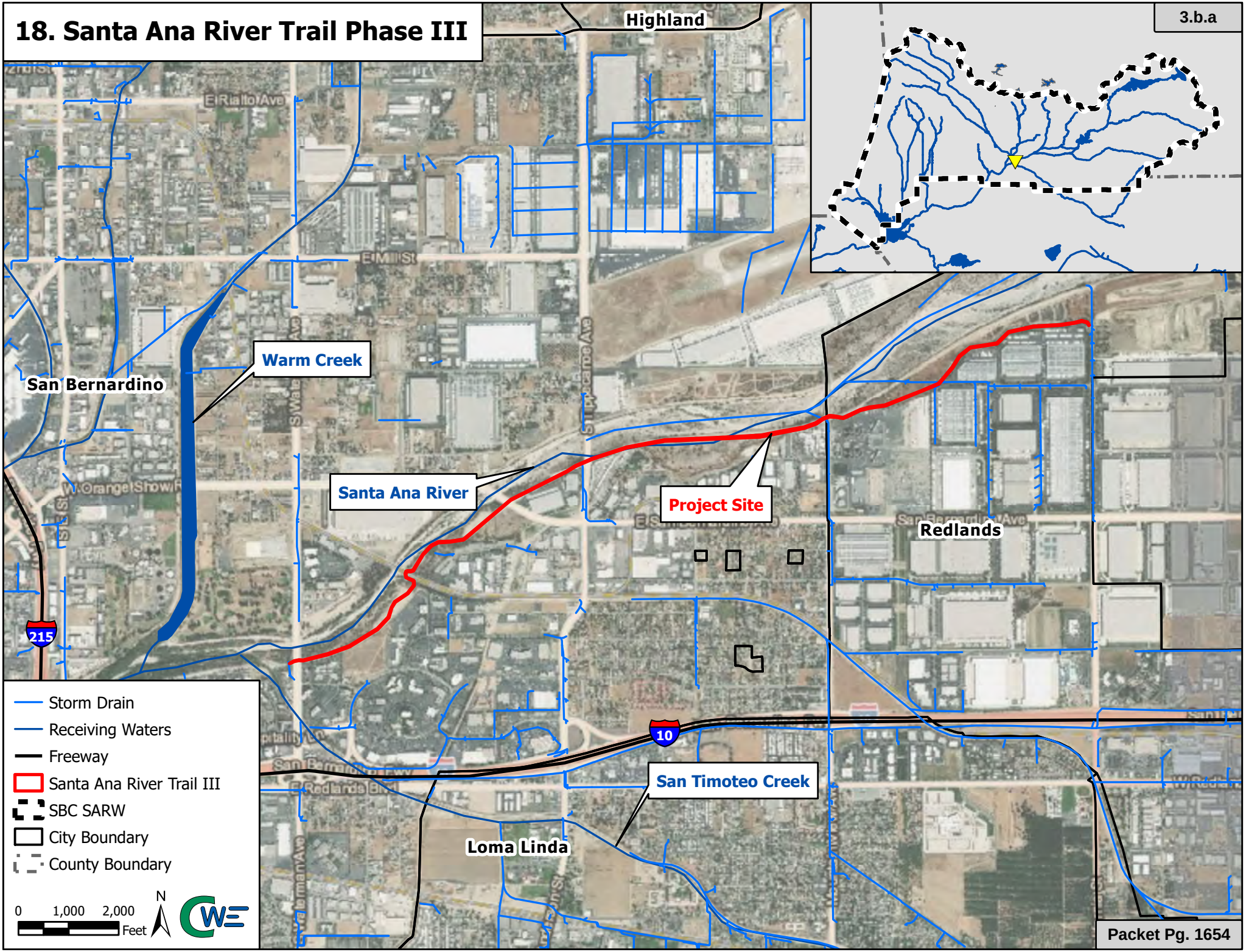
16. West State Street Storm Drain Segment III and Brooks Basin Inlet Enhancement



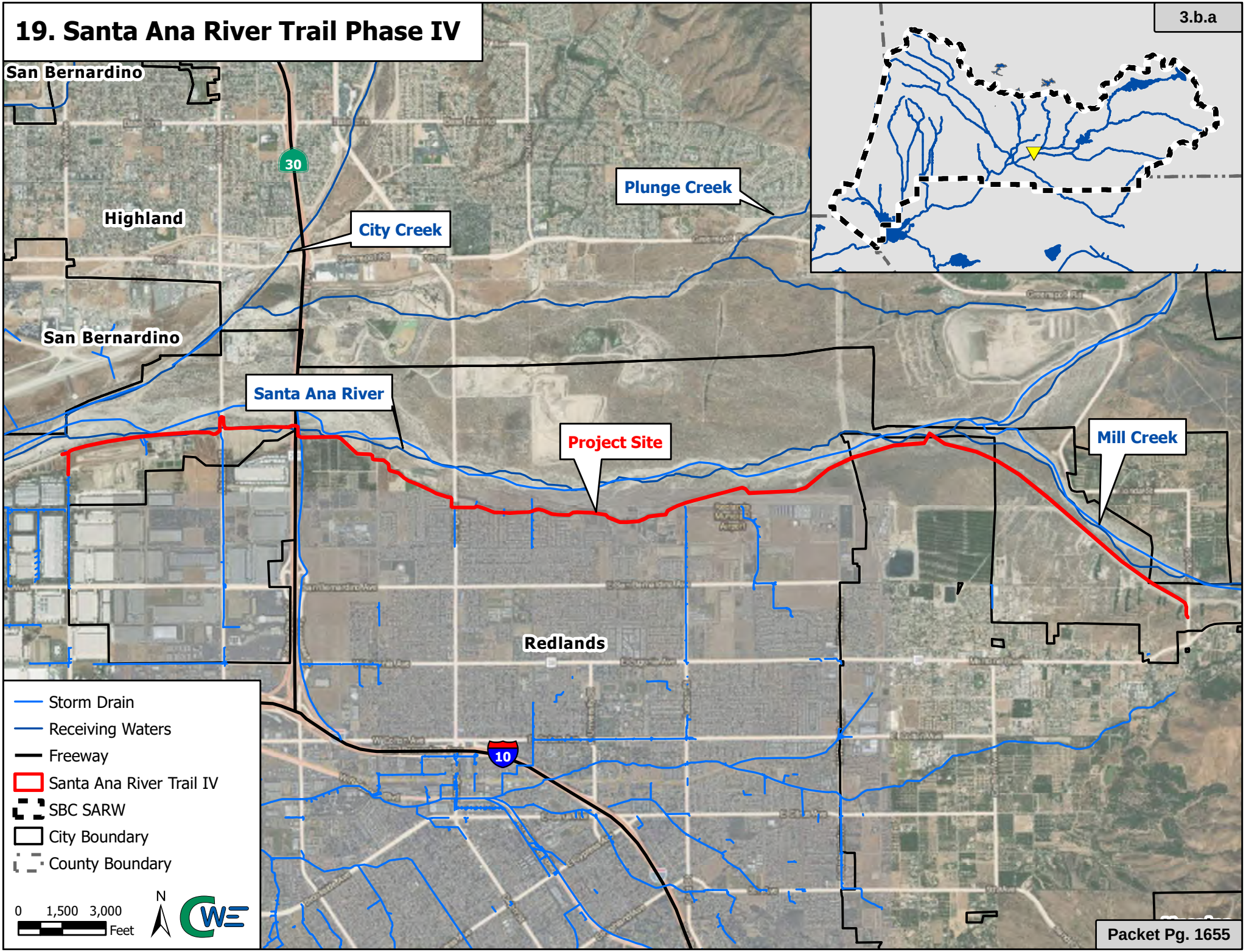
17. Carbon Canyon Creek Channel Pipeline Avenue to Peyton Drive



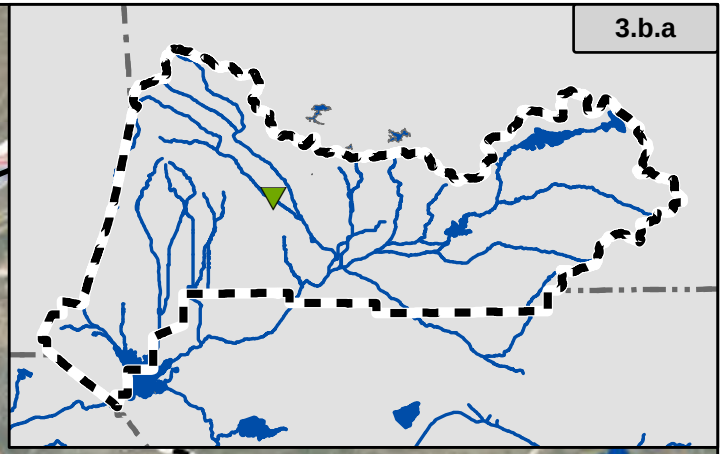
18. Santa Ana River Trail Phase III



19. Santa Ana River Trail Phase IV



20. Lytle Creek Basin



Lytle Creek Wash
Cajon Creek
Deer Creek
Day Creek
Cucamonga Canyon Wash
Project Site
Lytle Creek
Fontana
Rancho Cucamonga
Etiwanda Creek Channel
Rialto
San Bernardino
15
210
215
30

- Storm Drain
- Receiving Waters
- Freeway
- Lytle Creek Basin
- Drainage Area
- SBC SARW
- City Boundary
- County Boundary

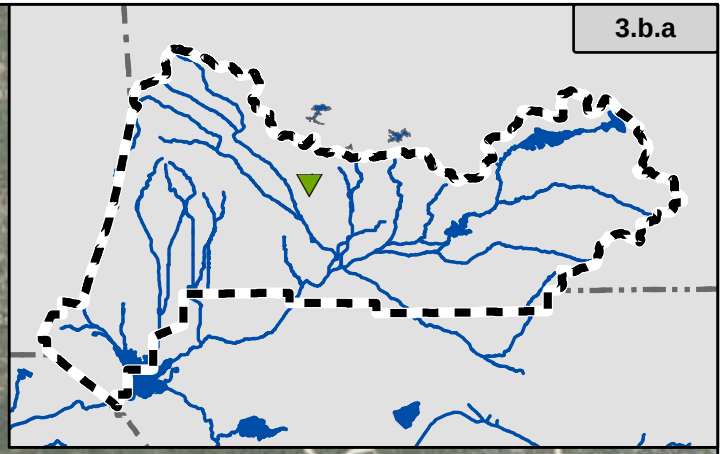
Land Use

- Commercial
- Residential
- Transportation
- Vacant

0 4,750 9,500 Feet

N

21. Devil Canyon Basins



Storm Drain
Receiving Waters
Freeway
Devil Canyon Basins
Drainage Area
SBC SARW
City Boundary
County Boundary

Land Use

Residential
Vacant

0 1,400 2,800 Feet

N

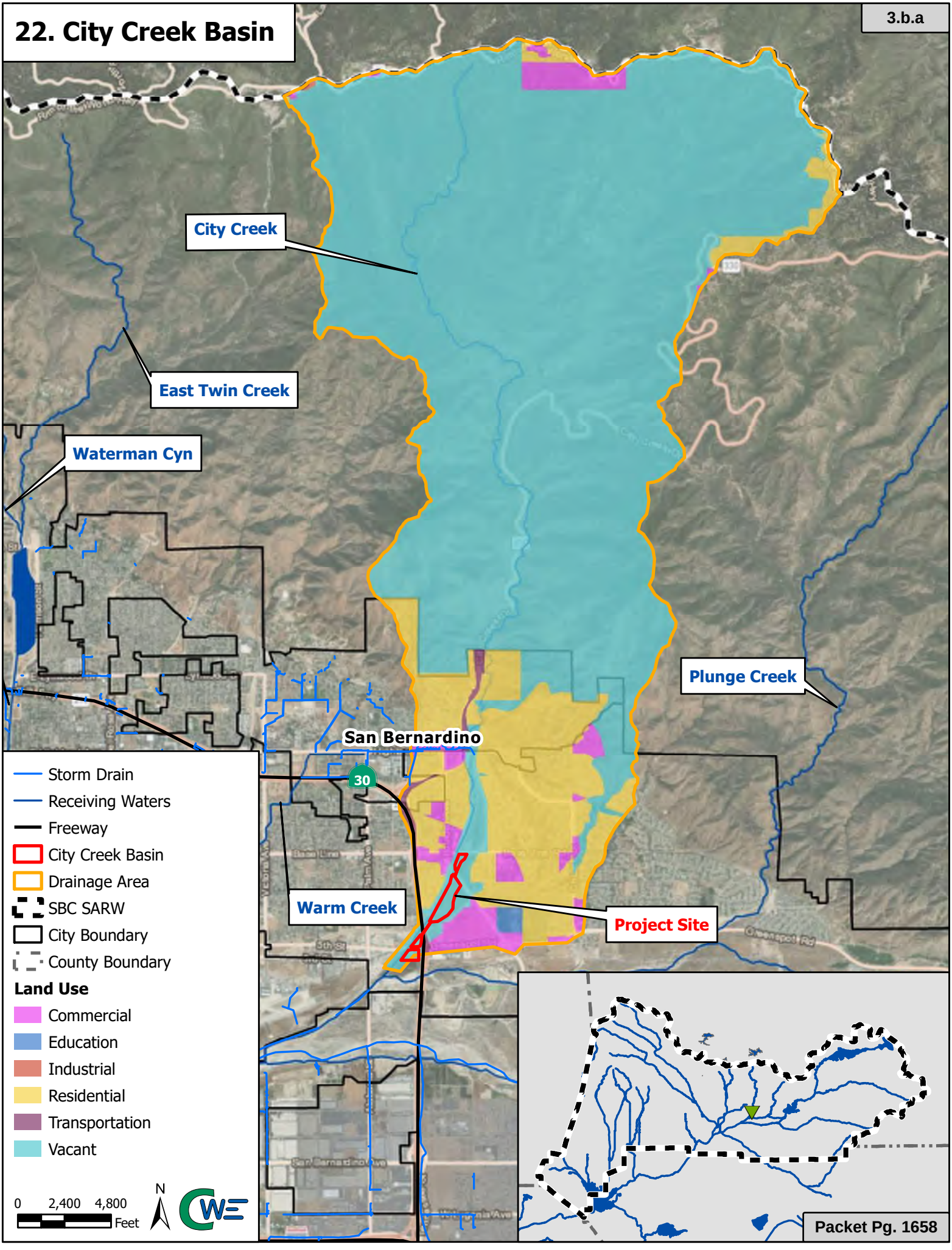
San Bernardino

Waterman Canyon

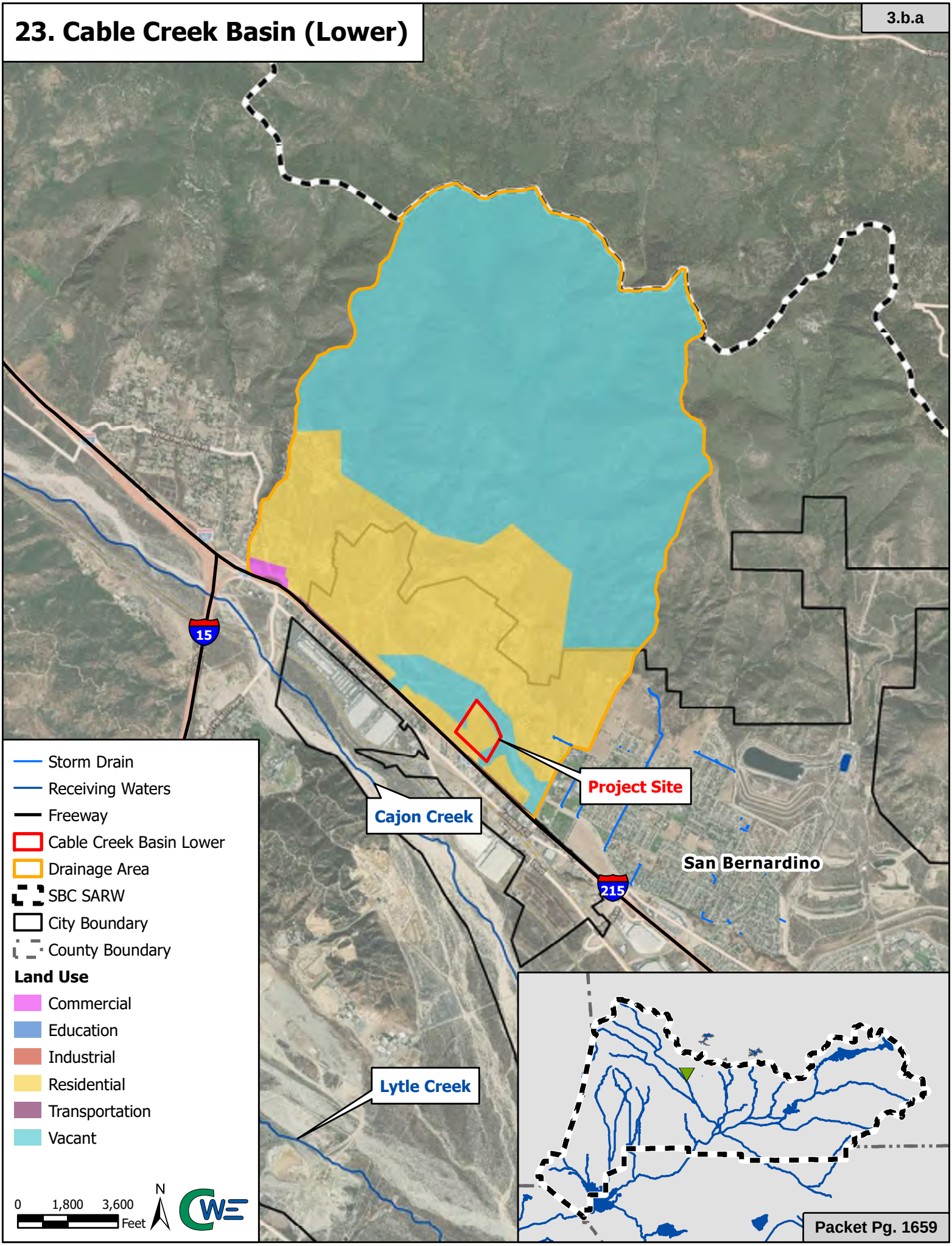
Project Site

Project Site

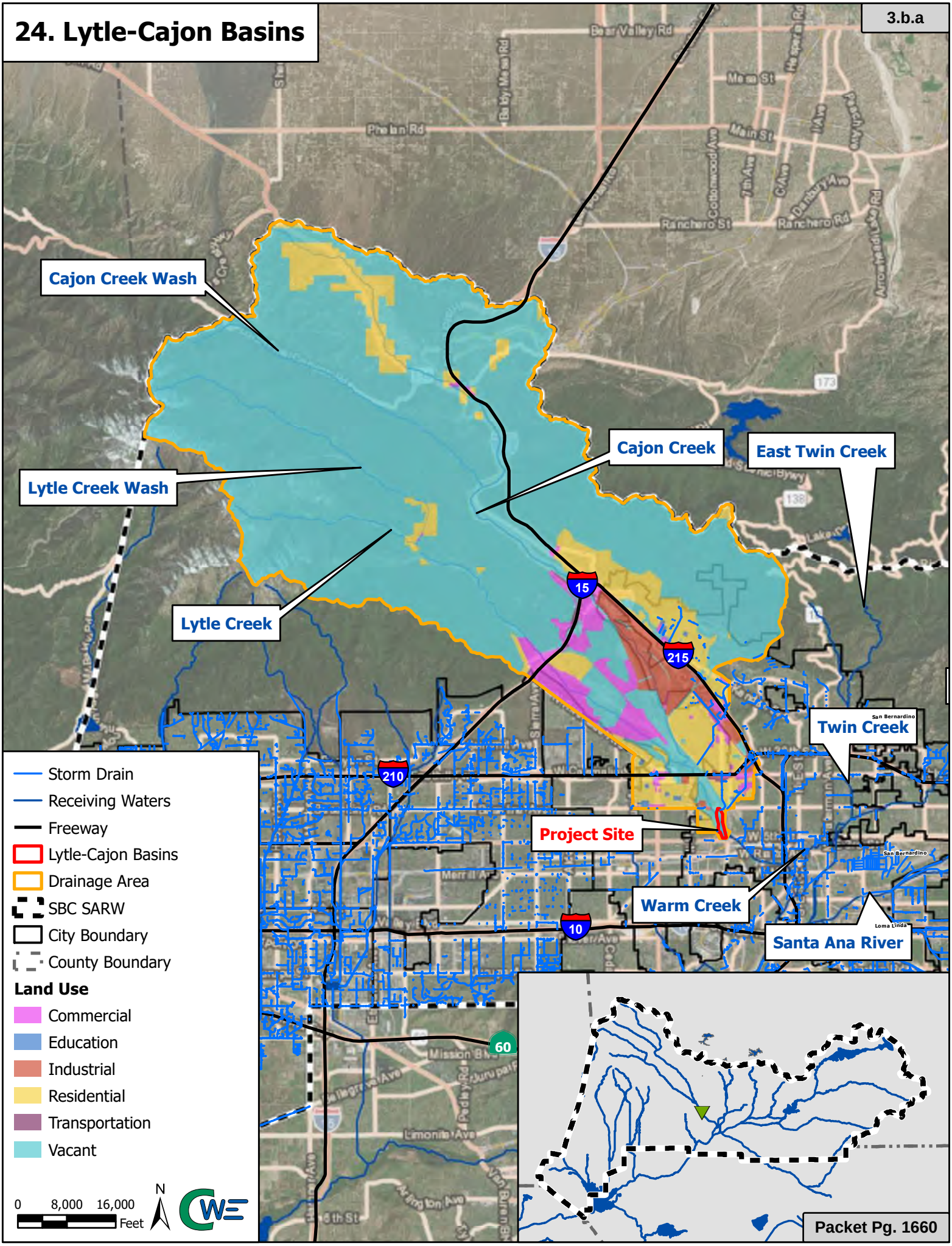
22. City Creek Basin

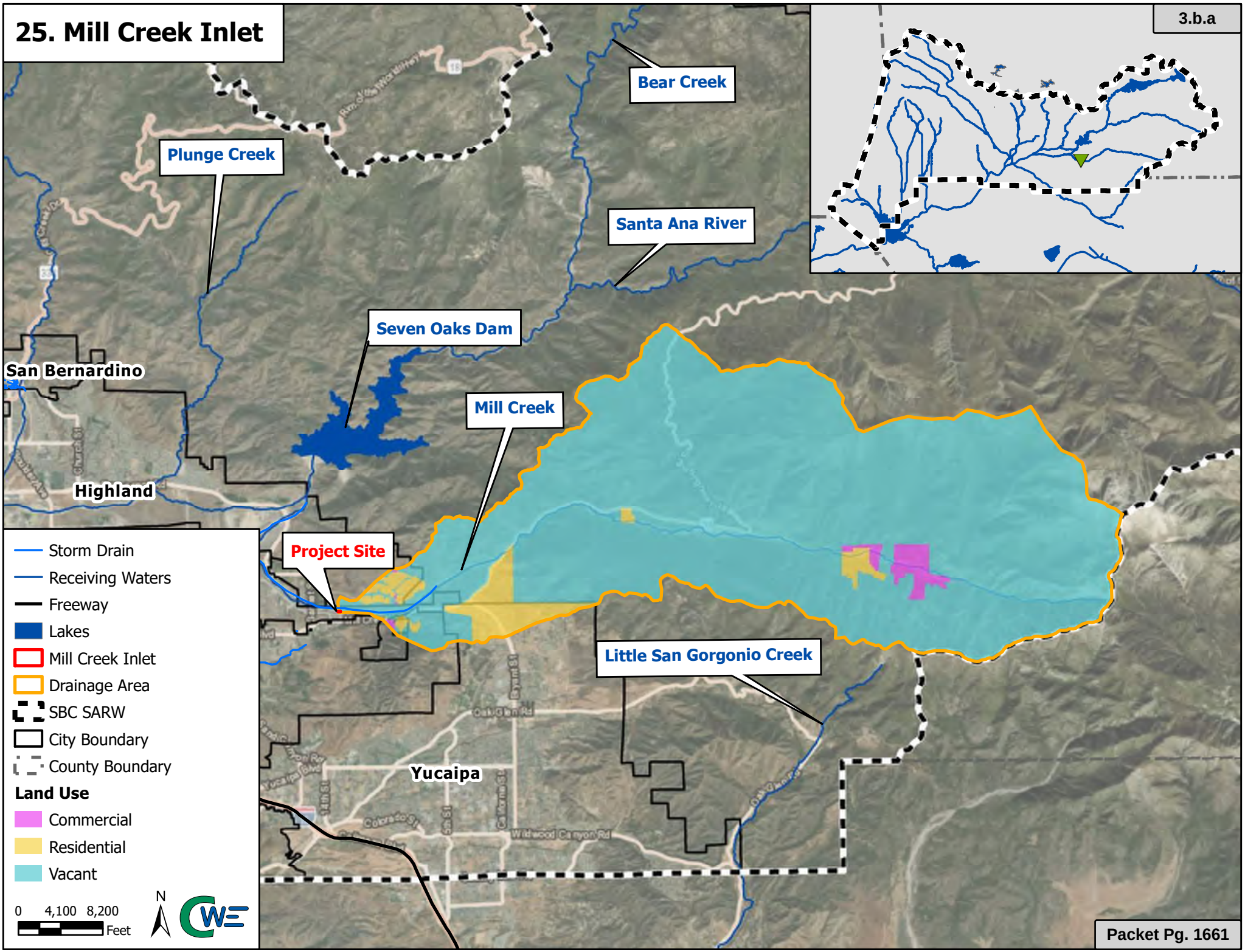


23. Cable Creek Basin (Lower)

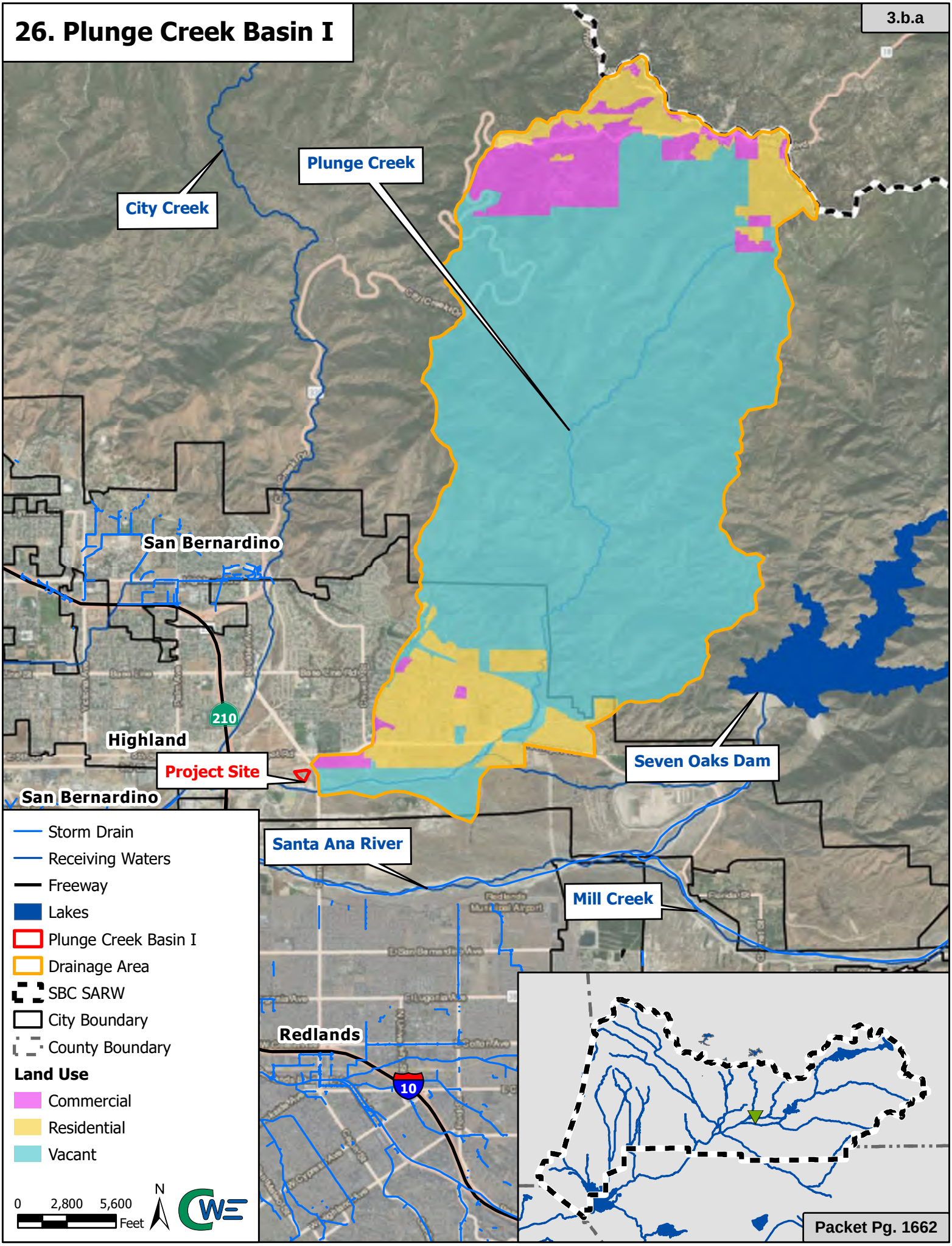


24. Lytle-Cajon Basins

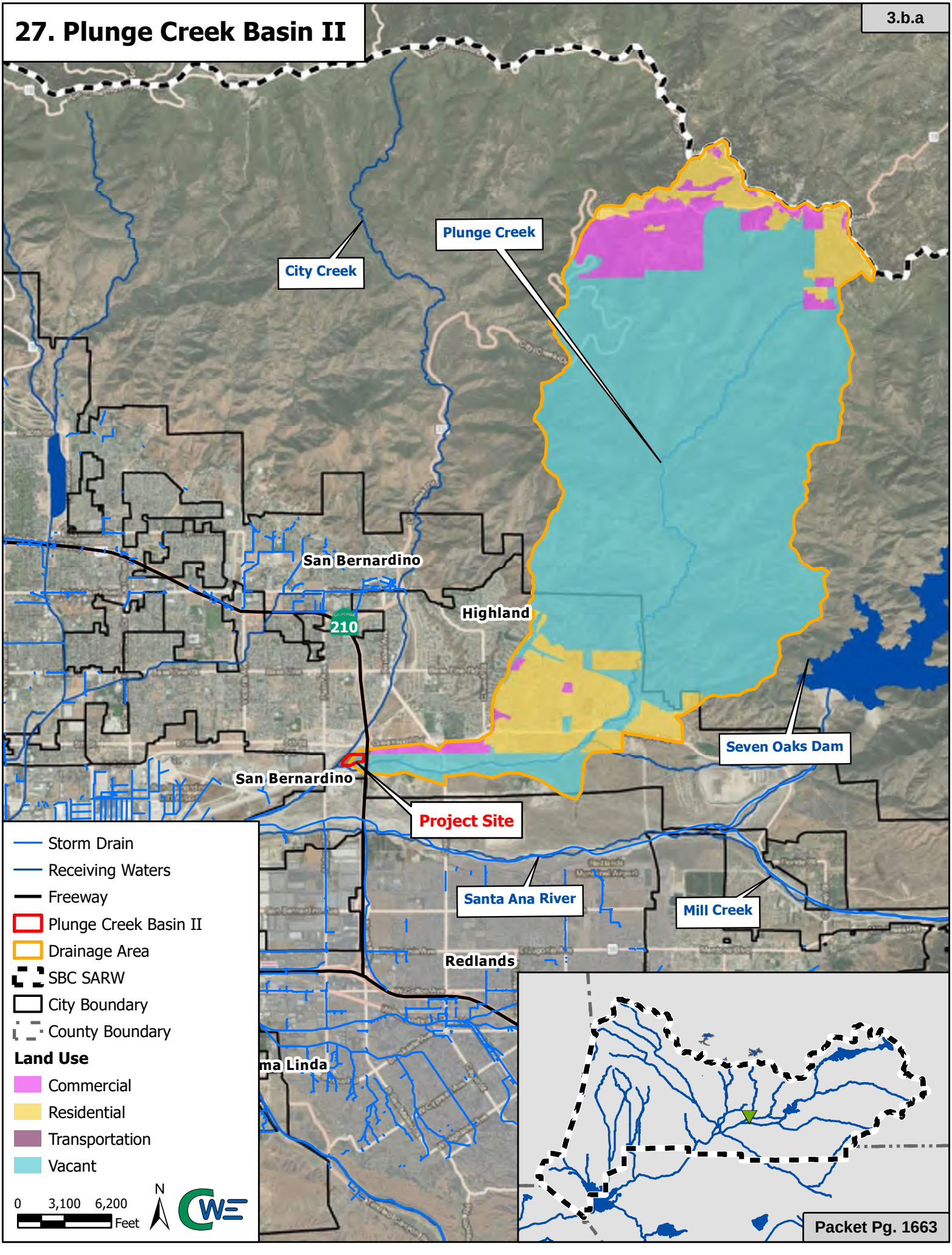



25. Mill Creek Inlet
3.b.a
Bear Creek
Plunge Creek
Santa Ana River
Seven Oaks Dam
San Bernardino
Mill Creek
Highland
Project Site
Little San Gorgonio Creek
Yucaipa
Storm Drain
Receiving Waters
Freeway
Lakes
Mill Creek Inlet
Drainage Area
SBC SARW
City Boundary
County Boundary
Land Use
Commercial
Residential
Vacant
0 4,100 8,200
Feet
N
Packet Pg. 1661

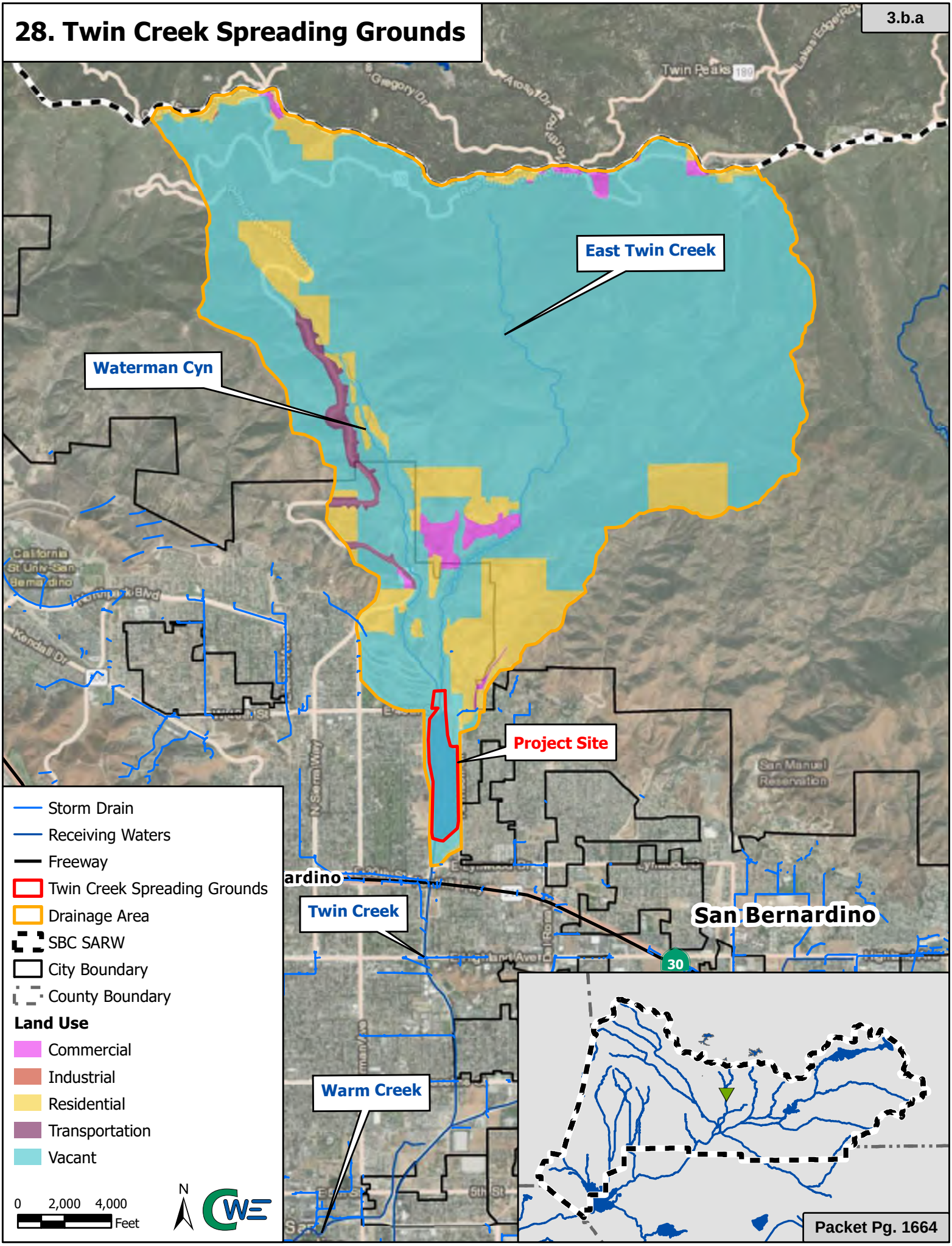
26. Plunge Creek Basin I



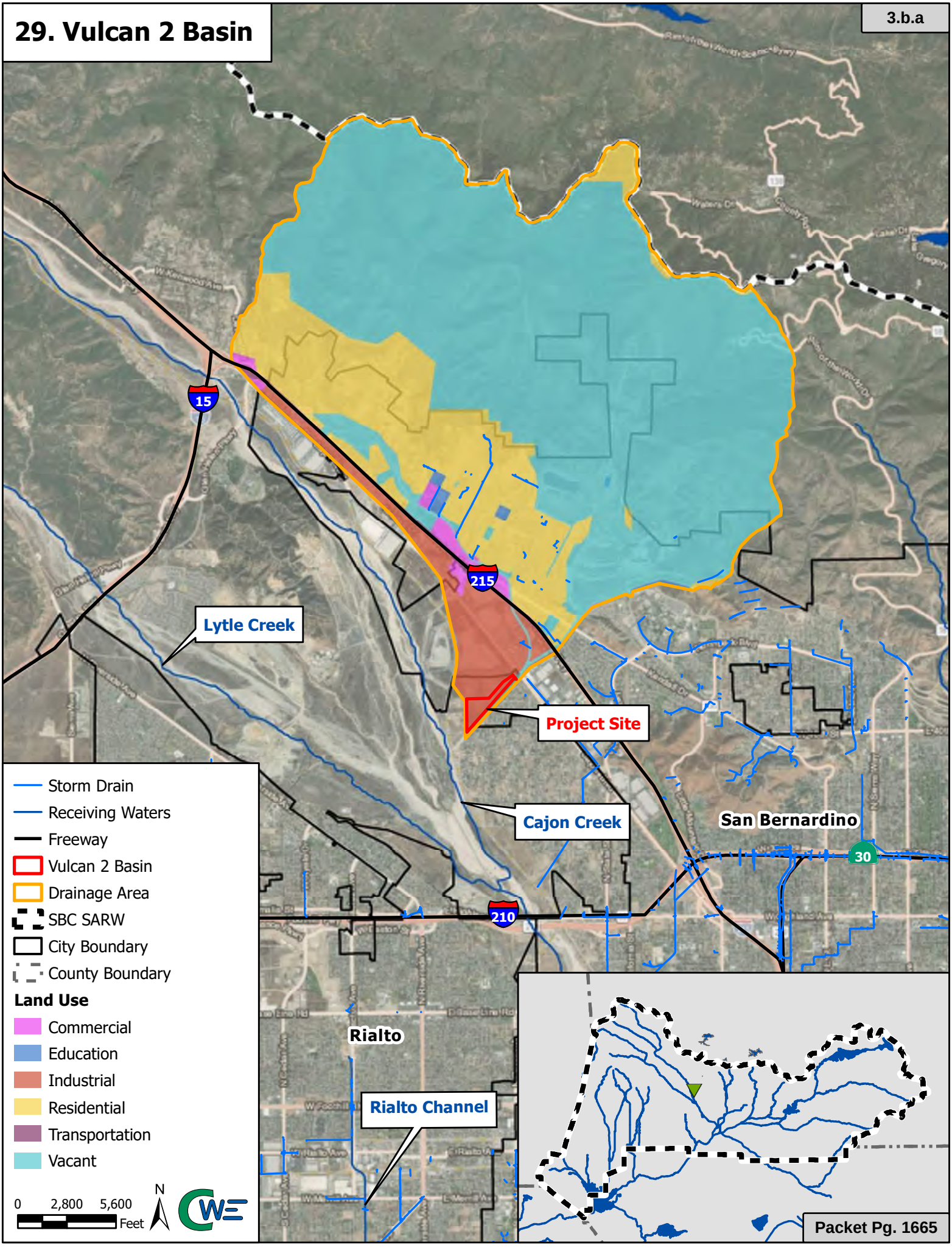
27. Plunge Creek Basin II



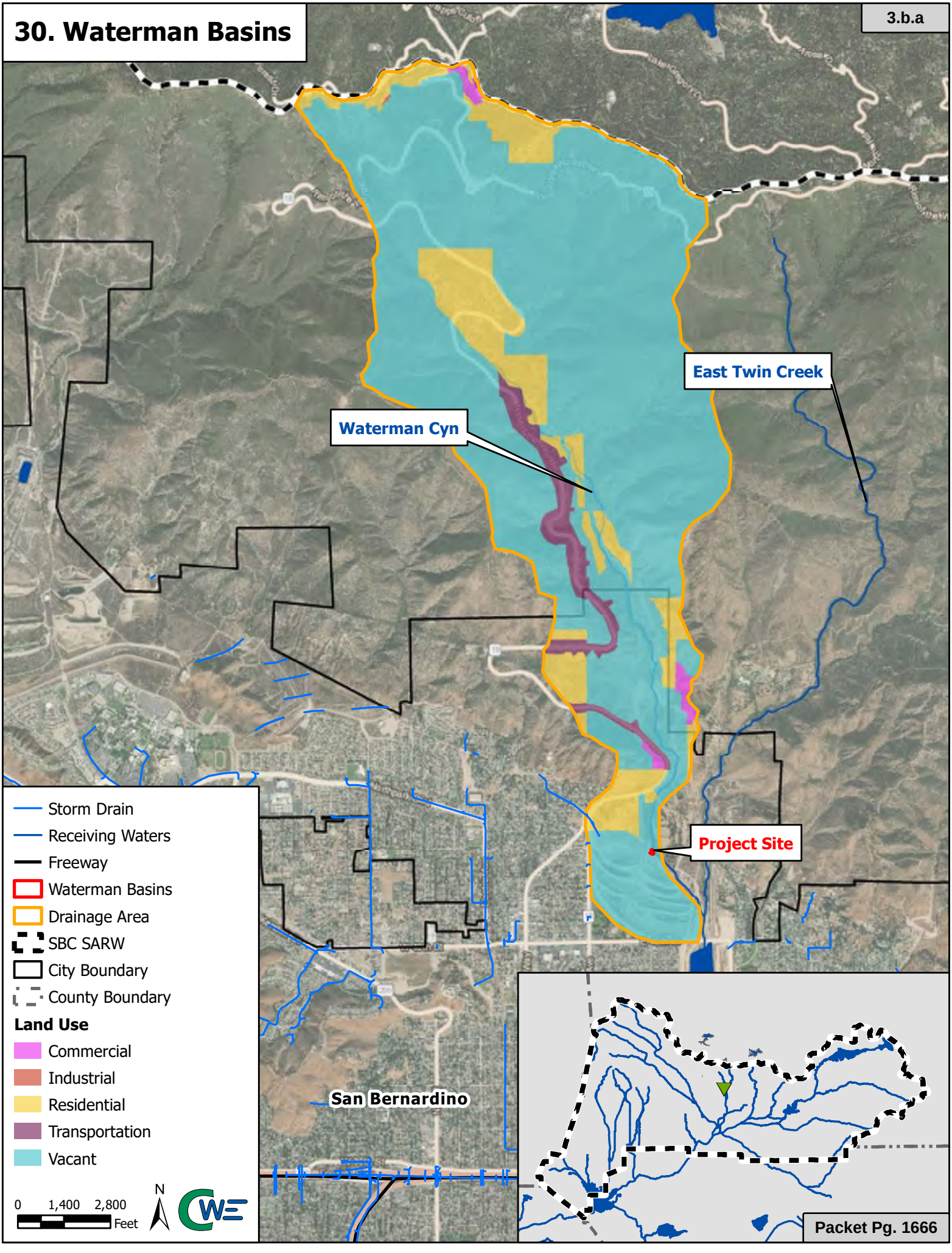
28. Twin Creek Spreading Grounds



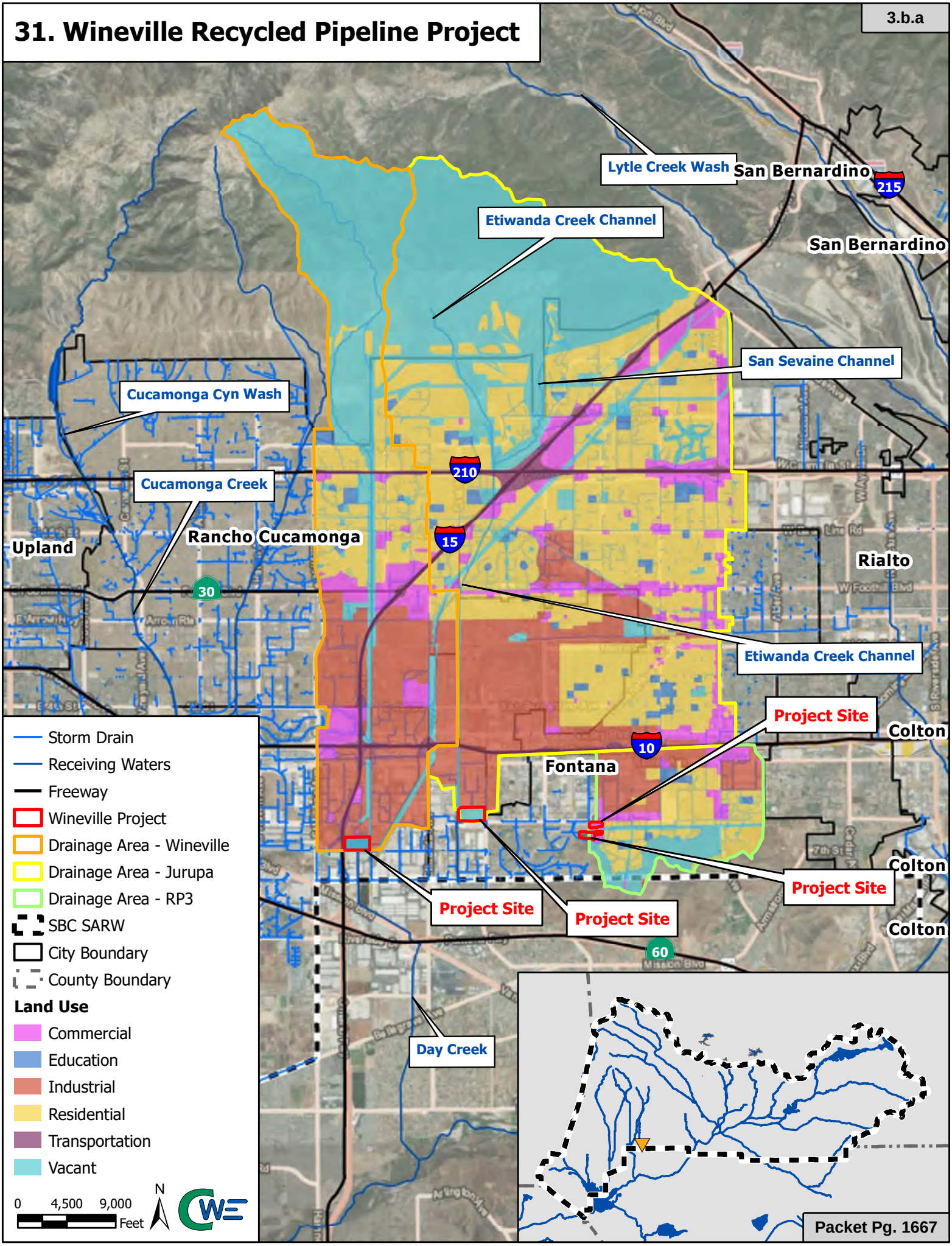
29. Vulcan 2 Basin



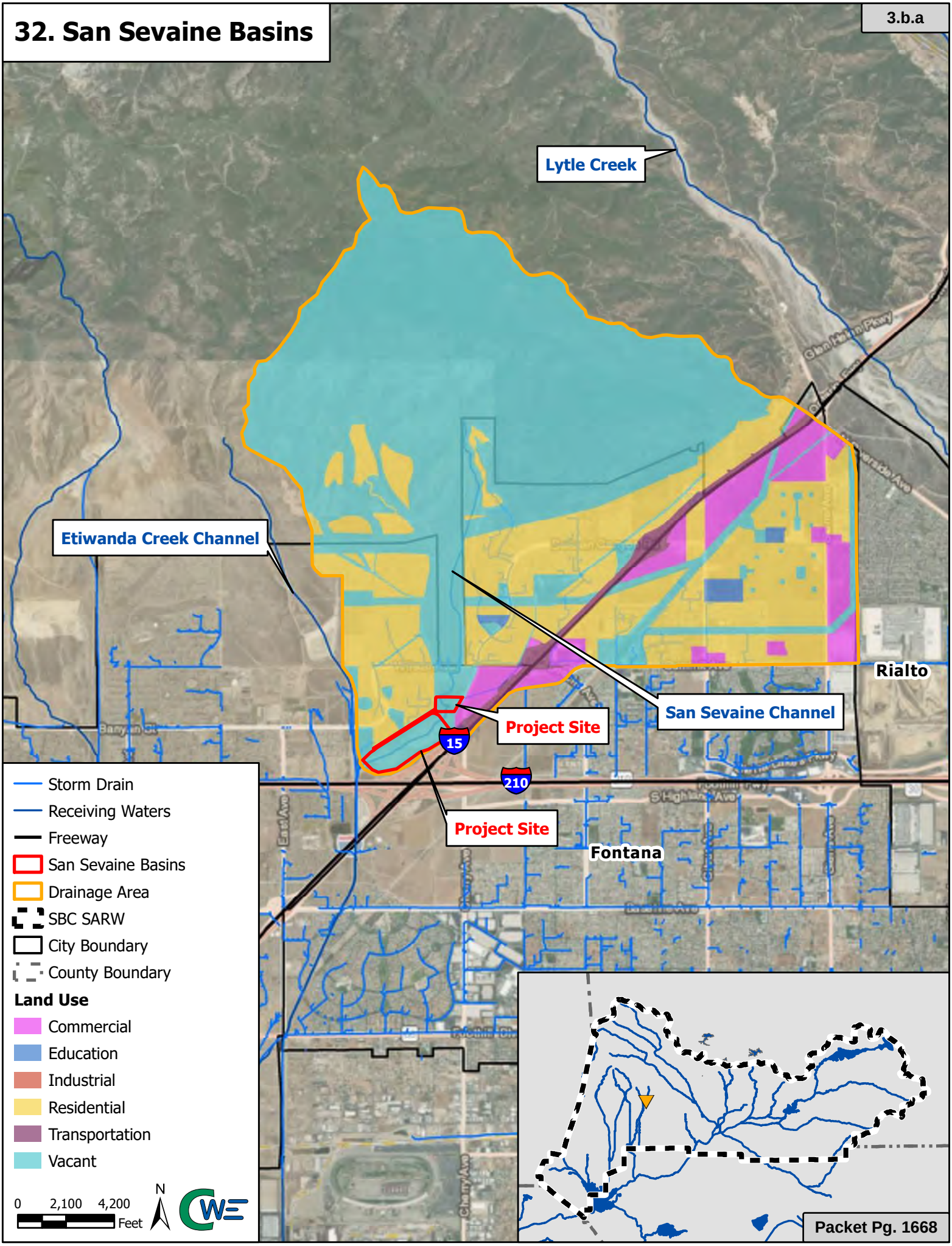
30. Waterman Basins



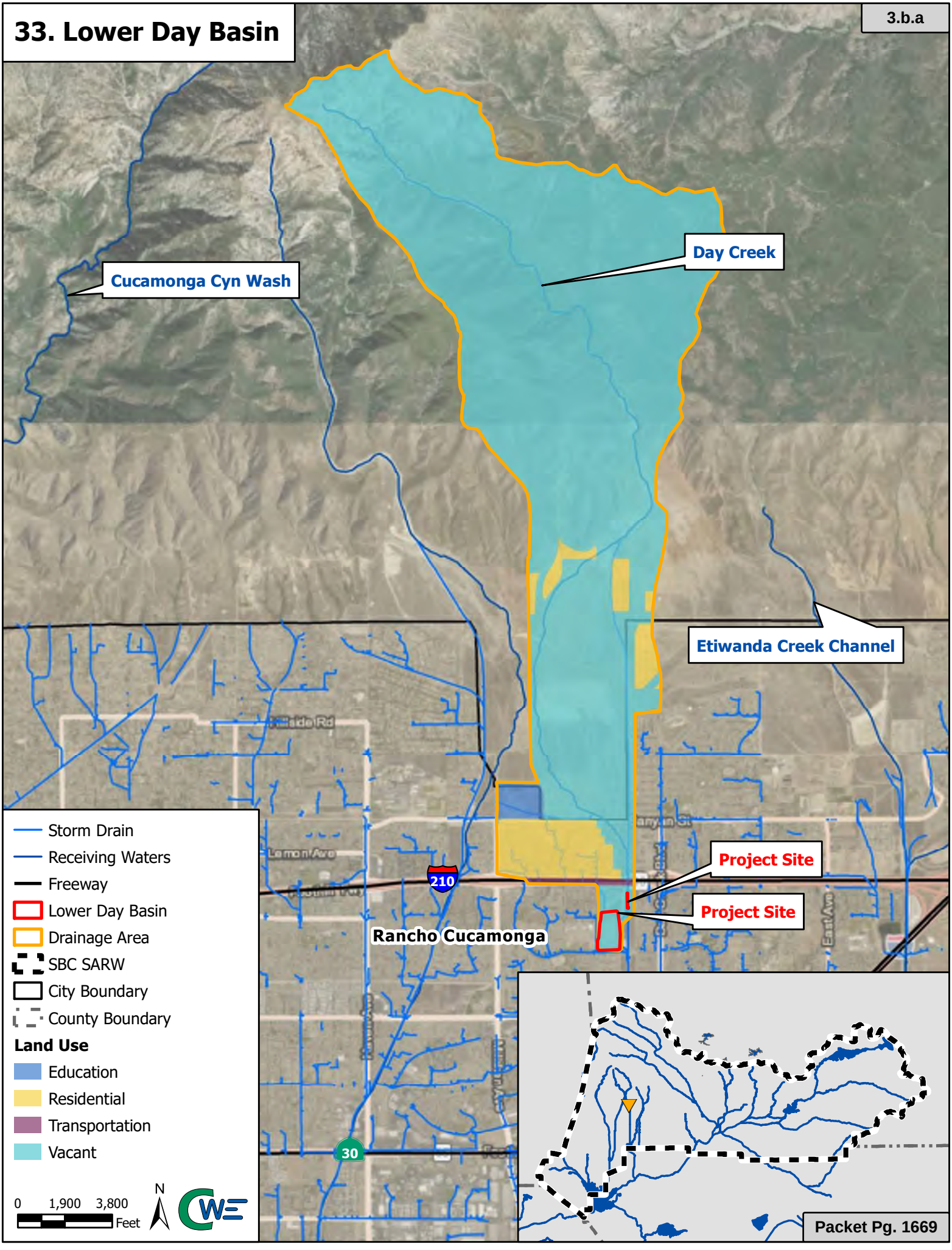
31. Wineville Recycled Pipeline Project



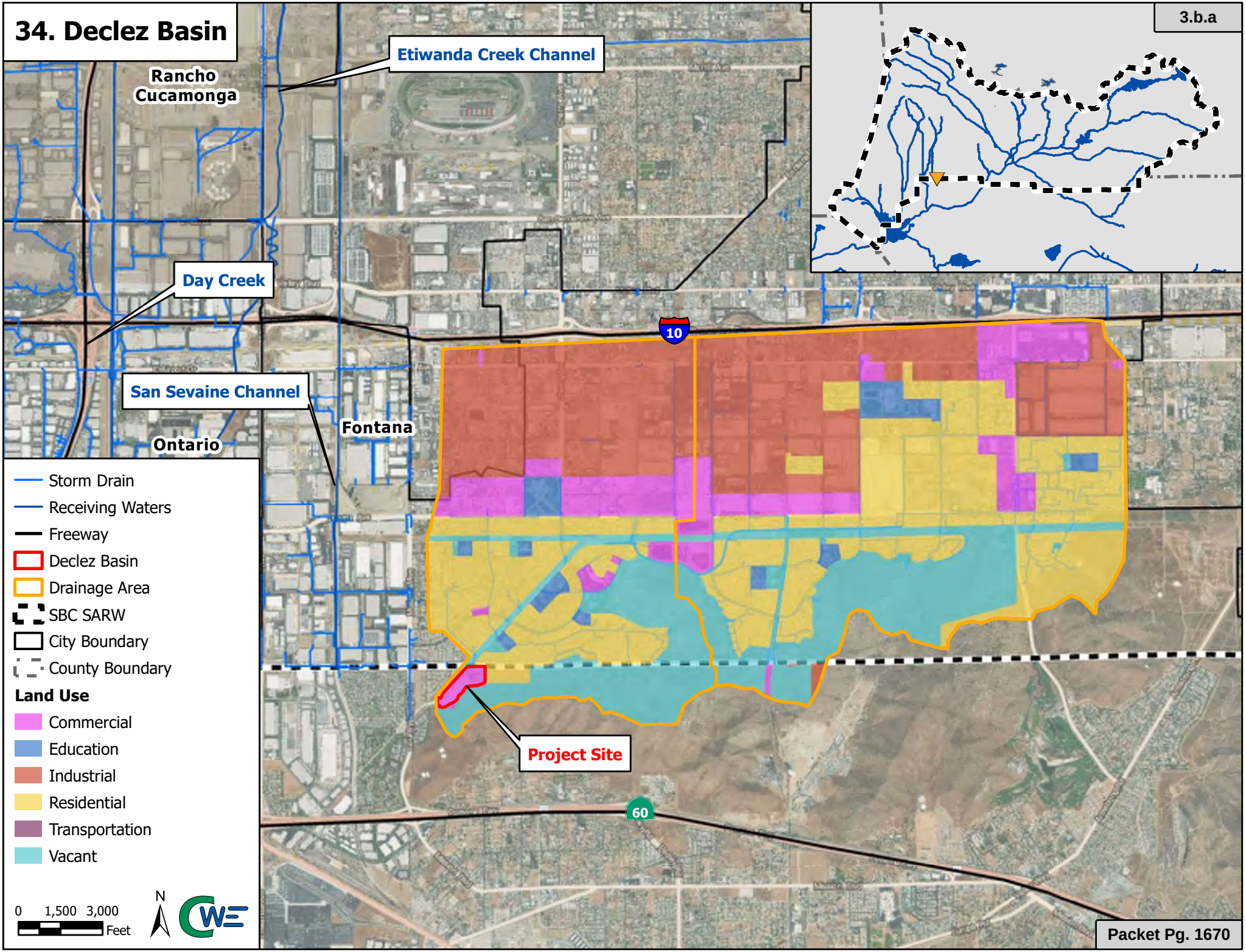
32. San Sevaine Basins



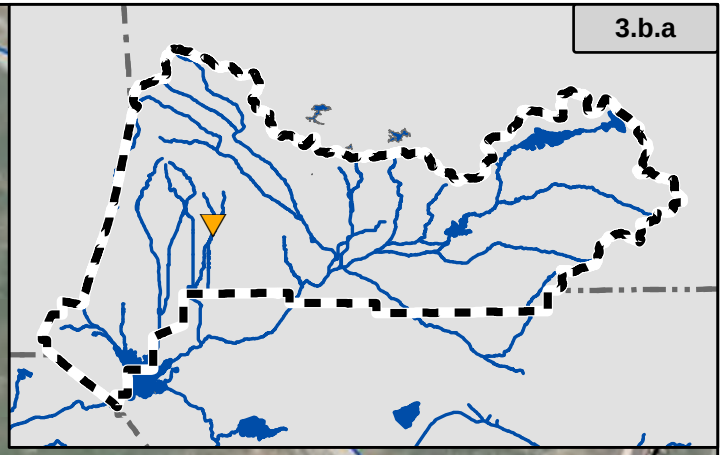
33. Lower Day Basin



34. Declez Basin



35. Victoria Basin



Day Creek

Deer Creek

Etiwanda Creek Channel

Lytle Creek

San Sevaine Channel

Project Site

Rialto

Fontana

15

210

Storm Drain
Receiving Waters
Freeway
Victoria Basin
Drainage Area
SBC SARW
City Boundary
County Boundary

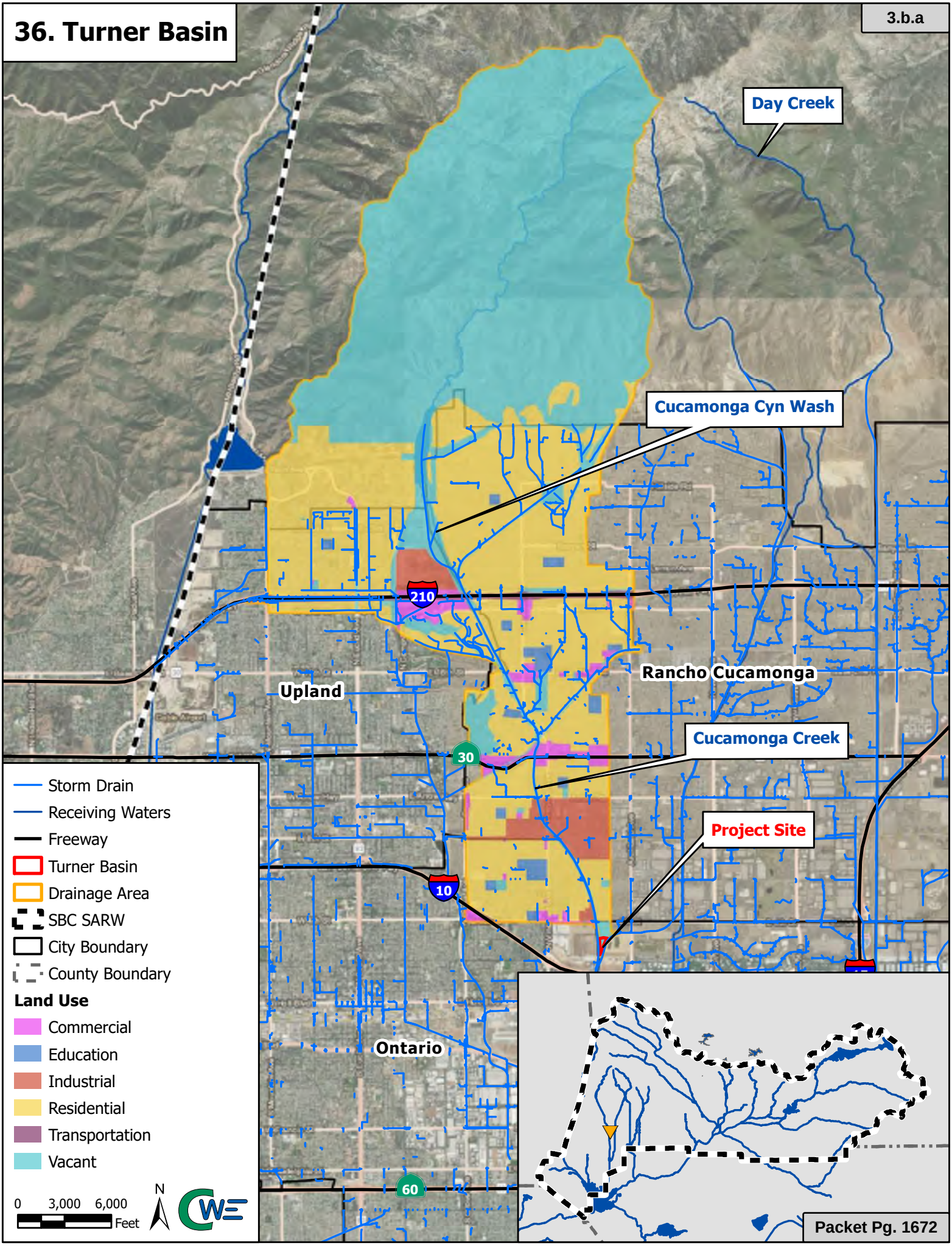
Land Use

Commercial
Education
Industrial
Residential
Transportation
Vacant

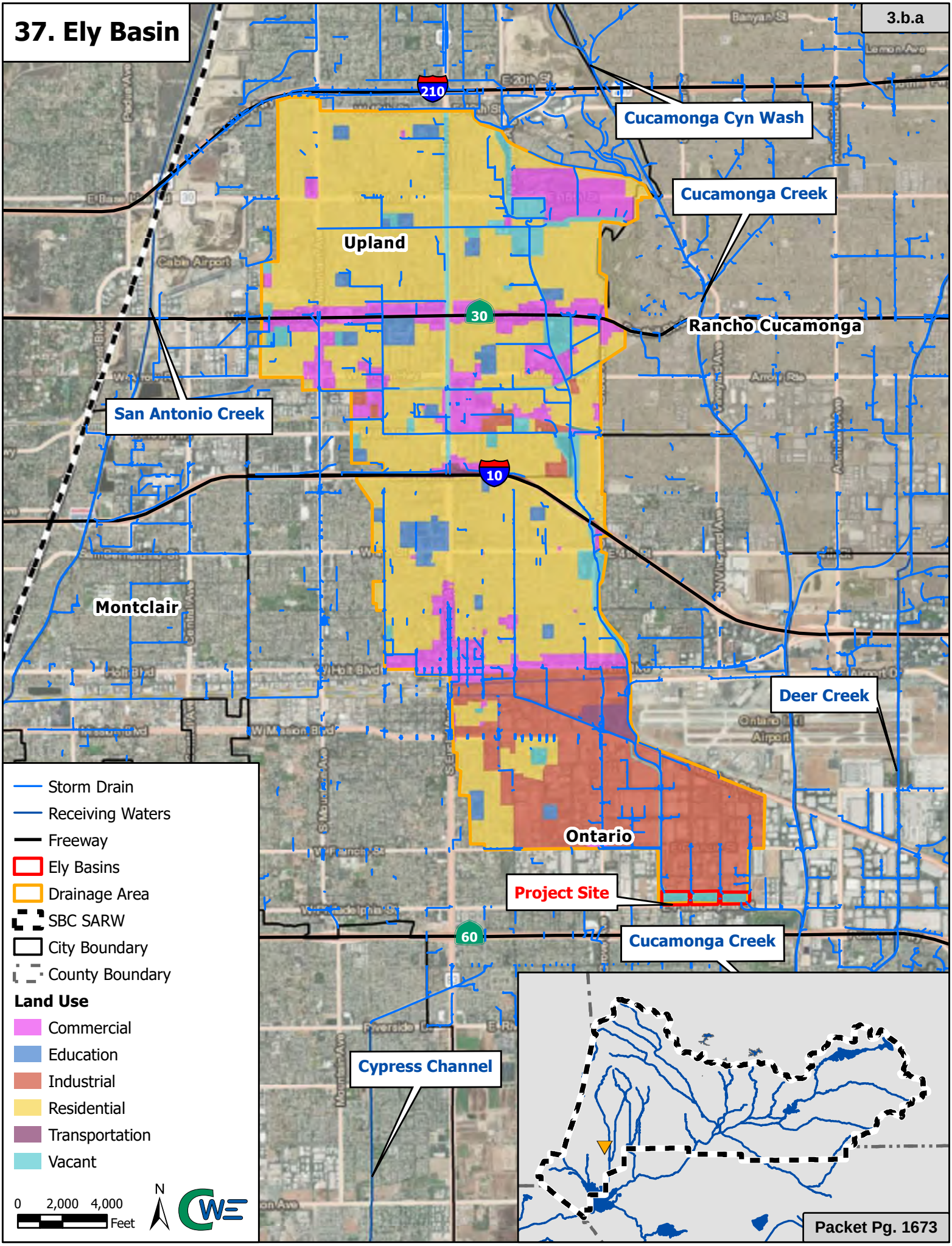
0 2,000 4,000 Feet

N

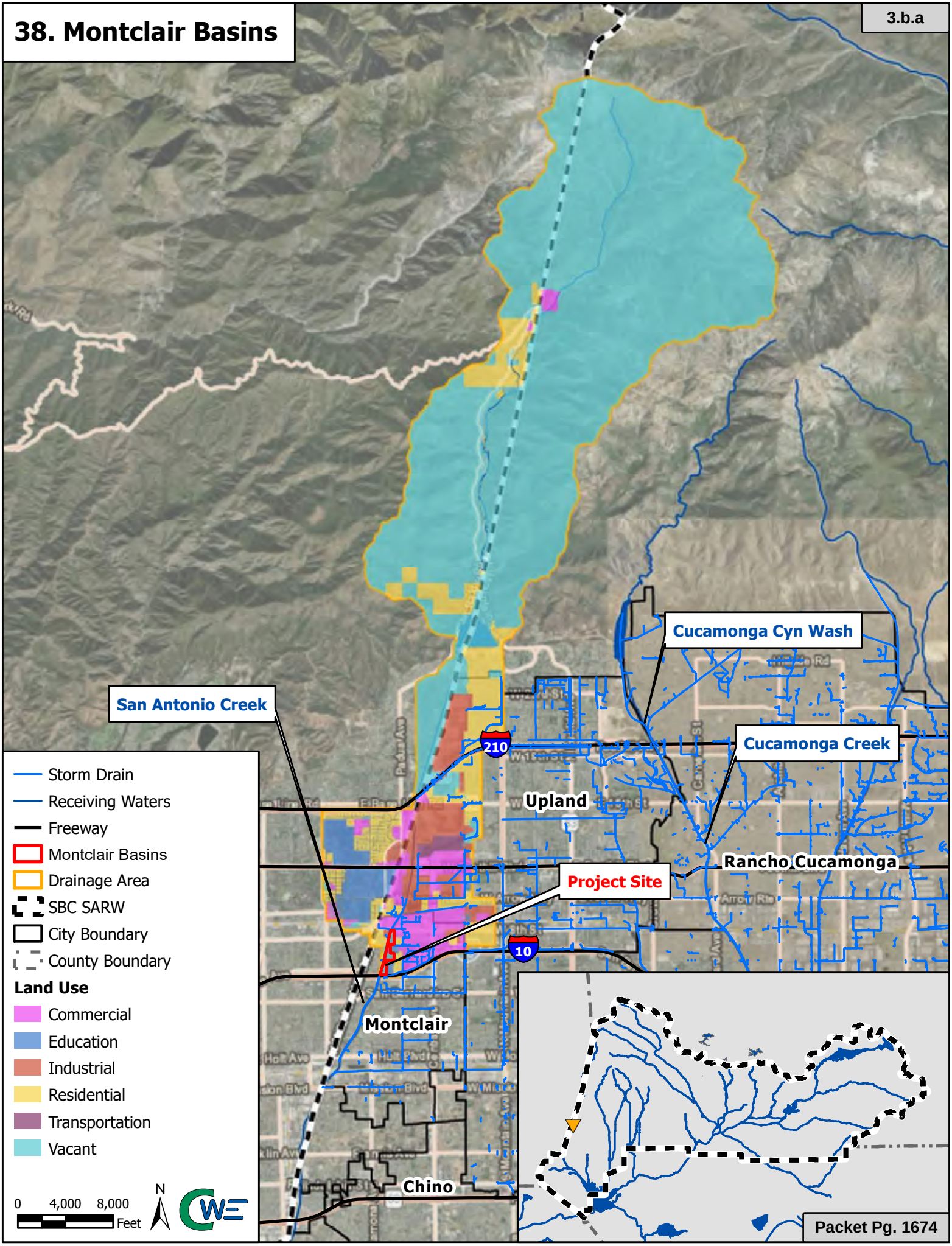
36. Turner Basin



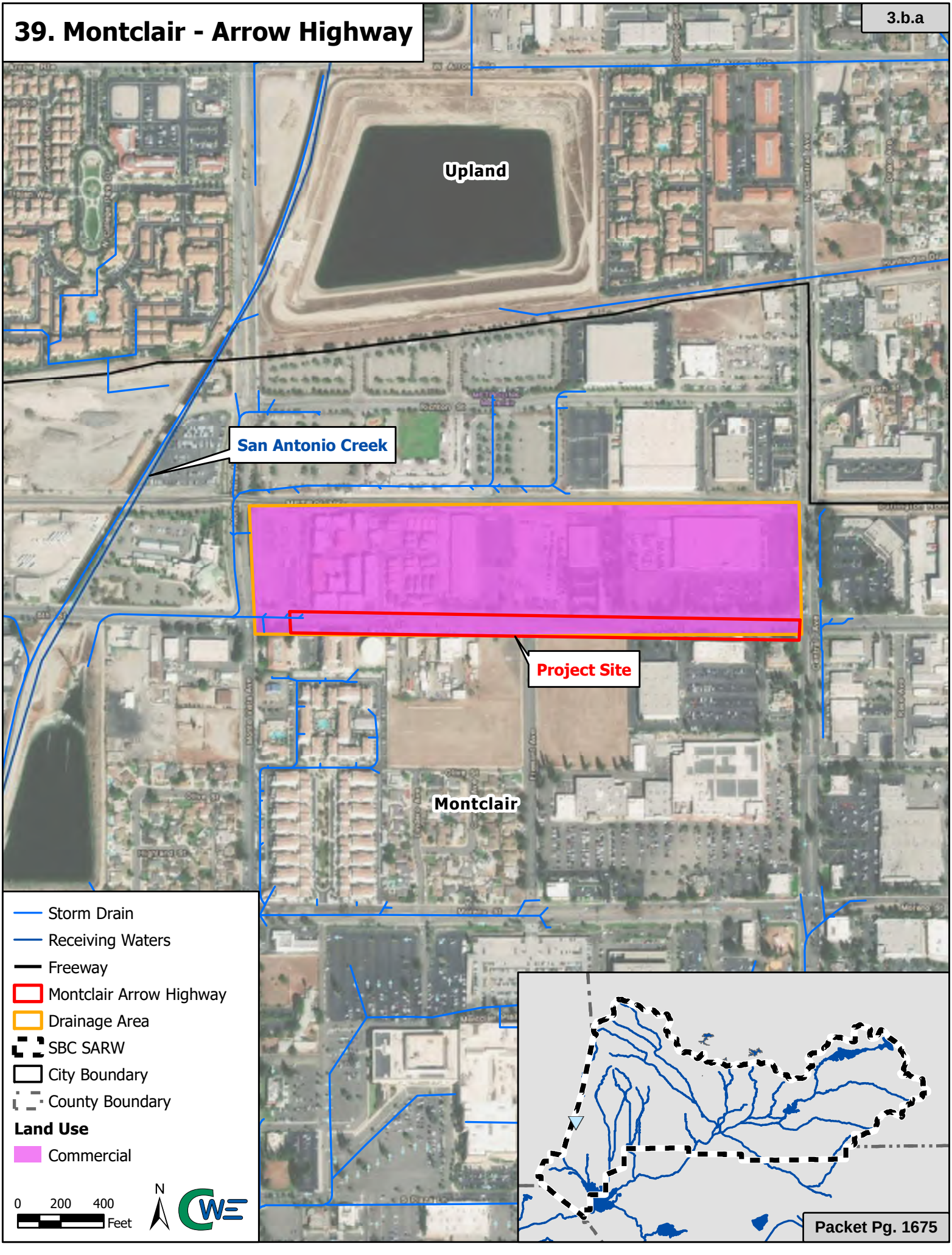
37. Ely Basin


Cucamonga Cyn Wash
Cucamonga Creek
Upland
Rancho Cucamonga
San Antonio Creek
Montclair
Deer Creek
Ontario
Project Site
Cucamonga Creek
Cypress Channel
210
30
10
60
Storm Drain
Receiving Waters
Freeway
Ely Basins
Drainage Area
SBC SARW
City Boundary
County Boundary
Land Use
Commercial
Education
Industrial
Residential
Transportation
Vacant
0 2,000 4,000
Feet
N

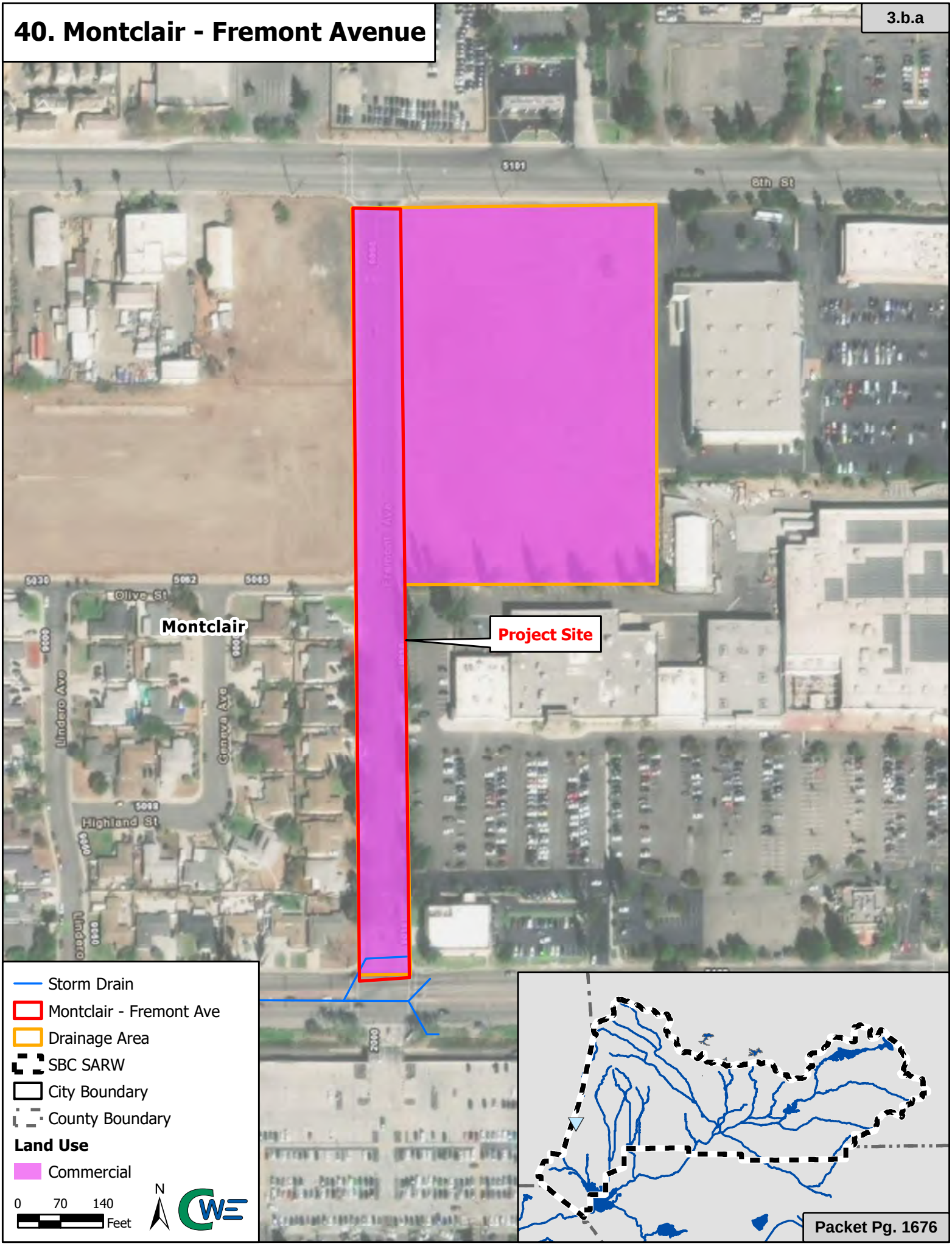
38. Montclair Basins



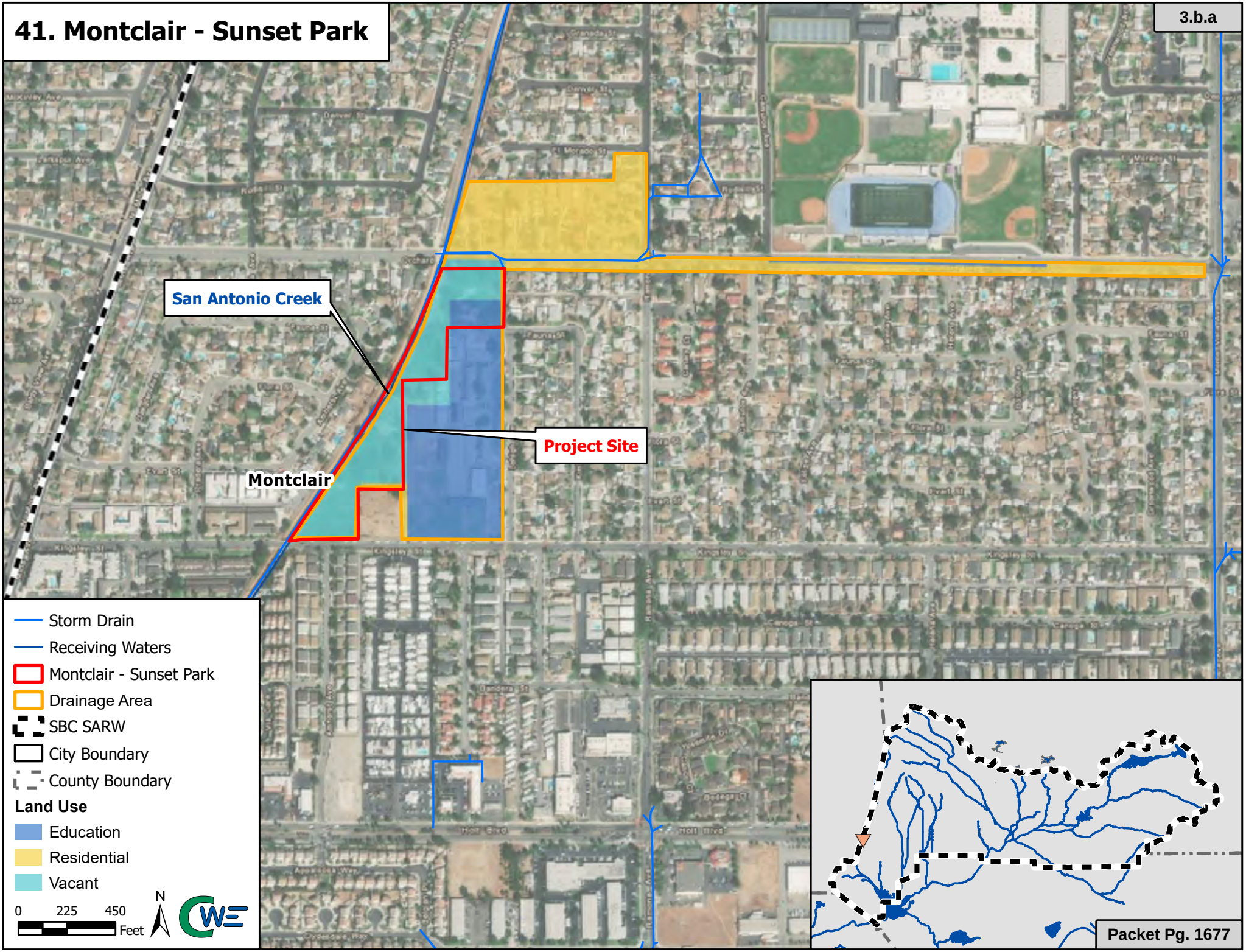
39. Montclair - Arrow Highway



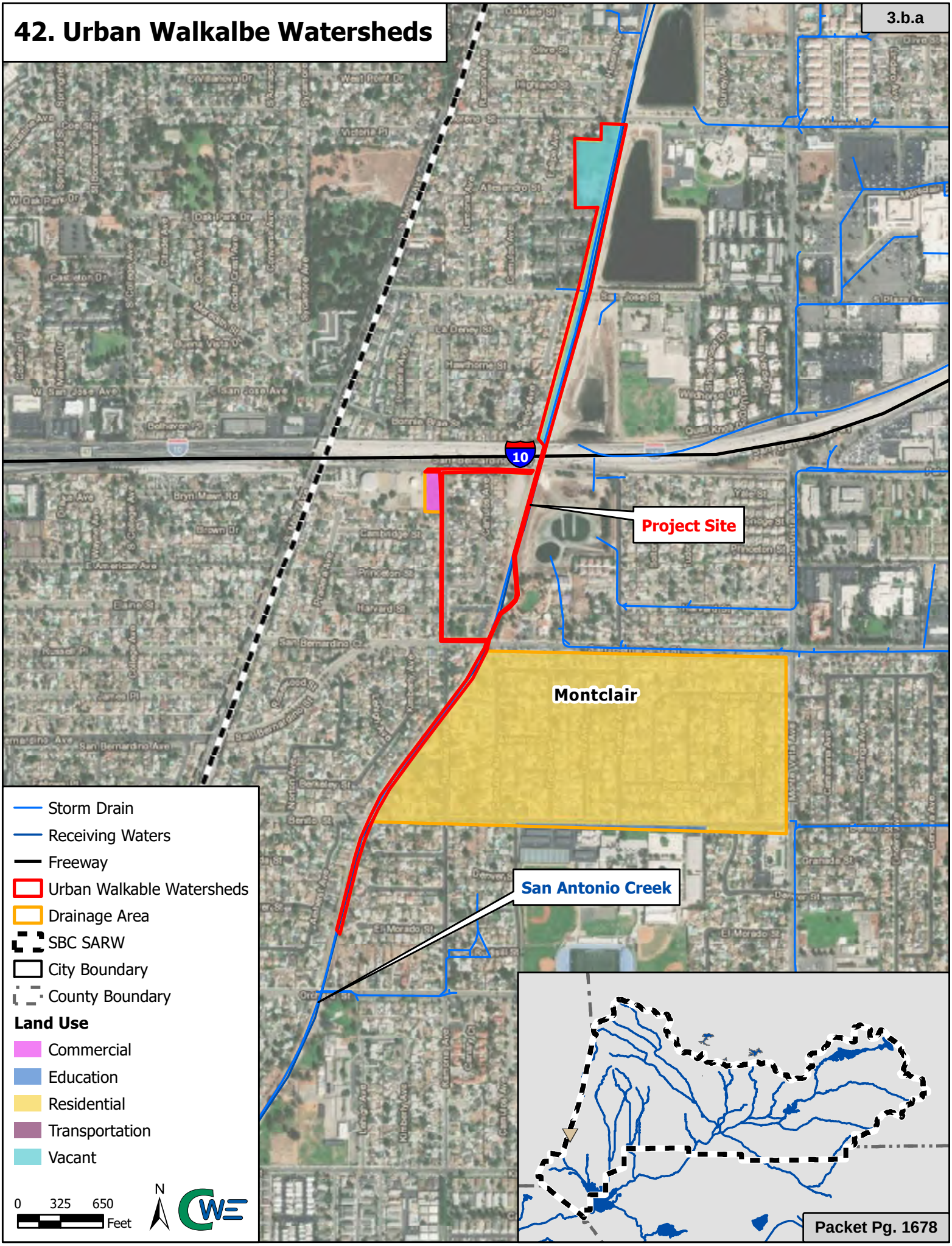
40. Montclair - Fremont Avenue



41. Montclair - Sunset Park

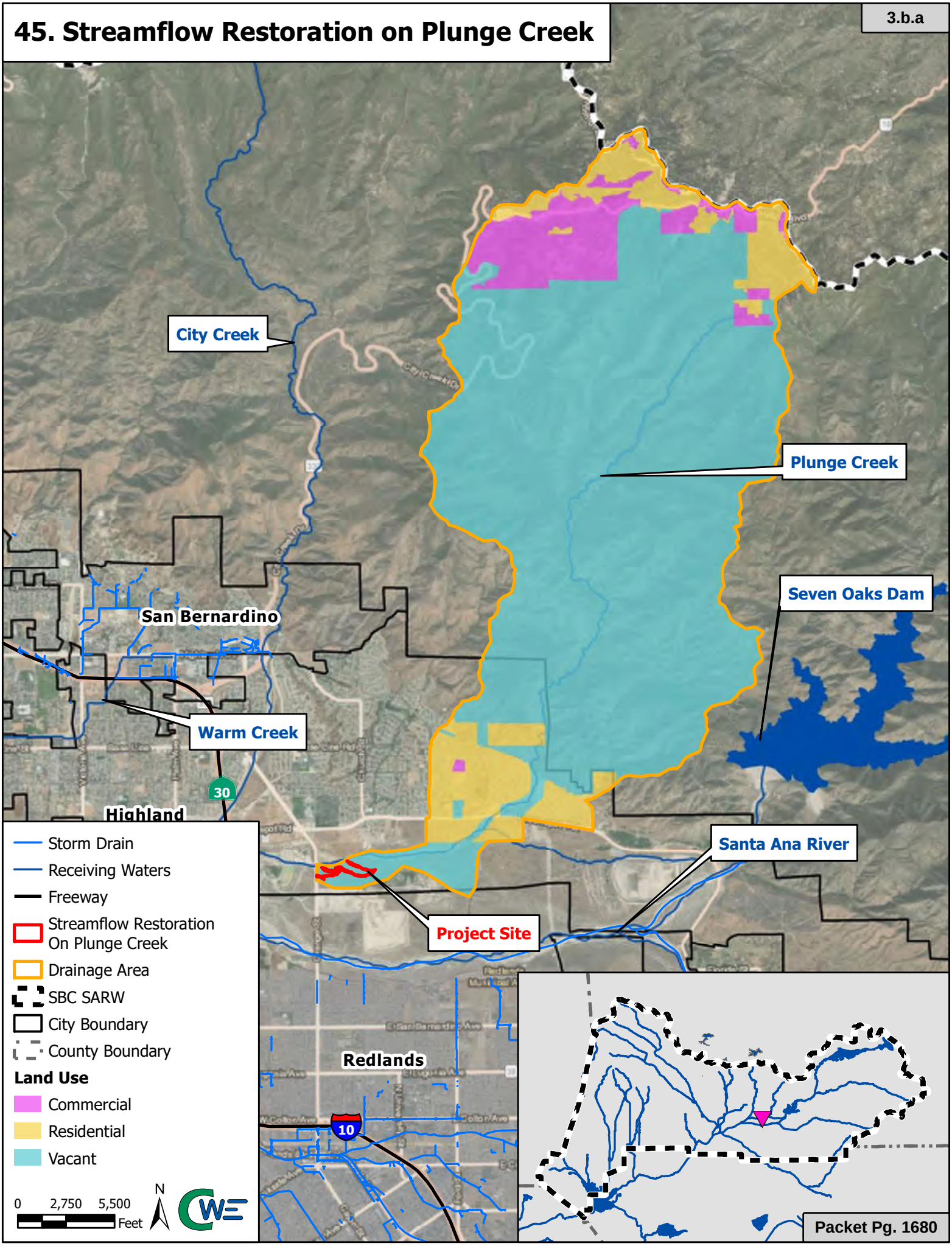


42. Urban Walkalbe Watersheds

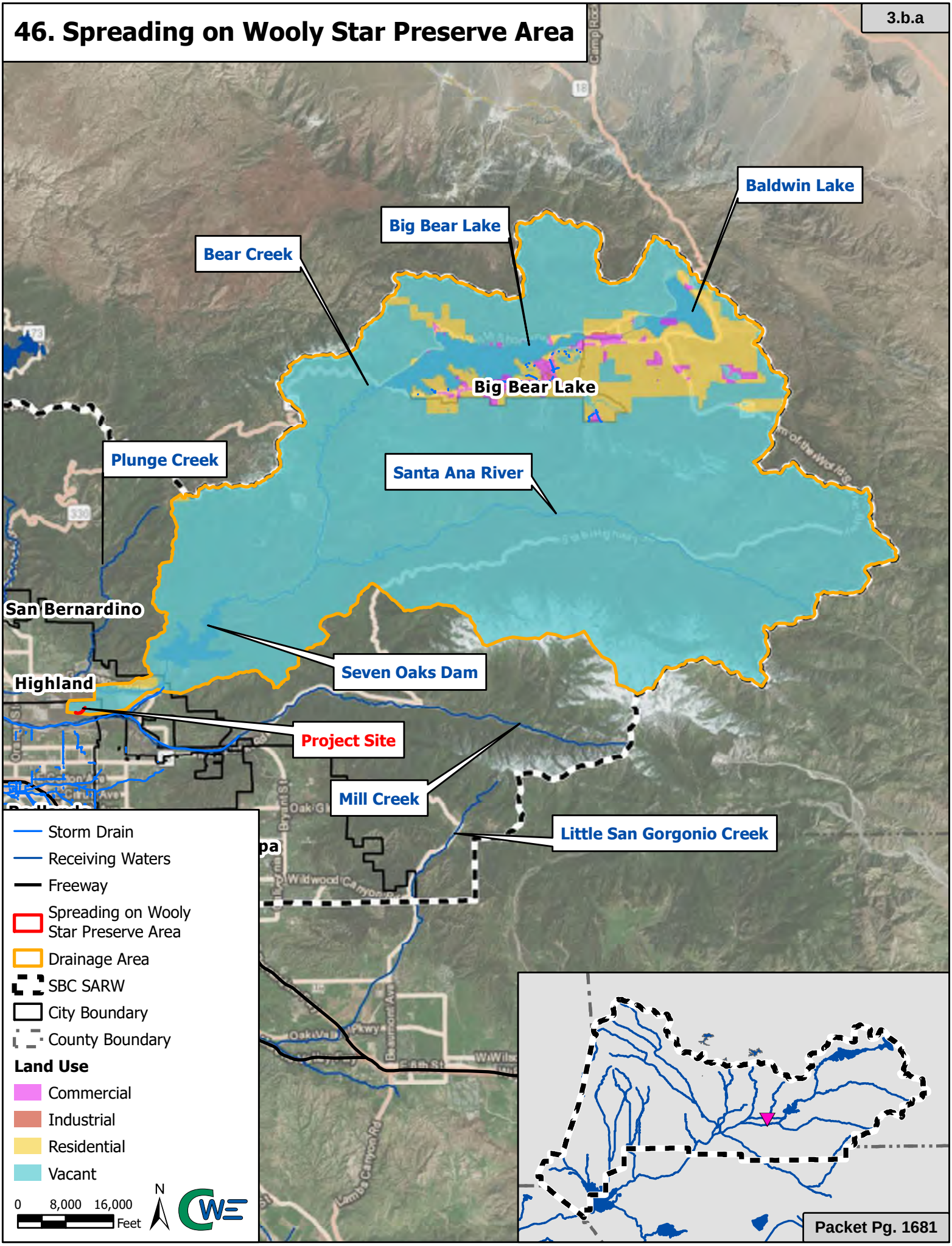


44. College Heights and Upland Percolation Basins

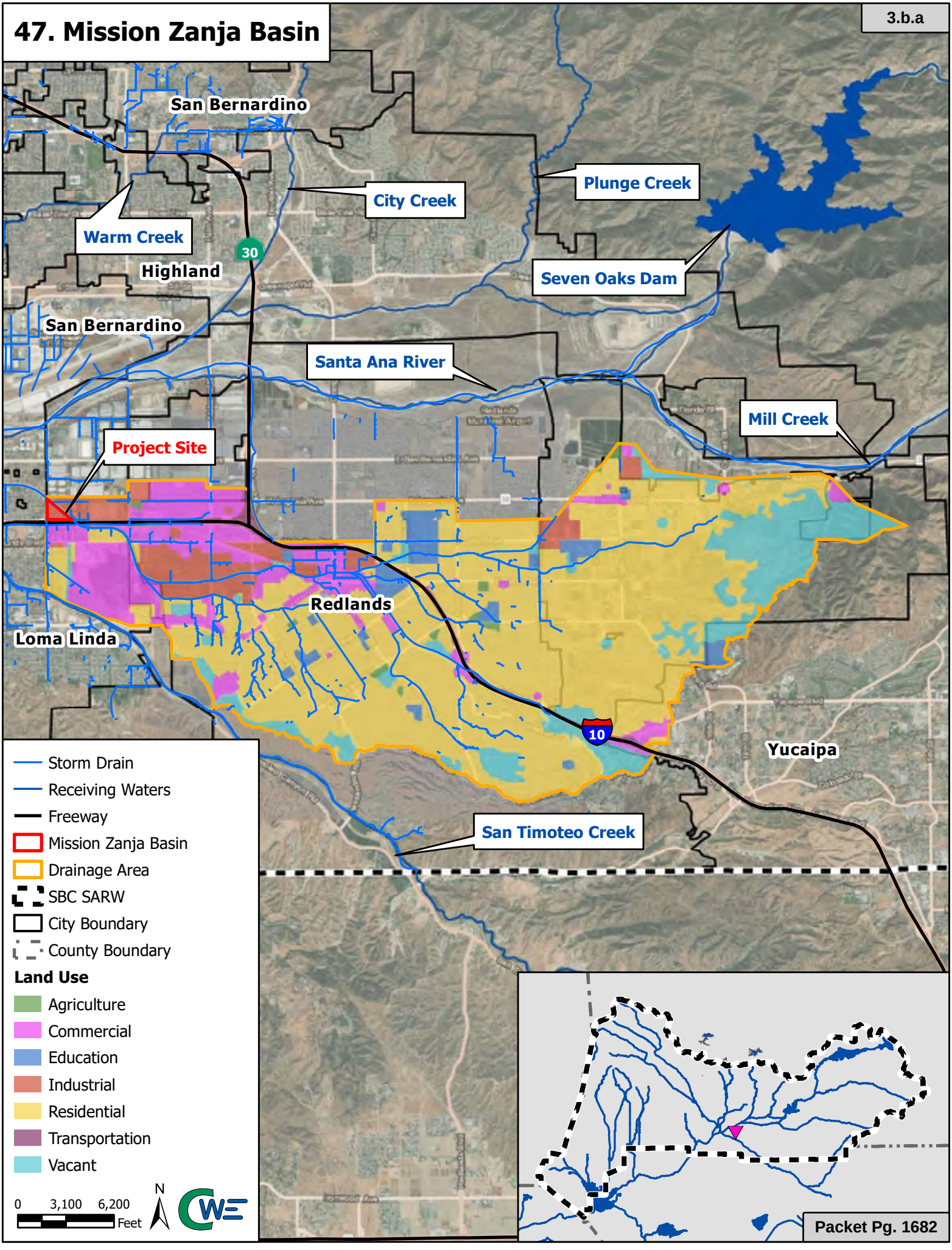
45. Streamflow Restoration on Plunge Creek



46. Spreading on Wooly Star Preserve Area

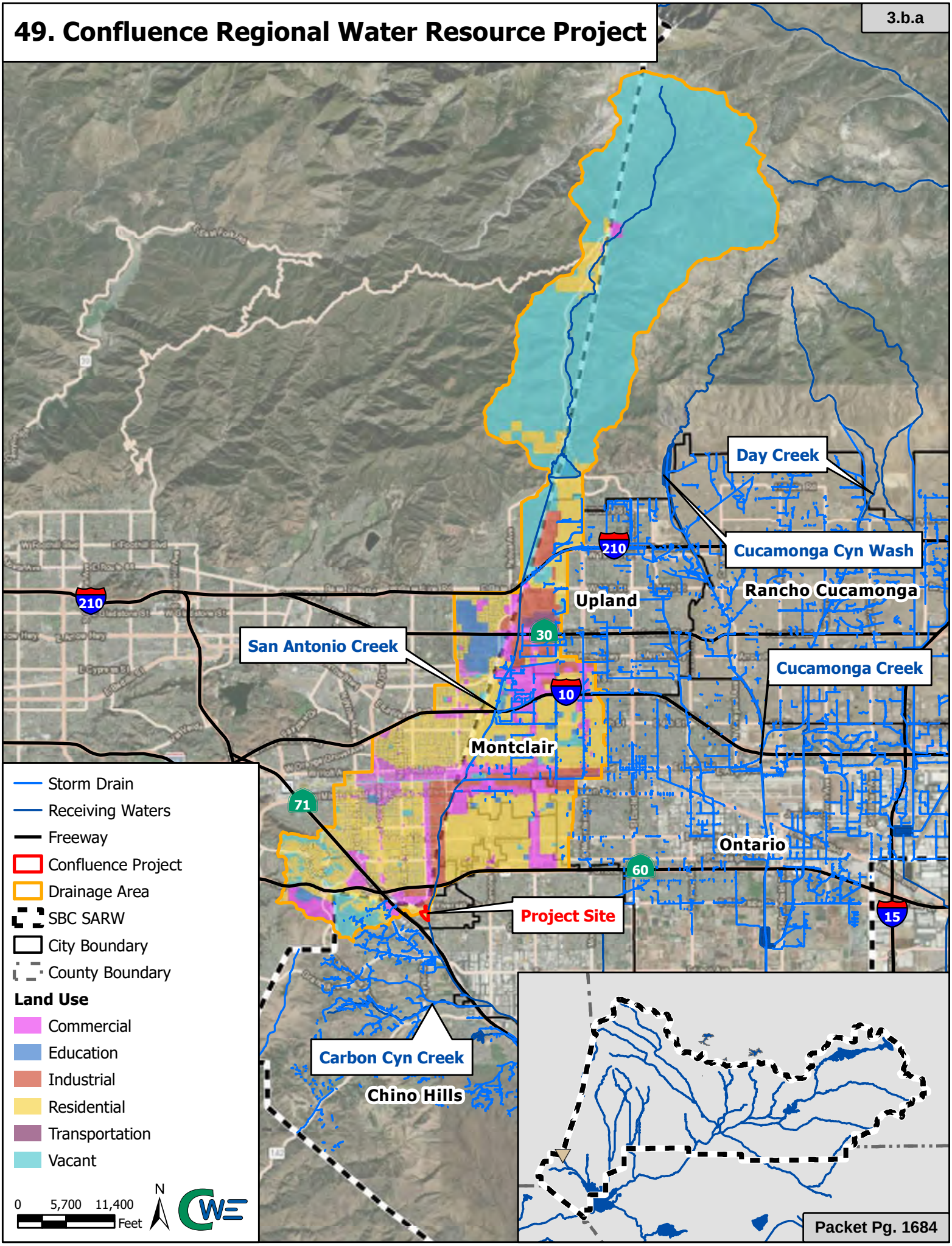


47. Mission Zanja Basin

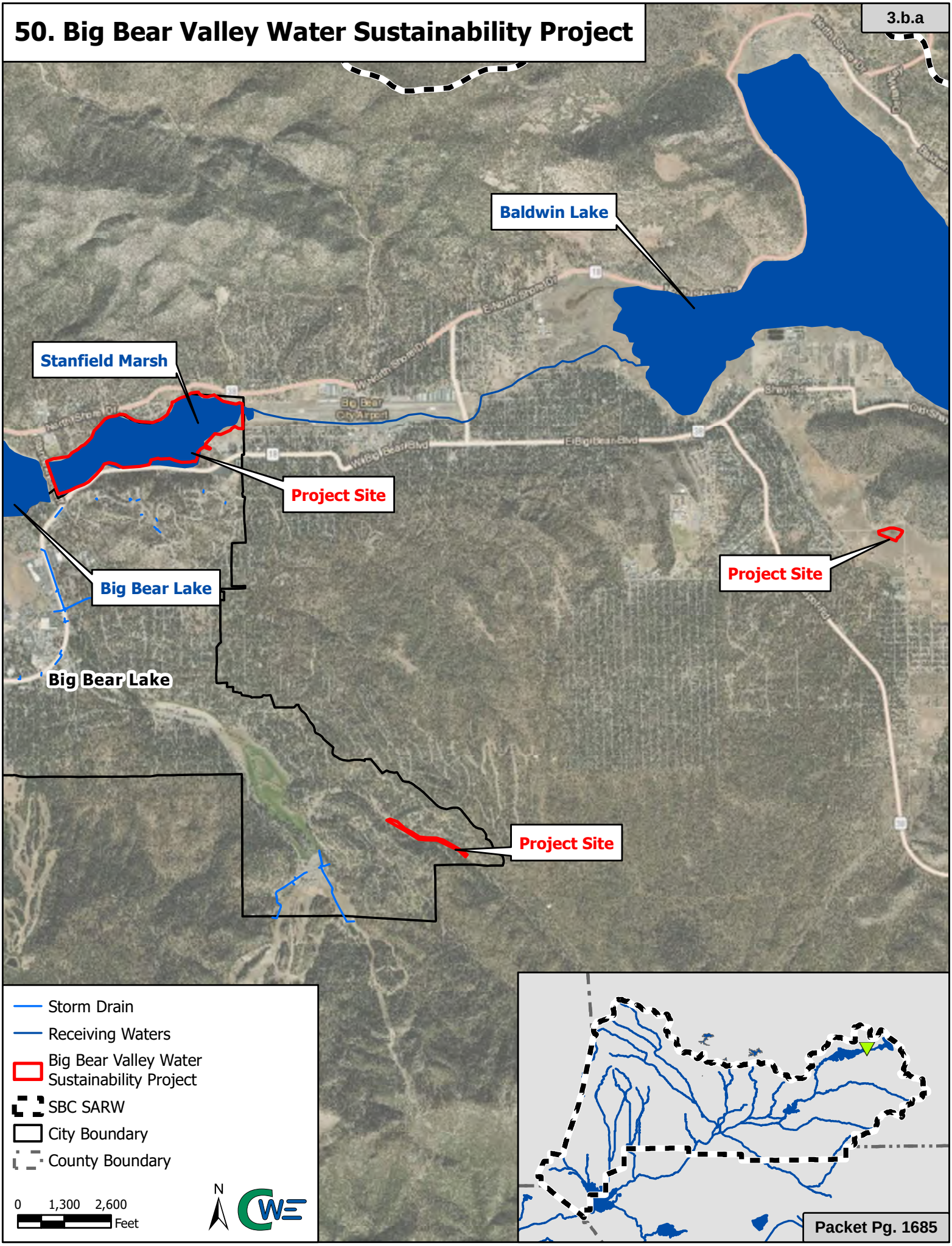


48. Riverside Corona Feeder

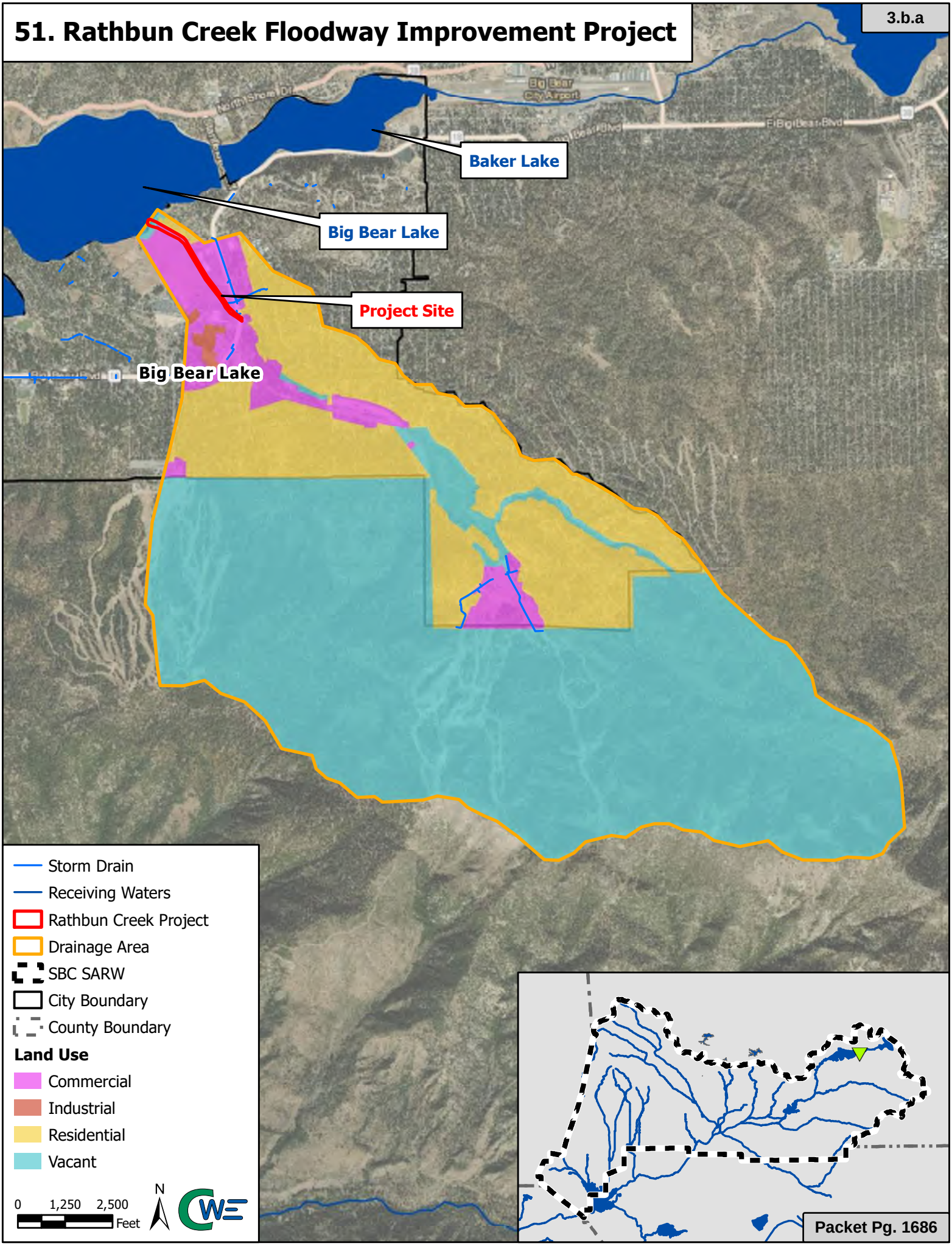
49. Confluence Regional Water Resource Project



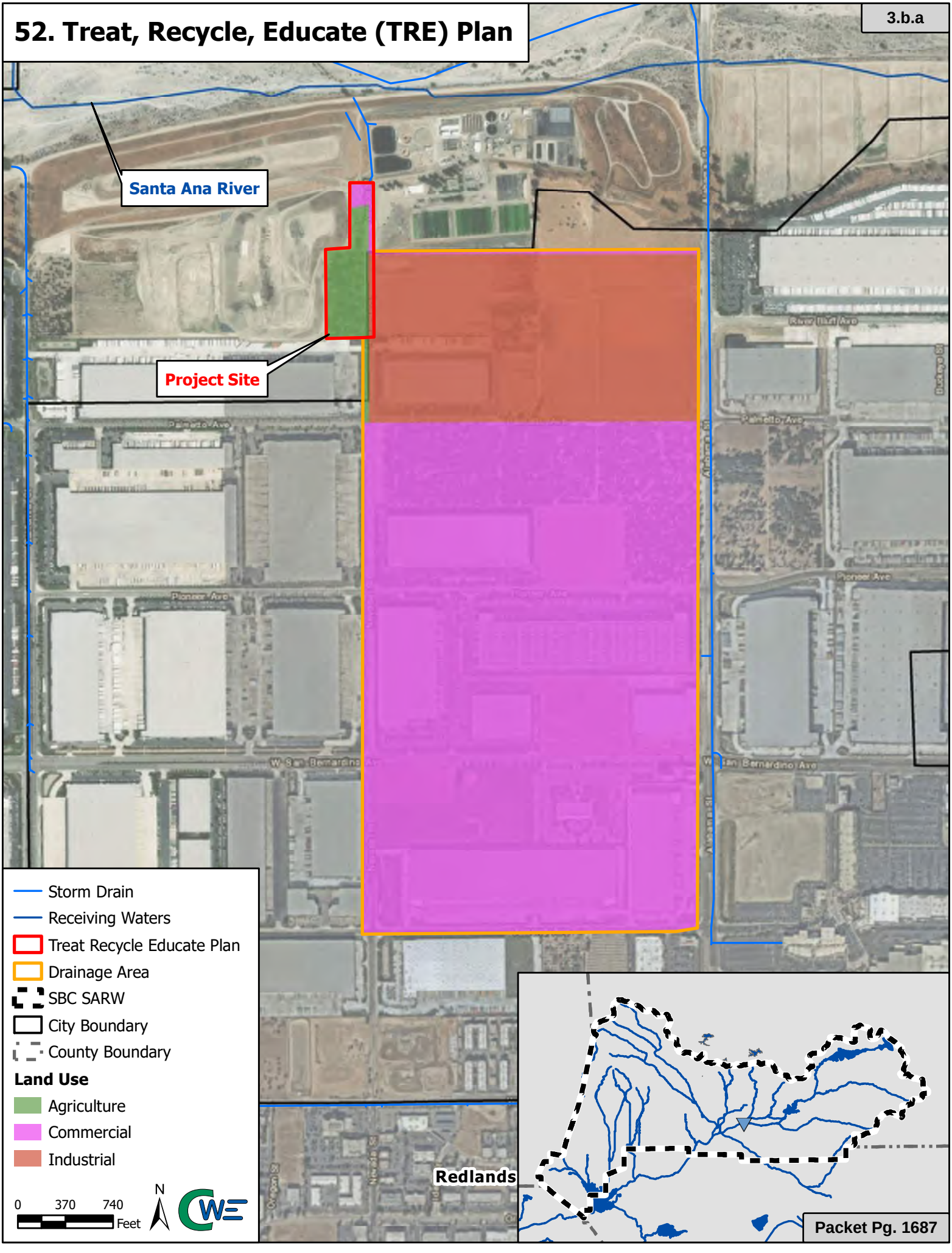
50. Big Bear Valley Water Sustainability Project



51. Rathbun Creek Floodway Improvement Project



52. Treat, Recycle, Educate (TRE) Plan



Attachment G

Project Selection and Metrics-Based Analysis

San Bernardino County
Santa Ana River Watershed
Storm Water Resource Plan

Project Selection and Metrics-Based Analysis

Project Number	Project	Lead Agency	Project Description	Water Quality Benefits	Pollutant Load Reduction	Stormwater Runoff Reduction	Water Supply Benefits	Stormwater Recharge	Recycled Water Recharge	Flood Management Benefits	Runoff Rate Reduction	Runoff Volume Reduction	Flood Elevation Reduction	Removal of Parcels/Structures from the 100-Year Floodplain	Property Value Saved	Environmental Benefits	Wetlands Enhancement/Creation	Riparian Area Enhancement	Streambed Restoration	Increased Urban Green Space	Community Benefits	Provide Employment Opportunities	Increase Public Education	Increase Community Involvement	Trails Enhancement/Creation	Public Use Areas Enhancement/Creation	Full Project Cost Estimate	SBCFCD has approved concept?
1	Hawker Crawford Channel Storm Drain	SBCFCD	Existing undersized trapezoidal channel cuts through a field and discharges into San Sevaine Basin No. 3, which has an infiltration rate of 0.5 feet per day. Proposed project will take flow into a box culvert sized to carry the 100-year flow rate (Q) and discharge into San Sevaine Basin No. 1, which has a higher infiltration rate (2.5 ft/day).	X	2.4E+12 MPN *E. coli*	12 afy	X	12 afy		X		12 afy		3 parcels	$1.8 million						X	67 job-years					**$6,231,000**	Y
2	West Fontana Channel - Hickory Basin to Banana Basin	SBCFCD	Existing undersized riprap-lined trapezoidal channel floods surrounding parcels during high return interval events. Proposed project will enlarge the channel to contain the 100-year storm event and add a bioswale to the north side that treats stormwater runoff from areas north of the channel.	X	1.3E+12 MPN *E. coli*	7.4 afy				X		7.4 afy	up to 4.76 ft	6 parcels	$0.2 million	X		0.75 ac		0.75 ac	X	108 job-years					**$10,000,000**	Y
3	Grove Basin Storm Drain	SBCFCD	Grove Basin has a gated outlet structure which is connected to a 66-inch Reinforced Concrete Pipe (RCP). This 66-inch RCP currently discharges onto Grove Avenue causing street flooding and the polluted discharge eventually reaches Prado Park Lake. Proposed project will reroute the flows to a 108-inch RCP going eastward along Chino Avenue and discharge to Lower Cucamonga Spreading Grounds.	X	3.8E+12 MPN *E. coli*	61 afy	X	61 afy		X	X	61 afy									X	108 job-years					**$10,000,000**	Y
4	Randall Basin Outlet and Colton Storm Drain Project 3-5	SBCFCD	Randall Basin is a flood control basin that currently can only discharge excess flows overland in an uncontrolled emergency spillway to Randall Avenue. Proposed project will allow Randall Basin to be managed as a recharge facility. Project will include control structure at basin outlet and a new storm drain to the Santa Ana River.	X	3.5E+12 MPN *E. coli*	57 afy	X	57 afy		X		180 afy									X	108 job-years					**$10,000,000**	Y
5	Cable Creek Basin (Upper)	SBCFCD	Currently uncontrolled and unregulated flows from Cable Creek discharge to the Cajon Wash. Proposed project will create a new basin on Cable Creek upstream of Little League Drive in north San Bernardino. The basin will capture sediment and polluted runoff. The project will also provide a water supply benefit to the Bunker Hill groundwater basin through groundwater recharge.	X	1.7E+14 MPN *E. coli*	859 afy	X	859 afy		X	X	859 afy									X	217 job-years					**$20,000,000**	Y
6.1	Warm Creek - Baseline Street to Sand Creek Confluence - Concept 1	SBCFCD	Warm Creek is an undersized earth-lined trapezoidal channel between Baseline Street and the improved confluence with Sand Creek. Warm Creek Concept 1 will increase the width of the channel, which will increase infiltration. The channel will be lined with riprap and velocity will be controlled by grouted riprap grade breaks. A trail is also proposed along a portion of the site, to be maintained by the Cities of San Bernardino and Highland.	X	1.4E+13 MPN *E. coli*	13.5 afy	X	13.5 afy		X		13.5 afy	up to 0.32 ft			X				2.42 ac	X	69 job-years			5,280 ft	2.42 ac.	**$6,350,000**	N
6.2	Warm Creek - Del Rosa Confluence to Sand Creek Confluence - Concept 2	SBCFCD	Warm Creek Concept 2 will improve water quality by adding a bioswale on each side of the channel at locations where it is feasible to capture runoff from intersecting storm drains. Walls will separate the bioretention facilities from the flood control channel, and the channel will be deep enough to contain the entire 100-year flood flow. The project will incorporate a trail to be maintained by the Cities of San Bernardino and Highland.	X	3.7E+13 MPN *E. coli*	44 afy				X			up to 2.00 ft	119 parcels	$36.6 million	X		2.08 ac		6.02 ac	X	284 job-years			8,580 ft	6.02 ac	**$26,126,325**	N
7.1	Little Sand Creek - Concept 1	SBCFCD	Little Sand Creek is a channel with a riprap bottom and rail-and-wire revetment with sheet metal backing on the sides. Concept 1 will improve water quality and flood control with the incorporation of a bioswale to capture and treat stormwater flows entering from the north side of the channel. The bioswale will be separated from the improved flood control channel by a concrete wall.	X	1.5E+12 MPN *E. coli*	9 afy				X			up to 3.08 ft			X		1.06 ac		1.06 ac	X	74 job-years					**$6,825,600**	N
7.2	Little Sand Creek - Concept 2	SBCFCD	Little Sand Creek Concept 2 will take advantage of publicly owned lands on the north side of the channel to improve water supply and water quality. A small basin will be constructed that will take diverted dry-weather runoff from Little Sand Creek for infiltration/groundwater recharge.	X	5.4E+13 MPN *E. coli*	116 afy	X	116 afy		X	0.7 cfs	116 afy									X	35 job-years					**$3,216,957**	N
8	Mission Channel - Santa Ana River to Tennessee Street	SBCFCD	Mission Channel is an undersized earth and riprap trapezoidal channel that bisects a disadvantaged community in eastern San Bernardino and western Redlands. Proposed project will benefit the community by adding a trail connecting the Santa Ana River Trail and the Orange Blossom Trail, while upgrading the channel to be capable of carrying the 100-year storm event. The channel will continue to be an earthen channel, and the increased width will increase the volume of infiltration.	X	1.3E+13 MPN *E. coli*	51 afy	X	51 afy		X	1.3 cfs	51 afy	X	X	X	X				3.08 ac	X	89 job-years			8,900 ft	3.08 ac	**$8,190,000**	N
9	Wilson Creek - 10th Street to Interstate 10	SBCFCD	Wilson Creek flows through west Yucaipa as a 60-foot wide channel with rail and wire revetment on the side slopes. The efficiency of infiltration from the earth-lined channel is less than optimal, as the channel is prone to scour and deposition, which alters the stream bed and constricts the spread of flows. The proposed project will improve infiltration efficiency, reduce scour, enchance the flood capacity, and improve the trail system along the channel.	X	8.8+12 MPN *E. coli*	19 afy	X	19 afy		X	0.4 cfs	19 afy	up to 8.80 ft	131 parcels	$30.8 million	X				3.47 ac	X	120 job-years			7,550 ft	3.47 ac	**$11,000,000**	N
10.1	Rialto Channel - Etiwanda to Willow - Concept 1	SBCFCD	Rialto Channel conveys urban runoff from the Cactus Basin complex in an undersized earth and rock-lined trapezoidal channel. The proposed project concept will widen the channel to allow for more infiltration while deepening the channel to provide additional flood capacity. The project will also provide community benefits to severely disadvantaged communities within the City of Rialto through the creation of a multi-use trail to connect with the popular Pacific Electric Trail.	X	2.5E+13 MPN *E.coli*	114 afy	X	114 afy		X	2.3 cfs	114 afy	X	X	X	X				7.16 ac	X	223 job-years			15,600 ft	7.16 ac	**$20,580,000**	N
10.2	Rialto Channel - Etiwanda to Willow - Concept 2	SBCFCD	Rialto Channel Concept 2 will widen and deepen Rialto Channel to provide flood protection for surrounding residents and businesses. The concept will increase infiltration in the upper portion through Armorflex blocks, while the lower portion will convey flood flows through a concrete lined rectangular channel. The project will include a multi-use trail, as described under Concept 1 above.	X	7.1E+12 MPN *E.coli*	33 afy	X	33 afy		X	0.6 cfs	33 afy	X	X	X	X				7.16 ac	X	142 job-years			15,600 ft	7.16 ac	**$13,098,000**	N
11	Cactus Basin #4 & 5	SBCFCD	Cactus Basin #4 and 5 will provide multiple benefits to disadvantaged communities in the City of Rialto and the Inland Empire. The project will provide a large increase in the volume of stormwater that can be captured for groundwater recharge. The project will enhance water quality by preventing bacteria from reaching downstream water bodies. The project will also protect thousands of structures from flooding.	X	3.7E+13 MPN *E. coli*	170 afy	X	170 afy		X	600 cfs	170 afy	up to 3.44 ft	1,504 parcels	$451 million						X	304 job-years					**$28,000,000**	Y
12	Plunge Creek Stream Bed Restoration and Elder Creek Channel Improvement	SBCFCD	The project, a continuation of San Bernardino Valley Water Conservation District's Plunge Creek restoration project, will rehabilitate the ecological function of the wash. The project will spread stormwater through braided channels to restore natural watershed processes, enhance groundwater recharge, and improve downstream water quality. The project will also improve Elder Gulch upstream of the confluence in a way that reduces sedimentation and protects surrounding areas from flooding.	X	1.6E+13 MPN *E.coli*	80 afy	X	80 afy		X	3.6 cfs	80 afy	X	X	X	X		25 ac	1,700 ft		X	81 job-years					**$7,477,000**	Y

San Bernardino County
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13	Wildwood Channel - Interstate 10 to Holmes Street	SBCFCD	Wildwood Channel conveys flow in an undersized channel lined with sand and gravel. The proposed project will widen the channel to increase infiltration capacity and flood protection, while providing grade breaks that reduce velocities. The project will also enhance the existing multi-use trails in this disadvantaged community.	X	1.8E+12 MPN *E. coli*	38 afy	X	38 afy		X	0.8 cfs	38 afy	X	X	X	X				6.49 ac	X	181 job-years			14,140 ft	6.49 ac	**$16,670,920**	**N**
14.1	Del Rosa Channel - Pacific Street to Del Rosa Avenue - Concept 1	SBCFCD	Del Rosa Channel is an undersized rectangular channel with a riprap-lined bottom and rail-and-wire revetment on the sides. The limited amount of public right-of-way reduces the opportunities for additional enhancements. Concept 1 will widen the channel from 20 feet to 30 feet and deepen it to handle flood flows. The composition of the channel bottom will remain porous for infiltration. A new culvert will be required across Pacific Avenue.	X	2.6E+12 MPN *E. coli*	12 afy	X	12 afy		X		12 afy	up to 5.43 ft	97 parcels	$26.7 million						X	86 job-years					**$7,878,445**	**N**
14.2	Del Rosa Channel - Pacific Street to Del Rosa Avenue - Concept 2	SBCFCD	Del Rosa Channel Concept 2 will only widen the channel without deepening it. The slopes will be protected with stairstepped rock gabion walls, eliminating the need for permanent concrete structures within the channel right-of-way. Flooding will be reduced, but the channel will not be capable of carrying the 100-year flood. The existing culvert at Pacific Avenue will remain in place.	X	1.1E+12 MPN *E. coli*	5 afy	X	5 afy		X		5 afy	up to 1.86 ft								X	32 job-years					**$2,930,297**	**N**
15	Etiwanda Channel Invert Repair and Trail Project	SBCFCD	Etiwanda Channel and San Sevaine Channel are two rectangular concrete channels laterally contiguous to one another separated by a channel wall. The channels are subject to scour issues. The proposed project will remove the wall between the channels, adress the scouring issues, and provide a trail improvement, benefiting the community as part of the San Sevaine Trail Phase I Segment 2 in the City of Fontana.							X			X			X				X	X	16 job-years	X		X	X	**$1,500,000**	**N**
16	West State Street Storm Drain Segment III and Brooks Basin Inlet Enhancement	SBCFCD	West State Street Storm Drain is an open channel that runs between West State Street and the Union Pacific Railroad in the Cities of Montclair and Ontario. The storm drain conveys runoff westward to San Antonio Creek Channel, while upstream of the Channel there is an inlet that diverts low flows into Brooks Basin. The project will enlarge the inlet and enhance the channel to provide flood protection and to capture, convey, and divert more stormwater to Brooks Basin for infiltration (groundwater recharge).	X	5.4E+12 MPN *E. coli*	117 afy	X	117 afy		X	10 cfs	117 afy	X	X	X						X	126 job-years					**$11,660,000**	**Y**
17	Carbon Canyon Creek Channel - Pipeline Avenue to Peyton Drive	SBCFCD	Carbon Canyon Creek Channel is a riprap lined undersized trapezoidal channel between Pipeline Avenue and Peyton Drive. The proposed project will widen the channel but maintain a soft bottom. This design will increase flood protection and provide additional opportunity for stormwater flows to infiltrate and recharge groundwater supplies.	X	3.2E+12 MPN *E. coli*	15 afy	X	15 afy		X	0.3 cfs	15 afy	X	X	X						X	228 job-years					**$21,000,000**	**N**
18	Santa Ana River Trail Phase III	SBC Parks	Santa Ana River Trail Phase III will extend the popular public use trail from its current endpoint at Waterman Avenue in San Bernardino to California Street in the City of Redlands. Stormwater improvements along the trail will be sized for the 100-year flood flow from future development conditions. The trail will provide public use areas and green space for disadvantaged communities.													X				9.18 ac	X	41 job-years			19,992 ft	9.18 ac	**$3,786,000**	**Y**
19	Santa Ana River Trail Phase IV	SBC Parks	Santa Ana River Trail Phase IV will complete the trail to Garnet Street in Mentone. The project will provide public use areas and enhance green space. The project will also feature interpretive signage as a public education component.													X				24.27 ac	X	109 job-years	7 signs		52,865 ft	24.27 ac	**$10,000,000**	**Y**
20	Lytle Creek Basin	SBVMWD	The proposed Lytle Creek Basin will be located in the City of Rialto east of Interstate 15, upstream of an existing CEMEX plant. The 60 acre site will have a wetted area of 48 acres and a storage volume of 460 acre-feet.	X	5.5E+14 MPN *E. coli*	4,023 afy	X	4,023 afy		X	X	4,023 afy									X	159 job-years					**$14,685,038**	**N**
21	Devil Canyon Basins	SBVMWD	The existing Devil Canyon Spreading Grounds diverts flow from Devil Creek during very high flow events. The proposed project would increase the capacity of the diversion through the construction of an inflatable armored dam across Devil Creek. Two new recharge cells will be constructed below the existing Basin No. 1, and the transfer structures between the existing basins would be improved. The site will have a wetted area of 35.9 acres and a total storage volume of 242 acre-feet.	X	3.7E+14 MPN *E. coli*	3,631 afy	X	3,631 afy		X	X	3,631 afy									X	258 job-years					**$23,768,911**	**N**
22	City Creek Basin	SBVMWD	The series of nine proposed basins that will be constructed for the City Creek Basin project will be located along over a mile of City Creek on both sides of the 210 Freeway in the City of Highland. The site will have a wetted area of 37.7 acres and a storage volume of 254 acre-feet, and it will be connected at the downstream end to the proposed Plunge Basin II project.	X	7.5E+14 MPN *E. coli*	5,247 afy	X	5,247 afy		X	X	5,247 afy									X	356 job-years					**$32,823,285**	**N**
23	Cable Creek Basin (Lower)	SBVMWD	This Cable Creek Basin project will be located just downstream of the proposed SBCFCD Cable Creek Basin project. Unlike the SBCFCD project, flow will be diverted into the lower Cable Creek Basin project from the main channel via an inflatable rubber dam. The 37.9 acres of wetted area will have a storage volume of 281 acre-feet over three separate basin cells.	X	4.1E+14 MPN *E. coli*	2,978 afy	X	2,978 afy		X	X	2,978 afy									X	266 job-years					**$24,520,683**	**N**
24	Lytle-Cajon Basins	SBVMWD	The Lytle-Cajon Basin project will be located just upstream of the Lytle-Cajon Radial Gate and spillway. The proposed project would result in the construction of eight in-channel recharge basins. In total the project would have a total wetted are of 43 acres and a storage volume of 244 acre-feet.	X	X	3,408 afy	X	3,408 afy		X	X	3,408 afy									X	115 job-years					**$10,668,323**	**N**
25	Mill Creek Inlet	SBVMWD	The Mill Creek Inlet project will improve the transfer of flow from Mill Creek into the existing series of percolation basins in the Mill Creek wash area. The capacity of the existing inlet will be increase from 110 cubic feet per second (cfs) to 210 cfs and will involve replacement of culverts underneath the existing flood control levee.	X	1.8E+14 MPN *E. coli*	887 afy	X	887 afy		X	100 cfs	887 afy									X	28 job-years					**$2,595,052**	**N**
26	Plunge Creek Basin I	SBVMWD	The Plunge Creek Basin I project will place a basin downstream of the SBVWCD and SBCFCD Plunge Creek Restoration Projects. The single cell basin will capture water from an inflatable rubber dam diversion across Plunge Creek. The project will have a total wetted area of 6 acres and a storage volume of 40 acre-feet.	X	3.5E+14 MPN *E. coli*	2,481 afy	X	2,481 afy		X	X	2,481 afy									X	118 job-years					**$10,900,345**	**N**

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27	Plunge Creek Basin II	SBVMWD	The Plunge Creek Basin II project will be located just upstream of the confluence of Plunge Creek and City Creek. The basin will receive flows from an inflatable dam placed across Plunge Creek. The project will have a total wetted area of 10.7 acres and a storage volume of 66 acre-feet.	X	X	1,050 afy	X	1,050 afy		X	X	1,050 afy									X	139 job-years					**$12,808,867**	N
28	Twin Creek Spreading Grounds	SBVMWD	The existing Twin Creek Spreading Grounds are flow-through basins located within Twin Creek north of Lynwood Drive in the City of San Bernardino. Exising basins within the spreading grounds were originally built to attenuate flows, but over the years the basin walls have been eroded or purposely breached, so flows currently pass through unobstructed. The proposed project will reconstruct and armor the basin walls, constructing one new cell, and providing new transfer structures between the basin cells.	X	5.9E+14 MPN *E. coli*	4,087 afy	X	4,087 afy		X	X	4,087 afy									X	181 job-years					**$16,677,990**	N
29	Vulcan 2 Basin	SBVMWD	The Vulcan 2 Basin project will improve groundwater recharge in a new basin located near the severely disadvantaged community of Muscoy. The basin will divert flow from the Devil Creek Diversion Channel through an inflatable dam. The total wetted area will be 35.2 acres and the storage volume will be 383 acre-feet.	X	X	3,441 afy	X	3,441 afy		X	X	3,441 afy									X	339 job-years					**$31,221,404**	N
30	Waterman Basins	SBVMWD	The Waterman Basins project will improve the existing diversion structure at the Waterman Basins northeast of Waterman Avenue and 40th Street in the City of San Bernardino. The improvements will refurbish two existing radial gate systems and provide two new gates for a maximum diversion capacity of 1,000 cfs. Upon completion, Waterman Basins will attain a total wetted area of 31.5 acres and a storage volume of 180 acre-feet.	X	X	1,675 afy	X	1,675 afy		X	X	1,675 afy									X	110 job-years					**$10,207,218**	N
31	Wineville Recycled Pipeline Project	IEUA	The Wineville Recycled Pipeline Project will make changes to three basins. The project will include upgrading Wineville Basin to be capable of infiltration by adding a gate to the outlet and improving the dam. Detained stormwater will be pumped to Jurupa Basin via a new pump and conveyance pipeline. Stormwater will then be pumped from Jurupa Basin through existing lines to the RP3 Basins, which will be enlarged and improved to accept more stormwater and recycled water.	X	1.4E+14 MPN *E. coli*	3,166 afy	X	3,166 afy	3,535 afy	X	X	3,166 afy									X	231 job-years					**$21,300,000**	N
32	San Sevaine Basins	IEUA	Recharge in San Sevaine Basin will be increased by recycling water through a new pump and conveyance pipeline from the Basin No. 5, which has a low infiltration rate, to Basin No. 3, which has a higher infiltration rate. A new berm will also be constructed within Basin No. 5.	X	9.1E+13 MPN *E. coli*	642 afy	X	642 afy	1,911 afy	X		642 afy									X	38 job-years					**$3,550,000**	N
33	Lower Day Basin	IEUA	The improvements proposed as part of the Lower Day Basin project include the construction of a secondary diversion structure within the channel to more efficiently divert flows into the basin. Within the basin, capacity will be increased by removing a mid-level outlet and reconstructing an embankment.	X	1.0E+13 MPN *E. coli*	75 afy	X	75 afy		X		75 afy									X	26 job-years					**$2,480,000**	N
34	Declez Basin	IEUA	Declez Basin will be improved by reconstructing the existing embankment and spillway at a higher elevation to increase storage. Additionally, a gate will be installed on an existing outlet, improving the ability of IEUA to manage the basin as a recharge facility. The improvements will recharge an average of 241 acre-feet of stormwater to the groundwater basin annually.	X	1.1E+13 MPN *E. coli*	241 afy	X	241 afy		X		241 afy									X	44 job-years					**$4,070,000**	N
35	Victoria Basin	IEUA	The proposed Victoria Basin project will improve the recharge and flood control capabilities of the existing Victoria Basin by abandoning the mid-level outlet that allows flows to the San Sevaine Channel. By blocking the outlet and extending the existing lysimeter stations, the capacity of the basin for recharge will be increased, as the basin will be able to hold a greater volume of water.	X	6.1E+12 MPN *E. coli*	43 afy	X	43 afy	120 afy	X		43 afy									X	1 job-years					**$150,000**	N
36	Turner Basin	IEUA	The existing spillway at Turner 2 Basin was built long before upstream development in the City of Rancho Cucamonga required larger stormwater basins at the confluence of Cucamonga Channel and Deer Creek Channel, and it is one of the last remaining pieces of the Turner Basin complex that has yet to be replaced. A new spillway at a higher elevation will allow IEUA to store additional stormwater volume within the basin complex, which will produce an additional annual recharge volume of 66 acre-feet.	X	2.2E+13 MPN *E. coli*	66 afy	X	66 afy		X		66 afy									X	9 job-years					**$890,000**	N
37	Ely Basins	IEUA	The Ely Basin improvements include excavating 470,000 cubic yards of material from within the existing footprint of the basins. IEUA estimated that the increase in the capacity of the basin would yield an average of 221 acre-feet of additional stormwater recharge per year.	X	4.8E+13 MPN *E. coli*	221 afy	X	221 afy		X		221 afy									X	34 job-years					**$3,200,000**	N
38	Montclair Basins	IEUA	The proposed project at Montclair Basin will add one drop inlet structure from Basin 1 to Basin 2, and one drop inlet structure from Basin 2 to Basin 3. The project will allow for better management of groundwater recharge in the basins, and the efficiencies attained will yield an average of 248 acre-feet of additional recharge per year.	X	3.5E+13 MPN *E. coli*	248 afy	X	248 afy		X		248 afy									X	15 job-years					**$1,440,000**	N
39	Montclair - Arrow Highway	City of Montclair	This project will reduce the current four lane major arterial street to a two lane road, allowing for a median that will capture runoff from the street, treat it, and infiltrate it back into the ground.	X	X	X	X	X		X	X	X									X	X					**X**	N
40	Montclair - Fremont Avenue	City of Montclair	This project will reduce the current four lane arterial street to a two lane road, allowing for a median that will capture runoff from the street, treat it, and infiltrate it back into the ground.	X	X	X	X	X		X	X	X									X	X					**X**	N
41	Montclair - Sunset Park	CBWCD / Montclair	This project will develop a walking and biking enviromental trail that incorporates a water feature moving nusance water from Orchard Street from the north end to the south end where it will infiltrate into the ground.	X	X	X	X	X		X	X	X				X				X	X	X	X		X	X	**X**	N

San Bernardino County
Santa Ana River Watershed
Storm Water Resource Plan

Project Selection and Metrics-Based Analysis

Project Number	Project	Lead Agency	Project Description	Water Quality Benefits	Pollutant Load Reduction	Stormwater Runoff Reduction	Water Supply Benefits	Stormwater Recharge	Recycled Water Recharge	Flood Management Benefits	Runoff Rate Reduction	Runoff Volume Reduction	Flood Elevation Reduction	Removal of Parcels/Structures from the 100-Year Floodplain	Property Value Saved	Environmental Benefits	Wetlands Enhancement/Creation	Riparian Area Enhancement	Streambed Restoration	Increased Urban Green Space	Community Benefits	Provide Employment Opportunities	Increase Public Education	Increase Community Involvement	Trails Enhancement/Creation	Public Use Areas Enhancement/Creation	Full Project Cost Estimate	SBCFCD has approved concept?
42	Urban Walkable Watersheds	CBWCD	The Urban Walkable Watersheds project will feature a community walking trail that provides connectivity by water infrastructure projects while actively capturing and infiltrating runoff through green infrastructure demonstration projects. An emphasis will be placed on increasing public education and community involvement through educational programs involving nearby public schools.	X	X	X	X	X		X	X	X				X				X	X	X	X	X	X	X	X	N
43	Multipurpose Recharge Basins	CBWCD	The Multipurpose Recharge Basins project proposed by CBWCD will reconceptualize the role of urban recharge basin by integrating native plant restoration and passive recreation with interpretation on perimeters of existing basins. The project will increase areas for public education and recreation while continuing basin recharge.													X		X		X	X	X				X	X	N
44	College Heights and Upland Percolation Basins	CBWCD	The improvements proposed to the College Heights and Upland Percolation Basins will include water quality features to improve urban runoff, flood mitigation, streetscape, passive recreation, and education.													X				X	X	X				X	X	N
45	Streamflow Restoration on Plunge Creek	SBVWCD	The Steamflow Restoration on Plunge Creek project will continue the enhancement of the SBVWCD Plunge Creek Conservation Project by an additional half mile. The additional stream enhancements will converge water onto Plunge Creek or onto Orange Street lessening chances of backflow during high flow events.	X	X	X	X	X		X	X	X				X		X	X		X	X					X	N
46	Spreading on Woolly Star Preserve Area	SBVWCD	The Spreading on Wooly Star Preserve Area (WSPA) will spread Santa Ana River water on the WSPA during events of high flow through the installation of new gates and pipes. Stormwater infiltration will occur in historical remnant channels to better mimic pre-development processes, and this will enhance riparian habitat.	X	X	X	X	X		X	X	X				X		X	X		X	X					X	N
47	Mission/Zanja Basin	SBVWCD	The Mission/Zanja Groundwater Recharge Basin project will place a groundwater rechange basin in vacant lands along the Mission Zanja, reducing stormwater runoff and increase groundwater recharge. Seven possible locations have been identified with the smallest being 65,000 square feet with a recharge rate of 10 feet per day. 15 acre-feet per day could recharge at a flow rate of 7.5 cfs.	X	X	X	X	X		X	7.5 cfs	X										X	X					X	N
48	Riverside Corona Feeder	WMWD	Connect SWP feeder to Riverside; recharge Riverside County basins																		X	X					X	N
49	Confluence Regional Water Resources Project	CBWCD	The Confluence Regional Water Resources Project will construct a new groundwater recharge and storage reservoir at the confluence of Chino Creek and San Antonio Creek. Pumps will send excess stormwater to upstream CBWCD-managed basins to enhance recharge opportunities. The project will also include an artificial habitat and bioremediation channel as an educational and wetland habitat feature.	X	3.1E+13 MPN *E. coli*	1,830 afy	X	1,830 afy		X		1,830 afy				X	2.03 ac	2.03 ac	627 ft	2.03 ac	X	217 job-years	X	X		2.03 ac	$20,000,000	Y
50	Big Bear Valley Water Sustainability Project	City of Big Bear Lake	Big Bear Valley wastewater currently is treated and sent outside of the SARW to irrigate crops in Lucerne Valley. The Big Bear Valley Water Sustainability Project will upgrade the WWTP and reuse tertiary treated wastewater locally to recharge local groundwater, provide critical habitat for endangered species, and stabilize the water level at Big Bear Lake.	X	X		X		1,950 afy							X	145 ac	145 ac			X	478 job-years		X			$44,000,000	N
51	Rathbun Creek Floodway Improvement Project	City of Big Bear Lake	The Rathbun Creek Floodway Improvement Project will increase the size of three culverts to be able to convey the 100-year discharge without flooding nearby properties. The project will also enhance the natural streambed downstream of Big Bear Boulevard and enhance riparian habitat. A multiuse trail facility will also be constructed along the banks to extend Rathbun Trail all the way to Big Bear Lake.							X			up to 3.44 ft	1,504 parcels	$451 million	X	1.50 ac	2.04 ac	2,218 ft	3.54 ac	X	65 job-years	1 sign	X	3,500 ft	3.54 ac	$6,000,000	N
52	Treat, Recycle, Educate (TRE) Plan	City of Redlands	The TRE Plan consists of several green street improvements combined with a new 0.8-acre stormwater basin near the existing WWTP in the City of Redlands. The area will include a new educational park featuring interpretive signage describing the LID BMPs that will be included in the park and on Nevada Street. The park's vegetation will recycled water from the WWTP.	X	X	X	X	X	X	X	X	X				X				1.20 ac	X	22 job-years	6 signs	X	1,920 ft	0.40 ac	$2,000,000	N
53	Los Serranos Park	City of Chino Hills	The Los Serranos Park project will create a new community park in the City of Chino Hills. The design will include green infrastructure and habitat enhancement and protection.	X	X	X										X		X		X	X	43 job-years			X	X	$4,000,000	N
54	Restoration and Enhancement of Creeks	City of Chino Hills	This project will improve the ecosystem and protect valuable riparian habitat through a creek rehabilitation and streambed restoration project. The project will also provide public walking trails and educational opportunities.	X	X	X										X		X	X	X	X	8 job-years	X		X	X	$750,000	N

Units: ac = acre
afy = acre-feet per year
cfs = cubic feet per second
ft = feet
MPN = Most Probable Number

Notes: CBWCD = Chino Basin Water Conservation District
IEUA = Inland Empire Utilities Agency
SBC = San Bernardino County
SBCFCD = San Bernardino County Flood Control District
SBVMWD = San Bernardino Valley Municipal Water District
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Attachment H

Project Prioritization Results

San Bernardino County
Santa Ana River Watershed
Storm Water Resource Plan

Results of Project Prioritization

Project Number	Project	Lead Agency	Concept Approved, or Project Ready?	Code: Project Readiness	Full Project Cost	Code: Cost Estimate	Have Benefits Been Quantified?	Code: Quantification	Number of Benefit Categories	Code: Benefit Categories	Water Supply Unit Cost ($/afy)	Code: Water Supply Cost	Water Quality Unit Cost ($/billion MPN)	Code: Water Quality Cost	Ranking Code	Ranked Order
49	Confluence Regional Water Resources Project	CBWCD	Y	1	$20,000,000	1	Y	1	5	1	$10,929	3	$643	4	111134	1
12	Plunge Creek Stream Bed Restoration and Elder Creek Channel Improvement	SBCFCD	Y	1	$7,477,000	1	Y	1	5	1	$93,463	4	$467	3	111143	2
5	Cable Creek Basin (Upper)	SBCFCD	Y	1	$20,000,000	1	Y	1	4	2	$23,283	3	$118	3	111233	3
16	West State Street Storm Drain Segment III and Brooks Basin Inlet Enhancement	SBCFCD	Y	1	$11,660,000	1	Y	1	4	2	$99,658	4	$2,159	6	111246	4
11	Cactus Basin #4 & 5	SBCFCD	Y	1	$28,000,000	1	Y	1	4	2	$164,706	5	$757	4	111254	5
3	Grove Basin Storm Drain	SBCFCD	Y	1	$10,000,000	1	Y	1	4	2	$163,934	5	$2,632	6	111256	6
4	Randall Basin Outlet and Colton Storm Drain Project 3-5	SBCFCD	Y	1	$10,000,000	1	Y	1	4	2	$175,439	5	$2,857	6	111256	6
1	Hawker Crawford Channel Storm Drain	SBCFCD	Y	1	$6,231,000	1	Y	1	4	2	$519,250	7	$2,596	6	111276	8
2	West Fontana Channel - Hickory Basin to Banana Basin	SBCFCD	Y	1	$10,000,000	1	Y	1	4	2		9	$7,692	7	111297	9
19	Santa Ana River Trail Phase IV	SBC Parks	Y	1	$10,000,000	1	Y	1	2	4		9		9	111499	10
18	Santa Ana River Trail Phase III	SBC Parks	Y	1	$3,786,000	1	Y	1	2	4		9		9	111499	10
10.1	Rialto Channel - Etiwanda to Willow - Concept 1	SBCFCD	N	2	$20,580,000	1	Y	1	5	1	$180,526	5	$823	4	211154	12
8	Mission Channel - Santa Ana River to Tennessee Street	SBCFCD	N	2	$8,190,000	1	Y	1	5	1	$160,588	5	$630	4	211154	12
6.1	Warm Creek - Baseline Street to Sand Creek Confluence - Concept 1	SBCFCD	N	2	$6,350,000	1	Y	1	5	1	$470,370	6	$454	3	211163	14
10.2	Rialto Channel - Etiwanda to Willow - Concept 2	SBCFCD	N	2	$13,098,000	1	Y	1	5	1	$396,909	6	$1,845	5	211165	15
13	Wildwood Channel - Interstate 10 to Holmes Street	SBCFCD	N	2	$16,670,920	1	Y	1	5	1	$438,708	6	$9,262	7	211167	16
9	Wilson Creek - 10th Street to Interstate 10	SBCFCD	N	2	$11,000,000	1	Y	1	5	1	$578,947	7	$1,250	5	211175	17
52	Treat, Recycle, Educate (TRE) Plan	City of Redlands	N	2	$2,000,000	1	Y	1	5	1		9		9	211199	18
28	Twin Creek Spreading Grounds	SBVMWD	N	2	$16,677,990	1	Y	1	4	2	$4,081	1	$28	1	211211	19

San Bernardino County
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20	Lytle Creek Basin	SBVMWD	N	2	$14,685,038	1	Y	1	4	2	$3,650	1	$27	1	211211	19
26	Plunge Creek Basin I	SBVMWD	N	2	$10,900,345	1	Y	1	4	2	$4,394	1	$31	1	211211	19
32	San Sevaine Basins	IEUA	N	2	$3,550,000	1	Y	1	4	2	$1,391	1	$39	1	211211	19
25	Mill Creek Inlet	SBVMWD	N	2	$2,595,052	1	Y	1	4	2	$2,926	1	$14	1	211211	19
35	Victoria Basin	IEUA	N	2	$150,000	1	Y	1	4	2	$920	1	$25	1	211211	19
31	Wineville Recycled Pipeline Project	IEUA	N	2	$21,300,000	1	Y	1	4	2	$3,179	1	$152	3	211213	25
24	Lytle-Cajon Basins	SBVMWD	N	2	$10,668,323	1	Y	1	4	2	$3,130	1		9	211219	26
22	City Creek Basin	SBVMWD	N	2	$32,823,285	1	Y	1	4	2	$6,256	2	$44	1	211221	27
38	Montclair Basins	IEUA	N	2	$1,440,000	1	Y	1	4	2	$5,806	2	$41	1	211221	27
23	Cable Creek Basin (Lower)	SBVMWD	N	2	$24,520,683	1	Y	1	4	2	$8,234	2	$60	2	211222	29
21	Devil Canyon Basins	SBVMWD	N	2	$23,768,911	1	Y	1	4	2	$6,546	2	$64	2	211222	29
29	Vulcan 2 Basin	SBVMWD	N	2	$31,221,404	1	Y	1	4	2	$9,073	2		9	211229	31
30	Waterman Basins	SBVMWD	N	2	$10,207,218	1	Y	1	4	2	$6,094	2		9	211229	31
36	Turner Basin	IEUA	N	2	$890,000	1	Y	1	4	2	$13,485	3	$40	1	211231	33
7.2	Little Sand Creek - Concept 2	SBCFCD	N	2	$3,216,957	1	Y	1	4	2	$27,732	3	$60	2	211232	34
37	Ely Basins	IEUA	N	2	$3,200,000	1	Y	1	4	2	$14,480	3	$67	2	211232	34
34	Declez Basin	IEUA	N	2	$4,070,000	1	Y	1	4	2	$16,888	3	$370	3	211233	36
33	Lower Day Basin	IEUA	N	2	$2,480,000	1	Y	1	4	2	$33,067	3	$248	3	211233	36
50	Big Bear Valley Water Sustainability Project	City of Big Bear Lake	N	2	$44,000,000	1	Y	1	4	2	$22,564	3		9	211239	38

San Bernardino County
Santa Ana River Watershed
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Results of Project Prioritization

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27	Plunge Creek Basin II	SBVMWD	N	2	$12,808,867	1	Y	1	4	2	$12,199	3		9	211239	38
14.1	Del Rosa Channel - Pacific Street to Del Rosa Avenue - Concept 1	SBCFCD	N	2	$7,878,445	1	Y	1	4	2	$656,537	7	$3,030	6	211276	40
14.2	Del Rosa Channel - Pacific Street to Del Rosa Avenue - Concept 2	SBCFCD	N	2	$2,930,297	1	Y	1	4	2	$586,059	7	$2,664	6	211276	40
17	Carbon Canyon Creek Channel - Pipeline Avenue to Peyton Drive	SBCFCD	N	2	$21,000,000	1	Y	1	4	2	$1,400,000	8	$6,563	7	211287	42
6.2	Warm Creek - Del Rosa Confluence to Sand Creek Confluence - Concept 2	SBCFCD	N	2	$26,126,325	1	Y	1	4	2		9	$706	4	211294	43
7.1	Little Sand Creek - Concept 1	SBCFCD	N	2	$6,825,600	1	Y	1	4	2		9	$4,550	6	211296	44
51	Rathbun Creek Floodway Improvement Project	City of Big Bear Lake	N	2	$6,000,000	1	Y	1	3	3		9		9	211399	45
53	Los Serranos Park	City of Chino Hills	N	2	$4,000,000	1	N	2	3	3		9		9	212399	46
15	Etiwanda Channel Invert Repair and Trail Project	SBCFCD	N	2	$1,500,000	1	N	2	3	3		9		9	212399	46
54	Restoration and Enhancement of Creeks	City of Chino Hills	N	2	$750,000	1	N	2	3	3		9		9	212399	46
41	Montclair - Sunset Park	CBWCD / Montclair	N	2	X	2	N	2	5	1		9		9	222199	49
42	Urban Walkable Watersheds	CBWCD	N	2	X	2	N	2	5	1		9		9	222199	49
45	Streamflow Restoration on Plunge Creek	SBVWCD	N	2	X	2	N	2	5	1		9		9	222199	49
46	Spreading on Woolly Star Preserve Area	SBVWCD	N	2	X	2	N	2	5	1		9		9	222199	49
39	Montclair - Arrow Highway	City of Montclair	N	2	X	2	N	2	4	2		9		9	222299	53
40	Montclair - Fremont Avenue	City of Montclair	N	2	X	2	N	2	4	2		9		9	222299	53
47	Mission/Zanja Basin	SBVWCD	N	2	X	2	N	2	4	2		9		9	222299	53
43	Multipurpose Recharge Basins	CBWCD	N	2	X	2	N	2	2	4		9		9	222499	56
44	College Heights and Upland Percolation Basins	CBWCD	N	2	X	2	N	2	2	4		9		9	222499	56

San Bernardino County
Santa Ana River Watershed
Storm Water Resource Plan

Results of Project Prioritization

Project Number	Project	Lead Agency	Concept Approved, or Project Ready?	Code: Project Readiness	Full Project Cost	Code: Cost Estimate	Have Benefits Been Quantified?	Code: Quantification	Number of Benefit Categories	Code: Benefit Categories	Water Supply Unit Cost ($/afy)	Code: Water Supply Cost	Water Quality Unit Cost ($/billion MPN)	Code: Water Quality Cost	Ranking Code	Ranked Order
48	Riverside Corona Feeder	WMWD	N	2	X	2	N	2	1	5		9		9	222599	58

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ft = feet
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IEUA = Inland Empire Utilities Agency
SBC = San Bernardino County
SBCFCD = San Bernardino County Flood Control District
SBVMWD = San Bernardino Valley Municipal Water District
WMWD = Western Municipal Water District

Codes:

Project readiness ----------
1 = approved or ready
2 = not approved or ready

Cost Estimate ----------
1 = cost estimate provided
2 = no cost estimate provided

Quantification ----------
1 = benefits have been quantified
2 = benefits have not been quantified

Benefit Categories ----------
1 = project provides benefits across 5 categories
2 = project provides benefits across 4 categories
3 = project provides benefits across 3 categories
4 = project provides benefits across 2 categories
5 = project provides benefits in one category

Water Supply Cost ----------
1 = unit cost of groundwater recharge is less than $5,000 per acre-foot per year
2 = unit cost of groundwater recharge is between $5,000 and $10,000 per acre-foot per year
3 = unit cost of groundwater recharge is between $10,000 and $50,000 per acre-foot per year
4 = unit cost of groundwater recharge is between $50,000 and $100,000 per acre-foot per year
5 = unit cost of groundwater recharge is between $100,000 and $200,000 per acre-foot per year
6 = unit cost of groundwater recharge is between $200,000 and $500,000 per acre-foot per year
7 = unit cost of groundwater recharge is between $500,000 and $1,000,000 per acre-foot per year
8 = unit cost of groundwater recharge is greater than $1,000,000 per acre-foot per year
9 = project provides no benefit to groundwater recharge, or benefits are unquantified

Water Quality Cost ----------
1 = unit cost of water quality improvement is less than $50 per billion *E. coli* bacteria removed
2 = unit cost of water quality improvement is between $50 and $100 per billion *E. coli* bacteria removed
3 = unit cost of water quality improvement is between $100 and $500 per billion *E. coli* bacteria removed
4 = unit cost of water quality improvement is between $500 and $1,000 per billion *E. coli* bacteria removed
5 = unit cost of water quality improvement is between $1,000 and $2,000 per billion *E. coli* bacteria removed
6 = unit cost of water quality improvement is between $2,000 and $5,000 per billion *E. coli* bacteria removed
7 = unit cost of water quality improvement is between $5,000 and $10,000 per billion *E. coli* bacteria removed
8 = unit cost of water quality improvement is greater than $10,000 per billion *E. coli* bacteria removed
9 = project provides no water quality benefit, or benefits are unquantified

Attachment I

Funding Matrix

Summary of Potential Funding Sources for SWRP Projects

Summary of Potential Funding Sources for SWRP Projects

Funding Agency	Program	Timeline	Purpose	Eligible Uses	Funding Limits	Contact Information	Link
Grants							
California Climate Investments	Urban Greening Program	Round 2 Solicitation now closed. Schedule for future solicitations unknown	Funding of projects that reduce greenhouse gases by sequestering carbon, decreasing energy consumption and reducing vehicle miles traveled, while also transforming the built environment into places that are more sustainable, enjoyable, and effective in creating healthy and vibrant communities	➢ Establishment, enhancement, and expansion of neighborhood parks and community spaces ➢ Greening of public lands and structures, which may include incorporation of riparian habitat for water capture ➢ Green streets and alleyways ➢ Non-motorizes urban trails ➢ Urban heat island mitigation	None	California Natural Resources Agency (916) 653-2812 urbangreening@resources.ca.gov	UGP
California Department of Parks and Recreation	Habitat Conservation Fund	Continuous; application must be submitted by first work day of October	Protecting, restoring, and enhancing wildlife habitat and fisheries	➢ Enhancement or restoration of wetlands ➢ Enhancement or restoration of riparian habitat	No minimum or maximum amounts (2,000,000 total available each year) Requires 50% match	Barbara Baker Habitat Conservation Fund Program (916) 6511-7743 Barbara.Baker@parks.ca.gov	HCF
California Department of Parks and Recreation	Land and Water Conservation Fund (LWCF)	Continuous Next cycle in 2020	To provide for the health, inspiration, and education of the people of California by helping to preserve the State's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation	➢ Acquisition and development projects to create outdoor recreational resources	$3,000,000 maximum	Luan Aubin (916) 651-8573 Luan.Aubin@parks.ca.gov Richard Rendon (916) 651-7600 richard.rendon@parks.ca.gov	LWCF
California Department of Parks and Recreation	Outdoor Environmental Educational Facilities	Schedule for future solicitations unknown	To provide for the health, inspiration, and education of the people of California by helping to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation	➢ Development of public outdoor structures and exhibits that facilitate focused learning ➢ Focused learning must take place in a natural outdoor setting, with native vegetation ➢ Learning must encompass the natural environment, and inspire environmental stewardship and an appreciation of the natural world ➢ Learning must include an understanding of how humans interact with, and are dependent on, natural ecosystems ➢ Structures and exhibits may provide outdoor education on their own (such as signs, kiosks, nature trails), or facilitate providing outdoor education (such as campfire centers, amphitheaters, group campgrounds)	Up to $500,000; Match funds optional (5/100 possible points with applicant paying all non-construction costs	Luan Aubin (916) 651-8573 Luan.Aubin@parks.ca.gov	OEEF

Summary of Potential Funding Sources for SWRP Projects

Funding Agency	Program	Timeline	Purpose	Eligible Uses	Funding Limits	Contact Information	Link
California Department of Parks and Recreation	Recreational Trails Program	Schedule for future solicitations are unknown at this time (anticipated 2019)	Provides funds annually for recreational trails and trails-related projects	➢ Provides funds annually for recreational trails and trails-related projects	12% minimum match requirement	Luan Aubin San Bernardino Project Officer Office of Grants and Local Services State of California Department of Parks and Recreation Luan.Aubin@parks.ca.gov (916) 651-8573	RTP
California Department of Parks and Recreation	Statewide Park Program (Proposition 68)	Final application guide to be published by January 2019; applications due Summer 2019	Creates new parks and new recreation opportunities in critically underserved communities across California	➢ Development of a new park ➢ Expansion of an existing park ➢ Renovation of an existing park ➢ Acquisition of land to develop a park ➢ Each project must create or renovate at least one recreation feature (dog parks, athletic fields, trails, etc.)	$200,000 to $8,500,000; no match requirement	Luan Aubin San Bernardino Project Officer Office of Grants and Local Services State of California Department of Parks and Recreation Luan.Aubin@parks.ca.gov (916) 651-8573	SPP
California Department of Water Resources	Local Levee Assistance Program	Continuous (Last cycle: 2014-2016)	Provide financial assistance to local public agencies responsible for flood management outside the Sacramento-San Joaquin Delta	➢ Fund repair of local flood control facilities critically damaged by erosion, levees with unstable slopes, and other unstable facilities ➢ Geotechnical exploration of existing local levees and evaluation of the data for stability, seepage, and underseepage deficiencies	Not stated	Patrick Luzuriaga Chief, Local Assistance Section A Division of Flood Management (916) 574-0932 Patrick.Luzuriaga@waterboard.ca.gov	LLAP
California Department of Water Resources	Flood Control Subventions Program	Schedule for future solicitations are unknown at this time	Provide financial assistance to local agencies cooperating in the construction of federally authorized flood control projects	➢ Funds major flood control projects ➢ Funds small flood control projects ➢ Watershed protection projects	Cost share ranging between 50% and 70%	Patrick Luzuriaga Chief, Local Assistance Section A Division of Flood Management (916) 574-0932 Patrick.Luzuriaga@waterboard.ca.gov	FCSP
California Department of Water Resources	Flood Corridor Program	Schedule for future solicitations are unknown at this time	Provide funding for primarily nonstructural flood management solutions	➢ Wildlife habitat enhancement ➢ Agricultural land preservation	No funding left in program at this time	Patrick Luzuriaga Chief, Local Assistance Section A Division of Flood Management (916) 574-0932 Patrick.Luzuriaga@waterboard.ca.gov	FCP
California Department of Water Resources	Integrated Regional Water Management (IRWM) Grant (Proposition 1)	Applicant must have been involved in IRWM planning process (collaboration may be required); Round 1 Grant Applications Due to DWR anticipated April 2019	To encourage integrated regional strategies for management of water resources and to provide funding for implementation projects that support integrated water management	➢ Water supply reliability, water conservation, and water use efficiency ➢ Stormwater capture, storage, clean-up, treatment, and management ➢ Non-point source pollution reduction, management, and monitoring ➢ Groundwater recharge and management projects ➢ Contaminant and salt removal through reclamation, desalting, and other treatment technologies and conveyance of reclaimed water for distribution to users	Minimum 50% cost share	Zaffar Eusuff (916) 651-9266 Muzaffar.eusuff@water.ca.gov Ted Daum (916) 651-9264 Theodore.Daum@water.ca.gov	IRWM

Summary of Potential Funding Sources for SWRP Projects

Funding Agency	Program	Timeline	Purpose	Eligible Uses	Funding Limits	Contact Information	Link
California Department of Water Resources	Urban Streams Restoration Program	Continuous, Draft guidelines anticipated in Spring 2019	To reduce flooding and erosion and associated property damage; restore, enhance or protect the natural ecological values of streams; and promote community involvement, education and stewardship	➢ Projects that restore environmental and recreational benefits to streams previously channelized for flood control are eligible ➢ Projects that include removing the concrete and re-establishing the natural stream meander and floodplain topography ➢ Flood management, erosion control, or environmental restoration are the main objective, but may include some trail work	$1000-$1,000,000; no match requirement	Stefan Lorenzato Program Manager (916) 651-9617 Stefan.Lorenzato@water.ca.gov Marc Commandatore (916) 651-9630	USRP USRP Grants
California Department of Water Resources	Water-Energy Grant Program	Continuous, schedule for solicitation unknown at this time	To implement water efficiency programs or projects that reduce greenhouse gas emissions, and reduce water and energy use	➢ Commercial or institutional water-energy efficiency programs or projects ➢ Residential water-energy efficiency programs or projects benefiting Disadvantaged Communities (DACs) ➢ Proposal must demonstrate that it will directly reduce GHG emissions and also reduce water and energy use	$3,000,000	(916) 651-9613 DWR_IRWM@water.ca.gov Matt Botill (Branch Chief, CA Climate Investments) (916) 324-0934 Matthew.Botill@arb.ca.gov	WEGP
California Natural Resources Agency	Environmental Enhancement and Mitigation Program	Next solicitation in April 2019	Funding projects to mitigate, either directly or indirectly, the environmental impacts of the modification of an existing transportation facility or the environmental impacts of the construction of a new transportation facility	➢ Urban forestry to offset vehicular emissions of carbon dioxide ➢ Resource lands for acquisition or enhancement of resource lands ➢ Mitigation Projects Beyond the Scope of the Lead Agency	Maximum $1,000,000 for acquisitions, $500,000 for development projects	California Natural Resources Agency (916) 653-2812 eemcoordinator@resources.ca.gov Carol Carter carol.carter@resources.ca.gov	EEMP
California Natural Resources Agency	California River Parkways Grant Program (Proposition 68)	Continuous; Concept Proposals August 15, 2018 – September 27, 2018	To protect and manage the State's natural, historical, and cultural resources	➢ Funding for projects that involve natural creeks, streams, and/or rivers. Projects must meet at least two of the following five statutory objectives: ▪ Recreation- provide compatible recreational opportunities, including trails for strolling, hiking, bicycling, and equestrian uses along rivers and streams ▪ Habitat- protect, improve, or restore riverine or riparian habitat, including benefits to wildlife habitat and water quality ▪ Flood management- maintain or restore the open space character of lands along rivers and streams so that they are compatible with periodic flooding as part of a flood management plan or project ▪ Conversion to river parkways- convert existing developed riverfront land into uses consistent with river parkways ▪ Conservation and interpretive enhancement- provide facilities to support or interpret river or stream restoration or other conservation activities	No minimum or maximum grant amounts	(916) 653-2812 urban.rivers@resources.ca.gov	CURGP CURGP

Summary of Potential Funding Sources for SWRP Projects

Funding Agency	Program	Timeline	Purpose	Eligible Uses	Funding Limits	Contact Information	Link
California State Coastal Conservancy	Proposition 1	Continuous; RFP in Winter 2018-2019 Applications due Spring 2019	To work proactively with local communities to implement multi-benefit projects that protect and enhance coastal resources	➢ Implement watershed adaptation projects in order to reduce the impacts of climate change on communities and ecosystems ➢ Restore river parkways throughout the state, including but not limited to projects pursuant to the California River Parkways Act of 2004 and urban river greenways ➢ Protect and restore rural and urban watershed health to improve watershed storage capacity, forest health, protection of life and property, storm water resource management, and greenhouse gas reduction ➢ Protect and restore coastal watersheds including but not limited to, bays, marine estuaries, and near shore ecosystems ➢ Reduce pollution or contamination of rivers, lakes, streams, or coastal waters, prevent and remediate mercury contamination from legacy mines, and protect or restore natural system functions that contribute to water supply, water quality, or flood management ➢ Assist in the recovery of endangered, threatened, or migratory species by improving watershed health, instream flows, fish passage, coastal or inland wetland restoration, or other means, such as natural community conservation plan and habitat conservation plan implementation	No minimum or maximum amount	Mary Small mary.small@scc.ca.gov (510) 285-4181	CSCC Prop 1
California State Water Resources Control Board (SWRCB)	Cleanup and Abatement Account (CAA)	Continuous; schedule for solicitation unknown at this time	To provide public agencies with grants for the cleanup or abatement of a condition of pollution when there are no viable responsible parties available to undertake the work	➢ Emergency Cleanup Projects – Public Safety ➢ Projects that address Disadvantaged Communities Environmental Justice infrastructure needs ➢ Cleanup and/or abatement of 2006-listed water bodies that will help to implement a Total Maximum Daily Load (TMDL) ➢ Cleanup and/or abatement of non-point source legacy pollutants (i.e. stormwater) when the source(s) of the pollution have been mitigated ➢ Cleanup and/or abatement of pollution in high-use groundwater basins ➢ Cleanup and/or abatement of contaminated sites when the viable responsible party has not been identified ➢ Projects that promote habitat restoration through non-profit organizations that collaborate with the Regional Water Boards and encourage public outreach and education ➢ Completion of a study/plan and/or monitoring addressing significant Statewide water quality problems	Division of Financial Assistance allows requests for up to $250,000 Projects more than $250,000 will require approval from the SWRCB.	Kim Hanagan Senior WRCE (916) 323-0624	CAA
California State Water Resources Control Board (SWRCB)	Orphan Site Cleanup Fund (OSCF)	Continuous	Provides financial assistance to eligible applicants for the cleanup of sites contaminated by leaking petroleum underground storage tanks (USTs) where there is no financially responsible party, and the applicant is not an eligible claimant to the UST Cleanup Fund	➢ Assessment: preliminary site assessment and soil and water investigation and the preparation of a corrective action plan in accordance with California Code of Regulations, Title 23, Chapter 16, Article 11 ➢ Cleanup: Provide funding for response actions that carry out cleanup activities and include implementing a corrective action plan and verification monitoring, in accordance with California Code of Regulations, Title 23, Chapter 16, Article 11	Maximum $1,000,000	Lola Barba Manager (916) 341-5009 lola.barba@waterboards.ca.gov	OSCF

Summary of Potential Funding Sources for SWRP Projects

Funding Agency	Program	Timeline	Purpose	Eligible Uses	Funding Limits	Contact Information	Link
California State Water Resources Control Board (SWRCB)	Multi-benefit Stormwater Management Projects	Solicitation of Round 2 grants for implementation begins mid 2019	Improve regional water self-reliance, security and adapt to the effects on water supply arising from climate change	➢ Multi-benefit storm water management projects which may include, but shall not be limited to, green infrastructure, rainwater and storm water capture projects and storm water treatment facilities	$250,000 to $10,000,000 from Prop 1 Grants Requiring 50% match	Daman Badyal Damanvir.Badyal@waterboards.ca.gov (916) 319-9436	SWGP
California State Water Resources Control Board (SWRCB)	Site Cleanup Subaccount Program (SCAP)	Continuous Pre-Application process – no deadlines	To issue grants for projects that remediate the harm or threat of harm to human health, safety, or the environment caused by existing or threatened surface water or groundwater contamination	➢ Remediate the harm or threat of harm to human health, safety, and the environment from surface water or groundwater contamination ➢ Human-made contaminants ➢ A regulatory agency has issued a directive (unless this is infeasible) ➢ Responsible party lacks financial resources ➢ Projects may include site characterization, source identification, or implementation of cleanup	No limits or match requirements	gwquality.funding@waterboards.ca.gov Subject Line: SCAP Phone: (800) 813-FUND (3863) Diane Barclay diane.barclay@waterboards.ca.gov (916) 341-5797	SCAP
California State Water Resources Control Board (SWRCB)	Small Community Wastewater Program - Small Community Grant Fund	Continuous; Project must be submitted to project list for CWSRF (Clean Water State Revolving Fund) financing	To preserve, enhance, and restore the quality of California's water resources and drinking water for the protection of the environment, public health, and all beneficial uses, and to ensure proper water resource allocation and efficient use, for the benefit of present and future generations	➢ Planning, design, construction, of publicly-owned wastewater conveyance, treatment, and disposal facilities ➢ Wastewater planning: feasibility/engineering studies, environmental studies, rate studies	Up to $8,000,000, 75% share	Jennifer Toney Senior Water Resource Control Engineer Division of Financial Assistance Small Community Wastewater Unit (916) 319-8246 Wennilyn Fua wennilyn.fua@waterboards.ca.gov (916) 322-1026	SCWP
California State Water Resources Control Board (SWRCB)	Sustainable Groundwater Planning (SGWP) Grant Program - Prop 1	Schedule for future solicitations are unknown at this time	To encourage sustainable management of groundwater resources that support the Sustainable Groundwater Management Act (SGMA); This PSP is making a total of approximately $86.3 million available, with at least $10 million made available to projects that serve Severely Disadvantaged Communities (SDACs)	➢ Category 1 projects serve Severely Disadvantaged Communities (SDACs) and Category 2 projects are related to the development of Groundwater Sustainability Plans (GSPs) for critically over drafted basins and high/medium priority basins ➢ Category 1 and Category 2 projects must address a DWR Bulletin 118 (2016) basin or a non-adjudicated portion of a basin that are designated by DWR as high or medium priority basins ➢ Category 2 projects located in basins determined to be probationary under SGMA by SWRCB or projects identified in an Alternative Plan are not eligible	Up to $1,000,000; 50% share	Zaffar Eusuff Muzaffar.Eusuff@water.ca.gov (916) 651-9266	SGWP

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Funding Agency	Program	Timeline	Purpose	Eligible Uses	Funding Limits	Contact Information	Link
California State Water Resources Control Board (SWRCB)	Urban Storage Tank Cleanup Fund (USTCF)	Continuous; schedule for solicitation unknown at this time	To contribute to the protection of California's public health, and water quality through (1) establishing an alternative mechanism to meet Financial Responsibility requirements for owners and operators of petroleum USTs, and (2) reimbursing eligible corrective action costs incurred in the cleanup of contamination resulting from the unauthorized release of petroleum from USTs	➢ Projects that abate emergency situations or cleanup abandoned sites that pose a threat to human health, safety, and the environment, as a result of a UST petroleum release	Up to $14,000,000 (small business)	State Water Resources Control Board Division of Financial Assistance Underground Storage Tank Cleanup Fund P.O. Box 944212 Sacramento, CA 94244-2120 (800) 813-FUND	USTCF
California State Water Resources Control Board (SWRCB)	Water Recycling Fund Program	Continuous	To assist agencies or regions with completing planning studies for water recycling projects using treated municipal wastewater and/or treated groundwater from sources contaminated by human activities	➢ Groundwater Recharge Facilities (when associated with protection of groundwater quality) that demonstrate multiple benefits by using recycled water to improve groundwater quality and supply, and/or provide public health benefits from improved water quality and supply	Planning: Maximum $75,000, 50% share Construction: Maximum $15,000,000, 35% share	Michael Downey Senior Water Resources Control Engineer (916) 324-8404 Michael.Downey@waterboards.ca.gov	WRFP
California Transportation Commission (CTC)	Active Transportation Program	Continuous; Cycle 4 applications were due July 31, 2018	To encourage increased use of active modes of transportation, such as biking and walking	➢ Infrastructure Projects: Capital improvements that will further the goals of this program. This typically includes the environmental, design, right-of-way, and construction phases of a capital (facilities) project ➢ Plans: The development of a community wide bicycle, pedestrian, safe routes to school, or active transportation plan in a disadvantaged community ➢ Non-infrastructure (NI) Projects: Education, encouragement, and enforcement activities that further the goals of the ATP	No limits; match requirements vary by source of ATP funding, whether from federal or state sources. See guidelines for details.	Laurie Waters Laurie.Waters@dot.ca.gov (916) 651-6145	ATP ATP Guide

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Funding Agency	Program	Timeline	Purpose	Eligible Uses	Funding Limits	Contact Information	Link
Federal Emergency Management Agency	Flood Mitigation Assistance (FMA) Program	Application cycle October 1, 2018 to January 31, 2019	Reducing or eliminating claims under the National Flood Insurance Program (NFIP). Funds provided for projects and planning to reduce or eliminate long-term risk of flood damage to structures insured under the NFIP.	➢ Floodwater storage and diversion ➢ Stormwater management ➢ Wetland restoration/creation ➢ Localized flood control to protect critical facility ➢ Floodplain and stream restoration	Up to $100,000 for community flood mitigation advance assistance Up to $10,000,000 for community flood mitigation projects $100,000 per Applicant for mitigation planning with a maximum of $50,000 for state plans and $25,000 for local plans	FEMA Department of Homeland Security 500 C Street, S.W. Washington, DC 20472	FMA
Federal Emergency Management Agency	Hazard Mitigation Grant Program (HMGP)	Continuous; schedule for solicitation unknown at this time	To help communities implement hazard mitigation measures following a Presidential Major Disaster Declaration in the areas of the state, tribe, or territory requested by the Governor or Tribal Executive.	➢ Mitigating flood and drought conditions – aquifer storage and recovery ➢ Floodplain and stream restoration ➢ Flood diversion and storage ➢ Green infrastructure methods	Up to 75% of project	FEMA Department of Homeland Security 500 C Street, S.W. Washington, DC 20472 Jennifer L. Hogan California Governor's Office of Emergency Services 3650 Shriever Avenue Mather, CA 95655 (916) 845-8205 jennifer.hogan@caloes.ca.gov	HMGP HMGP
Federal Emergency Management Agency	Pre-Disaster Mitigation (PDM) Grant Program	Continuous; application cycle October 1, 2018 to January 31, 2019	To reduce overall risk to the population and structures from future hazard events, while also reducing reliance on Federal funding in future disasters.	➢ CRMA and pre- or post-wildfire mitigation activities or any mitigation action that utilizes green infrastructure approaches ➢ Projects to reduce risk to structures or infrastructure from erosion and landslides, including installing geotextiles, stabilizing sod, installing vegetative buffer strips, preserving mature vegetation, decreasing slope angles, and stabilizing with rip rap and other means of slope anchoring ➢ FEMA encourages mitigation projects that fall into the Miscellaneous/Other category to address climate change adaptation and resiliency ➢ Mitigation projects must adapt to new challenges posed by more powerful storms, frequent heavy precipitation, heat waves, prolonged droughts, extreme flooding, higher sea levels, and other weather events	Up to 75% of project, 90% if small, impoverished community or tribe	FEMA Department of Homeland Security 500 C Street, S.W. Washington, DC 20472	PDM PDM
Federal Transit Administration (FTA)	Enhanced Mobility of Seniors and Individuals with Disabilities	Continuous; schedule for solicitation unknown at this time	To improve mobility for seniors and individuals with disabilities by removing barriers to transportation service and expanding transportation mobility options	➢ Building an accessible path to a bus stop, including curb-cuts, sidewalks, accessible pedestrian signals or other accessible features ➢ Mobility management programs	Administration/ planning: 100% Capital costs: 80% Operating assistance costs: 50%	Office of Program Management Federal Transit Administration 1200 New Jersey Avenue, S.E. Washington, DC 20590 (202) 366-2053	EMSID EMSID

Summary of Potential Funding Sources for SWRP Projects

Funding Agency	Program	Timeline	Purpose	Eligible Uses	Funding Limits	Contact Information	Link
Federal Transit Administration (FTA)	Flexible Funding Program: Congestion Mitigation & Air Quality Program (CMAQ)	Continuous	To provide a flexible funding source to State and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act. Funding is available to reduce congestion and improve air quality for areas that do not meet the National Ambient Air Quality Standards for ozone, carbon monoxide, or particulate matter (nonattainment areas) and for former nonattainment areas that are now in compliance (maintenance areas)	➢ Funds may be used for a transportation project or program that is likely to contribute to the attainment or maintenance of a national ambient air quality standard, with a high level of effectiveness in reducing air pollution, and that is included in the metropolitan planning organization's (MPO's) current transportation plan and transportation improvement program (TIP) or the current state transportation improvement program (STIP) in areas without an MPO ➢ Project must: must be a transportation project, must generate an emissions reduction and must be located in or benefit a nonattainment or maintenance area	80% Federal share, 100% for special projects	Mark Glaze mark.glaze@dot.gov	CMAQ
Federal Transit Administration (FTA)	Flexible Funding Program: Surface Transportation Block Grant (STBG)	Continuous	To preserve and improve the conditions and performance on any Federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects, including intercity bus terminals	➢ Recreational trails projects, pedestrian and bicycle projects ➢ Environmental restoration and pollution abatement to minimize or mitigate impacts of any transportation project funded under this title (including retrofitting and construction of stormwater treatment systems to meet Federal and State requirements under sections 401 and 402 of the Federal Water Pollution Control Act ➢ Establishment of plants selected by State and local transportation authorities to perform one or more of the following functions: abatement of stormwater runoff, stabilization of soil, and aesthetic enhancement	Up to 80% Federal share,	David Bartz Office of Program Administration (512) 536-5906 david.bartz@dot.gov	STBG FHWA STBG FTA
Federal Transit Administration (FTA)	Pilot Program for Transit-Oriented Development Planning	Continuous; last cycle 2016	To improve economic development and ridership, foster multimodal connectivity and accessibility, improve transit access for pedestrian and bicycle traffic, engage the private sector, identify infrastructure needs, and enable mixed-use development near transit stations	➢ Enhance economic development and ridership ➢ Facilitate multimodal connectivity and accessibility ➢ Increase non-motorized access to transit hubs ➢ Enable mixed-use development ➢ Identify infrastructure needs associated with the transit project ➢ Include private sector participation	$250,000 - $2,000,000, Maximum Federal share 80%	Ben Owen FTA Office of Planning and Environment (202) 366-5602 benjamin.owen@dot.gov	PPTODP

Summary of Potential Funding Sources for SWRP Projects

Funding Agency	Program	Timeline	Purpose	Eligible Uses	Funding Limits	Contact Information	Link
Federal Transit Administration (FTA)	Urbanized Area Formula Grant	Continuous	FTA apportions Urbanized Area Formula Program funds to urbanized areas (UZAs) and to states for public transportation capital projects, operating assistance, job access and reverse commute projects, and for transportation-related planning	➢ Planning, engineering, design and evaluation of transit projects and other technical transportation-related studies ➢ Capital investments in bus and bus-related activities such as replacement of buses, overhaul of buses, rebuilding of buses, crime prevention and security equipment and construction of maintenance and passenger facilities ➢ Capital investments in new and existing fixed guideway systems including rolling stock, overhaul and rebuilding of vehicles, track, signals, communications, and computer hardware and software ➢ Provide access for bicycles to public transportation facilities ➢ Provide shelters and parking facilities for bicycles in or around public transportation facilities	80% Federal share, 90% if project involves vehicle-related equipment costs attributable to compliance with the Americans with Disabilities Act (ADA) and Clean Air Act 50% for Operating Assistance costs Funds are available the year appropriated plus five years	Office of Program Management Federal Transit Administration 1200 New Jersey Avenue, S.E. Washington, DC 20590 United States (202) 366-2053	UAFG
National Endowment for the Arts	Our Town Grant	Schedule for future solicitations are unknown at this time	To support creative place making projects that help to transform communities into lively, beautiful, and resilient places with the arts at their core	➢ Design projects that demonstrate artistic excellence while supporting the development of places where creative activities occur, or where the identity of place is created or reinforced ➢ Design of public spaces, e.g., parks, plazas, landscapes, neighborhoods, districts, infrastructure, bridges, and artist-produced elements of streetscapes ➢ Design of cultural facilities – new or adaptive reuse	$25,000-$200,000 in matching grants for Arts Engagement, Cultural Planning, and Design Projects $25,000-$100,000 in Matching Grants for Projects that Build Knowledge About Creative Placemaking	NEA Staff OT@arts.gov	NEA
National Fish and Wildlife Foundation	Environmental Solutions for Communities Grant Program	Applicant must be a nonprofit organization (collaboration required); schedule for future solicitations are unknown at this time	To promote sustainable communities by supporting projects that link economic development and community well-being to the stewardship and health of the environment	➢ Demonstration projects that showcase innovative, cost-effective and environmentally-friendly approaches to improve environmental conditions within urban communities by 'greening' traditional infrastructure and public projects such as stormwater management and flood control and renovations to public facilities ➢ Projects that provide measurable and meaningful conservation/environmental outcomes	$25,000-$100,000	Sarah McIntosh Coordinator sarah.mcintosh@nfwf.org (202) 595-2434 Carrie Clingan Program Director, Community Stewardship and Youth (202) 595-2471 carrie.clingan@nfwf.org	NFWF

Summary of Potential Funding Sources for SWRP Projects

Funding Agency	Program	Timeline	Purpose	Eligible Uses	Funding Limits	Contact Information	Link
National Fish and Wildlife Foundation	Five Star & Urban Waters Restoration Grant Program	Annual; 2019 proposals due January 31, 2019	To develop community capacity to sustain local natural resources for future generations by providing modest financial assistance to diverse local partnerships focused on improving water quality, watersheds and the species and habitats they support.	➢ Restore and/or create wetlands, coastal or riparian areas ➢ Integrate meaningful outreach, education and/or training into the proposed on-the-ground activities that advance local watershed and conservation goals ➢ Involve five or more partners (public and private entities) including the applicant ➢ Result in specific, measurable ecological, educational and community benefits ➢ Include a plan for maintenance and care of the project beyond the grant period	$20,000 to $50,000 is a typical range: minimum 1:1 non-federal match	Danny Bowater (All Geographies) Coordinator, Community-Based Conservation (202) 595-2434 Daniel.Bowater@nfwf.org Easy Grants Helpdesk Easygrants@nfwf.org Voicemail: (202) 595-2497 Hours: M-F 9am-5pm ET Include: Name, Proposal ID#, email, phone number, program applied and issue	FSUWR
Ocean Protection Council	Proposition 1	Solicitation anticipated in July 2019	To preserve, protect, and restore the resources of the California coast	➢ Reduce pollution and contaminants, including nutrients, toxics, and contaminants of emerging concern from sources including stormwater, non-point discharges, agricultural runoff, etc. ➢ Prevent land-based litter from reaching the ocean and becoming marine debris ➢ Remove micro-plastics and microfibers from agricultural runoff and stormwater	Minimum $250,000	Marina Cazorla, Program Manager OPC_Prop1grants@resources.ca.gov	OPC Prop 1 OPC Prop 1
People For Bikes	Community Grant Program	1-2 cycles per year, Fall 2018 grant cycle closed to new applications October 2019 for 2019 grant schedule	To provide funding for important and influential projects that leverage federal funding and build momentum for bicycling in communities across the U.S	➢ Bike paths, lanes, trails, and bridges ➢ Mountain bike facilities ➢ Bike parks and pump tracks ➢ BMX facilities ➢ End-of-trip facilities such as bike racks, bike parking, bike repair stations and bike storage ➢ Programs that transform city streets, such as Ciclovías or Open Streets Days ➢ Campaigns to increase the investment in bicycle infrastructure	Maximum $10,000, 50% share	Zoe Kircos Director of Grants and Partnerships (303) 449-4893 x106 zoe@peopleforbikes.org	CGP CGP
Rails to Trails Conservancy	Doppelt Family Trail Development Fund	Annual, applications due each January	To support organizations and local governments that are implementing projects to build and improve multi-use trails	➢ New trail construction, trail facility/infrastructure (e.g., trailheads, bathrooms) ➢ Land acquisition ➢ Trail signage ➢ Improvements to existing trails and significant maintenance tasks ➢ Promoting a local trail project in the local media ➢ Conducting feasibility studies ➢ Adding personnel or volunteer coordination capacity	$5,000-$50,000	grants@railstotrails.org	DFTDF
San Bernardino County Transportation Authority	Measure I	Continuous	Measure I is the half-cent sales tax collected throughout San Bernardino County for transportation improvements	➢ Major Street Projects - defined as congestion relief and safety improvements to major streets that connect communities, serve major destinations, and provide freeway access ➢ Local Street Projects - defined as local street and road construction, repair, maintenance and other eligible local transportation priorities	Not Stated Limits depend on tax revenue and region within county	Andrea Zureick Director Fund Administration and Programming azureick@gosbcta.com (909) 884-8276	SBCTA

Summary of Potential Funding Sources for SWRP Projects

Funding Agency	Program	Timeline	Purpose	Eligible Uses	Funding Limits	Contact Information	Link
State of California Wildlife Conservation Board	Habitat Restoration Grant	Continuous	Awards grants for projects to restore and enhance wildlife habitats	➢ Riparian habitat conservation ➢ Inland wetlands conservation ➢ Ecosystem restoration on agricultural lands ➢ Habitat enhancement and restoration	Not Stated	John P. Donnelly, Executive Director, Wildlife Conservation Board 1416 9th Street, Room 1266 Sacramento, CA, 95814	HRG
Surdna Foundation	Surdna Foundation Grant	Applicant must be a nonprofit organization (collaboration required); letters of inquiry are accepted on a rolling basis	To foster sustainable communities in the United States, communities guided by principles of social justice and distinguished by healthy environments, strong local economies, and thriving cultures	➢ Clean, affordable, equitable, high-quality and efficient transportation and land use development that better connects critical services, jobs, schools, housing and other regional destinations ➢ Efforts to help people make homes, businesses and other buildings more energy efficient ➢ Efforts to capture stormwater and slowly release it into the existing network of drains, or reuse it where it falls to cultivate natural green spaces	Indirect costs for program grants up to 15% of project expenses allowed for grants of $25,000 or more	Grants Manager, Surdna Foundation 330 Madison Ave., 30th Floor New York, NY 10010 grants@surdna.org	Surdna
United States Army Corp of Engineers	Small Flood Damage Reduction Projects	Continuous	To study, design, and construct small flood control projects in partnership with non-Federal government agencies, such as cities, counties, special authorities, or units of state government	➢ Projects may be structural (i.e., levees, flood walls, diversion channels, pumping plants and bridge modifications) or non-structural (i.e., flood proofing, relocation of structures and flood warning systems)	Feasibility Study: 100% up to $100,000 - 50/50 cost-share above that Design/ Construction: 65%	Chris Hatfield of the Special Studies Section (978) 318-8520	SFDRP
United States Army Corp of Engineers	Emergency Watershed Protection	Continuous	To help people and conserve natural resources by relieving imminent hazards to life and property caused by floods, fires, windstorms, and other natural occurrences	➢ Remove debris from stream channels, road culverts, and bridges ➢ Reshape and protect eroded and unstable banks ➢ Correct damaged drainage facilities ➢ Establish cover on critically eroding lands ➢ Repair levees and structures ➢ Repair conservation practices	Up to 75% of construction costs, 90% in limited resource areas	Shawn Anderson National Emergency Watershed Protection Program Coordinator (202) 720-5795	EWP EWP
United States Department of the Interior (DOI) - Bureau of Reclamation	Drought Response Program: Drought Resiliency Projects	Future cycles unknown at this time	To help communities prepare for and respond to drought	➢ Groundwater recharge and benefits for fish and wildlife Implement projects that support proactive approach to drought control Improving Water Management Update comprehensive drought plans with resiliency projects	Applicants must provide a 50 percent non-Federal cost-share. Award Ceiling: $750,000	Darion Mayhorn Reclamation Drought Coordinator dmayhorn@usbr.gov (303) 445-3121	DRP
U.S. Department of the Interior (DOI) - Bureau of Reclamation	Cooperative Watershed Management Program: Phase II	Continuous	Provides financial assistance to locally led watershed groups to encourage diverse stakeholders to form local solutions to water management needs	➢ Implementation of on-the-ground watershed management projects that address critical water supply needs, water quality, and ecological resilience of the watershed	For Phase II Reclamation will award up to $100,000 per project over a two-year period. Applicants must contribute at least 50% of the total project costs	Avra Morgan aomorgan@usbr.gov (303) 445-2906	CWMP

Summary of Potential Funding Sources for SWRP Projects

Funding Agency	Program	Timeline	Purpose	Eligible Uses	Funding Limits	Contact Information	Link
United States Department of the Interior (DOI) -National Park Service	Land & Water Conservation Fund	Continuous; next competitive cycle 2020 at the earliest	To stimulate a nationwide action program to assist in preserving, developing, and assuring to all citizens of the United States of present and future generations such quality and quantity of outdoor recreation resources as may be available and are necessary and desirable for individual active participation	➢ Development of picnic areas, sports and playfields, trails, swimming facilities, boating facilities, fishing/hunting facilities, winter sport facilities, camping facilities, exhibit facilities, spectator facilities, community gardens, etc. ➢ Protects and preserves older national parks, forests, wildlife refuges, and recreation areas	50% matching grants Funding range: $15,000 - $2,000,000,	lwcf.grants@nps.gov Director CA Department of Parks and Recreation P.O. Box 942896 Sacramento, CA 94296 (916) 653-8380	LWCF LWCF
United States Department of Transportation (DOT)	Better Utilizing Investments to Leverage Development (BUILD) program	Annually	DOT investment in road, rail, transit and port projects that promise to achieve national objectives	➢ Road or bridge projects eligible under title 23, United States Code ➢ Public transportation projects eligible under chapter 53 of title 49, United States Code; ➢ Passenger and freight rail transportation projects; ➢ Port infrastructure investments (including inland port infrastructure and land ports of entry); ➢ Intermodal projects	Urban: minimum $6,250,000 for match Rural: minimum $1,000,000 All projects: Maximum $25,000,000 Urban: up to 80% Rural: up to 100%	Office of Infrastructure Finance and Innovation Office of the Secretary of Transportation BUILDgrants@dot.gov (202) 366-0301	BUILD
United States Department of Transportation Federal Highway Association (FHWA)	Recreational Trails Program	Continuous	To develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses	➢ Maintenance and restoration of existing recreational trails ➢ Development and rehabilitation of trailside and trailhead facilities and trail linkages for recreational trails ➢ Purchase and lease of recreational trail construction and maintenance equipment ➢ Construction of new recreational trails (with restrictions for new trails on Federal lands) ➢ Acquisition of easements and property for recreational trails or recreational trail corridors ➢ Assessment of trail conditions for accessibility and maintenance ➢ Development and dissemination of publications and operation of educational programs to promote safety and environmental protection related to the use of recreational trails, including supporting non-law enforcement trail safety and trail use monitoring patrol programs, and providing trail-related training ➢ State costs incurred in administering the program	Varies by state, Federal limit up to 80% share	Richard Rendón, State Trail Administrator Office of Grants and Local Services California State Parks (916) 651-7600 richard.rendon@parks.ca.gov	RTP
United States Economic Development Administration (EDA)	Public Works & Development Facilities Programs	Proposals accepted on a rolling basis	To provide economically distressed communities and regions with comprehensive and flexible resources to address a wide variety of economic needs, and are designed to lead to the creation and retention of jobs and increased private investment	➢ Increase economic resiliency, including resilience to the effects of natural disasters and climate change ➢ Assist with natural disaster mitigation and recovery ➢ Aimed at restoring or improving urban waters and the communities that surround them ➢ Promote job creation and economic prosperity through enhancing environmental quality and developing and implementing green products, processes, places, and buildings as part of the green economy	$100,000 - $3,000,000 Typically 50% Federal share	Wilfred Marshall Wmarshall@eda.gov (310) 348-5386	PWDFP

Summary of Potential Funding Sources for SWRP Projects

Funding Agency	Program	Timeline	Purpose	Eligible Uses	Funding Limits	Contact Information	Link
United States Environmental Protection Agency (USEPA)	Urban Waters Small Grant	Last cycle 2016; Schedule for future solicitations are unknown at this time	To help local residents and their organizations, particularly those in underserved communities, restore their urban waters in ways that also benefit community and economic revitalization	➢ Activities that engage communities in learning about, planning and developing green infrastructure/LID approaches, programs and practices that enhance the sustainability of their communities and more effectively manage urban runoff/stormwater pollution	$40,000-$60,000 (2016)	Ruth Chemerys urbanwaters@epa.gov	USEPA
United States Environmental Protection Agency (USEPA)	Pollution Prevention (P2) Grant	Future funding unknown at this time	To support projects that use pollution prevention techniques to reduce and/or eliminate pollution from air, water and/or land prior to performing recycling, reuse, or clean up	➢ Offering pollution prevention workshops ➢ Offering technical advice to state agency staff who in turn use this information to train businesses on best management practices	Approximately $40,000-$500,000 50% match	Jessica Counts-Arnold 75 Hawthorne Street San Francisco, CA 94105 (415) 972-3288 counts-arnold.jessica@epa.gov PPP: (202) 566-0799 ppic@epa.gov	EPA P2 EPA P2 EPA P2
United States Environmental Protection Agency (USEPA)	Section 319 Nonpoint Source Grant Program	Schedule for solicitation unknown at this time	Reduction of nonpoint source pollution with emphasis on green infrastructure	➢ Streambed and habitat restoration ➢ Implementation of upstream LID practices to manage impervious surface runoff	$250,000 - $800,000 Minimum 25% match	Jeanie Mascia State Water Resources Control Board Nonpoint Source Pollution Unit (916) 323-2871 jeanie.mascia@waterboards.ca.gov	NPSGP NPSGP
United States Housing and Urban Development (HUD)	Community Development Block Grant (CDBG)	2017 Funding Cycle specific for Indian Tribes and Alaska Native Villages Schedule for future solicitations are unknown at this time	Creation of decent housing, suitable living environments, and economic opportunities primarily for persons with low and moderate incomes	➢ Eligible to fund stormwater and green infrastructure as projects create jobs, increase economic activity, and increase property value	Not Stated	Ray Brewer Field Office Director (Santa Ana) (714) 796-5577 CA_Webmanager@hud.gov	CDBG
Wildlife Conservation Board	California Stream Flow Enhancement Program (Prop 1)	Schedule for future solicitations unknown	Implement three broad objectives of the California Water Action Plan: more reliable water supplies; the restoration of important species and habitats; and a more resilient, sustainably managed water infrastructure that can better withstand inevitable and unforeseen pressures in the coming decades	➢ Groundwater storage and conjunctive use ➢ Changes in water management ➢ Habitat restoration and wildlife benefit ➢ Water Infrastructure improvements ➢ Reconnecting flood flows with restored flood plains ➢ Reservoir operations both at existing and new storage sites ➢ Reliability, restoration, and resilience	No minimum or maximum	Elizabeth Hubert elizabeth.hubert@wildlife.ca.gov (916) 445-1093 wcbstreamflow@wildlife.ca.gov	CSFEP
Loans							
California State Water Resources Control Board (SWRCB)	Clean Water State Revolving Fund	Applications are accepted on a rolling basis	To provide financial assistance through loans (with below market rates) for a wide range of water infrastructure projects, under 33 U.S. Code §1383	➢ Assistance for measures to manage, reduce, treat, or capture stormwater or subsurface drainage water ➢ Projects that reduce the demand for publicly owned treatment works capacity through water conservation, efficiency, or reuse ➢ Implement state nonpoint source pollution management program, established under CWA section 319	No limits, historically $1,000,000-$350,000,000	Bob Pontureri robert.pontureri@waterboards.ca.gov (916) 341-5828 (916) 327-9978 CleanWaterSRF@waterboards.ca.gov	CWSRF

Summary of Potential Funding Sources for SWRP Projects

Funding Agency	Program	Timeline	Purpose	Eligible Uses	Funding Limits	Contact Information	Link
California State Water Resources Control Board (SWRCB)	Loan Forgiveness - Clean Water State Revolving Fund	Applications are accepted on a rolling basis	To provide financial assistance through loans (with below market rates) for a wide range of water infrastructure projects, under 33 U.S. Code §1383	➢ Green Project Reserve (GPR) projects (Green Infrastructure, Water Efficiency, Energy Efficiency, and Environmentally Innovative Activities) ➢ Must address water or energy efficiency, mitigate stormwater runoff, or encourage sustainable project planning, design, and construction ➢ Must be a CWSRF eligible project; whether standalone or part of a larger project	50% of actual GPR costs; 75% planning costs; $4,000,000 Maximum loan forgiveness per project (Water recycling projects eligible for $2,500,000 max loan forgiveness)	(916) 327-9978 CleanWaterSRF@waterboards.ca.gov	SWRCB
California Infrastructure and Economic Development Bank	Infrastructure State Revolving Fund (ISRF)	Applications are accepted on a rolling basis	To serve a variety of public purposes including providing an accessible low-cost financing option to eligible borrowers for a wide range of infrastructure projects	➢ Project can consist of design, acquisition, planning, permitting, entitling, construction, improving, extending, restoring, financing, and generally developing facilities that include real personal property, structures, conveyances, equipment, thoroughfares, buildings, and supporting components thereof ➢ Infrastructure projects related to city streets, drainage/water supply/flood control, environmental mitigation measures, parks and recreational facilities, public transportation, water treatment and distribution, and more	$50,000-$25,000,000 with loan terms for the useful life of the project up to a max of 30 years; No match required	Tom Dear, Loan Origination Manager 1325 J Street, 18th Floor Sacramento, CA 95812 (916) 341-6600 LoanProgram@ibank.ca.gov	ISRF ISRF
The Conservation Fund	Conservation Loans	Applications are accepted on a rolling basis	To protect land, water, and wildlife, generate jobs, and balance human demand with the need to use natural resources responsibly	➢ Trail and park acquisitions and construction ➢ Habitat restoration and ecosystem services ➢ Initiatives to connect people to nature	Up to $500,000	Reggie Hall Conservation Loans (703) 908-5825 rhall@conservationfund.org (703) 525-6300 loans@conservationfund.org	CL

Attachment J

Multi-Benefit Project Request Form

San Bernardino County Santa Ana River Watershed Stormwater Resource Plan

The Flood Control District is seeking partners

Multi-Benefit Project Request Form

We want to know about your projects for inclusion in the Stormwater Resource Plan. If your project involves a partnership with the District and provides at least two benefits, then complete the form below. We will perform a metrics-based analysis of project benefits. Potential project benefits are listed below.

Water Quality
- Pollutant load reduction
- Stormwater runoff reduction

Flood Management
- Runoff rates and runoff volume reductions
- Flood elevation reduction
- Parcel/structure removal from floodplain
- Property value saved

Water Supply
- Groundwater recharge
  - Stormwater
  - Recycled water

Community
- Employment opportunities
- Public education
- Community involvement
- Enhancement/creation of
  - public spaces
  - walking paths
  - bike trails
  - sidewalks

Environmental
- Wetlands enhancement/ creation
- Riparian area enhancement
- Streambed restoration
- Increased urban green space

Tell us about your project

Project Name: _____

Submitting Agency: _____ Lead Agency: _____

Project Partners: _____

Contact: _____ Email: _____ Phone: _____

List main project components _____

_____

_____

How far along is the project?

- ☐ Just an idea
- ☐ Concept developed
- ☐ Preliminary design report
- ☐ Soils investigation
- ☐ Hydrology study
- ☐ Topographic survey
- ☐ Hydraulic study
- ☐ Flood study
- ☐ Design plans in progress
- ☐ Design plans completed

Attachment K

Printed Educational and Outreach Material

SAN BERNARDINO COUNTY
PUBLIC WORKS

You are invited!

The San Bernardino County Flood Control District is leading the development of a **Stormwater Resource Plan** for the San Bernardino County portion of the Santa Ana River Watershed and needs your **valuable insight**.

Be a part of this exciting process!

For more information please email swrp@cwecorp.com

Join the District in one of two outreach events!

Learn about:

- Proposition 1 Grant Funding
- The Stormwater Resource Plan (SWRP)
- How your agency can get involved

The District is seeking partners on future multi-benefit projects. Come share your ideas.

Stakeholder Outreach Events

Event #1

August 30, 2017 from 1:30 - 3:00 pm
Inland Empire Utilities Agency Board Room
6075 Kimball Avenue, Chino

Event #2

August 31, 2017 from 1:30 - 3:00 pm
Department of Public Works Hearing Room
825 E. Third Street, San Bernardino

We look forward to ongoing collaboration!

SAN BERNARDINO COUNTY
PUBLIC WORKS

You are invited!

The San Bernardino County Flood Control District is leading the development of a **Stormwater Resource Plan** for the San Bernardino County portion of the Santa Ana River Watershed. We need your help planning for the future of our **valuable water resources**.

Be a part of this exciting process!

Join the District at this public outreach event!

Learn about:
- Our water resources
- The Stormwater Resource Plan (SWRP)
- Multi-benefit projects
- How you can get involved

Provide feedback on the Draft SWRP

Come share your ideas.

For more information and to provide comments please email swrp@cwecorp.com

Public Outreach Event

July 24, 2018 from 5:00 - 7:00 pm
Department of Public Works Hearing Room
825 E. Third Street, San Bernardino

Refreshments will be provided

Review the draft SWRP at http://bit.do/SWRP and provide comments by August 7, 2018.

We look forward to seeing you there!

SAN BERNARDINO COUNTY
PUBLIC WORKS

¡Esta invitado!

El Distrito de Control de Inundaciones del Condado de San Bernandino esta liderando el desarrollo de un **Plan de Recursos de Aguas Pluviales (SWRP)** para la porción del Condado de San Bernandino localizado en la Cuenca del Rió Santa Ana. Necesitamos su ayuda para planear el futuro de nuestros **valiosos recursos hídricos**.

¡Sea parte de este proceso facinante!

¡Acompañe el Distrito en nuestro evento para el publico!

Aprende sobre:

- Nuestros recursos hídricos
- El Plan de Recursos de Aguas Pluviales (SWRP)
- Proyectos de beneficios múltiples
- Como puede participar

Ofrece su opinión sobre el borrador del SWRP

Vengan a compartir sus ideas.

Para más información y para ofrecer su comentario, envié un correo electrónico a swrp@cwecorp.com

Junta de información para el publico

24 de julio de 2018, 5:00 - 7:00 pm
Department of Public Works Hearing Room
825 E. Third Street, San Bernardino

Refrescos serán proporcionados

Revise el borrador del SWRP que se encuentra en http://bit.do/SWRP y proporcione su comentario por el 7 de agosto de 2018.

¡Esperamos verlos en la junta!

Frequently Asked Questions

1. What is a SWRP?

A Stormwater Resource Plan (SWRP) is a watershed based planning document that includes an evaluation of existing water resources and an identification of projects, programs, and activities that will enhance the beneficial uses of stormwater and dry-weather runoff. A metrics-based approach is used to quantify project/program benefits and prioritize future implementation. Projects/programs that provide multiple benefits, such as water quality, water supply, flood management, environmental, and community benefits, are identified in SWRPs. SWRPs are developed in coordination with multiple stakeholders and the public. The development of a SWRP provides opportunities for agencies and organizations to collaborate to find ways to capture, clean, infiltrate, and/or use runoff that otherwise would leave the watershed. SWRPs are adaptively managed overtime to address ongoing changes in regulatory policies and needs.

2. Who needs a SWRP and what are the benefits?

Any public agency, nonprofit organization, public utility, federally recognized Indian tribes, State Indian tribes, and mutual water companies may develop a SWRP. Developing a SWRP provides opportunities to receive funding through the Proposition 1 Stormwater Grant Program, administered through the State Water Resources Control Board (State Board). With limited exceptions for certain small disadvantaged communities, Water Code Section 10563(c)(1) requires stormwater and dry-weather runoff capture projects be included in a SWRP to receive stormwater grants from bond measures passed by the State of California after January 1, 2014. One such bond measure is Proposition 1, passed by voters in November 2014, which authorized $200 million in funding for multi-benefit stormwater management projects. Additionally, the development of a SWRP encourages agencies/organizations to evaluate the health of the watershed and plan projects and programs that will provide multiple benefits and address existing concerns.

3. What are the goals of a SWRP?

The development of SWRPs is a collaborative process that involves both stakeholders and the public. Goals pertaining to specific SWRPs are established through those collaborative efforts. In general, SWRPs have the following goals:

- Improve water quality by reducing runoff volumes and pollutants entering receiving waters to support beneficial uses
- Capture and use stormwater as a water supply resource
- Protect life and property through better management of flooding risks
- Use stormwater projects to enhance environmental and community benefits
- Identify multi-benefit projects that accomplish more than one of the goals identified above

4. What are the goals of the SBC SARW SWRP?

The San Bernardino County Santa Ana River Watershed (SBC SARW) SWRP will meet the general goals identified above in addition to some region specific goals. The main goal of the SBC SARW SWRP is to quantify the various benefits that result from implementation of projects and programs included in the plan. This allows the San Bernardino County Flood Control District (District) and partnering agencies to easily apply for funding opportunities available not only through the State Board and the Stormwater Grant Program, but also other water related funding opportunities. The quantification of benefits is required within the SWRP; however, the SBC SARW SWRP goes above and beyond those expectations to make applying for and obtaining funds easier.

5. What information is included in a SWRP?

Each SWRP will be different, but all will be prepared considering guidance set forth in the SWRP Guidelines developed by the State Board. At a minimum, the following information will be included in SWRPs, consistent with the guidelines:

- Description of watershed and sub-watersheds covered in the plan, including water quality priorities, identification of surface water and groundwater resources, account of local water supplies and suppliers, and a summary of existing natural habitat and open space within the watershed
- Identification of existing regional water management groups, public agencies, governments, non-profit organizations, utilities, and other stakeholders and the development of a process by which organizers of the SWRP consult, cooperate, and collaborate with each other
- Quantitative methods for identification and prioritization of stormwater and dry-weather runoff capture projects, including an integrated metrics based analysis of multi-benefit projects
- Identification and prioritization of stormwater projects based on how each project would improve water supply, water quality, flood management, environmental, and community benefits
- Identification of resources for plan implementation and project scheduling, including strategies for maintaining and amending the SWRP for future projects through an adaptive management process
- Provisions for community participation in plan development and implementation

6. How can we get a project included in the SBC SARW SWRP?

If your agency would like partner with the District on a multi-benefit project located within the SBC SARW area, and that project aligns with the goals of the SWRP, we would like to hear from you. Please send an email to SWRP@cwecorp.com and include the information requested in the project request flyer, such as contact person, partnering agencies, project name/components, and the status of the project. The more well-planned and well-quantified your project is, the likelier it will be to get matching funds from the State. The multiple benefits provided by projects included in the SBC SARW SWRP will be quantified and the results of this analysis will not only support future Proposition 1 grant applications, but other related funding opportunities that may exist in the future.

7. What is the difference between a SWRP and IRWMP?

An Integrated Regional Water Management Plan (IRWMP), such as the One Water One Watershed (OWOW) Plan prepared by the Santa Ana Water Project Authority (SAWPA), is different than a SWRP and an IRWMP does not automatically become a SWRP Equivalent document. According to the California Department of Water Resources, an IRMWP is a comprehensive planning document to encourage development of voluntary regional strategies for management of water resources. Projects identified in an IRWMP must address at least one water-related concern, but are not required to provide multiple benefits, as is required in a SWRP. Additionally, IRWMPs were developed in response to Proposition 50 and SWRPs are being developed in response to Proposition 1. IRWMPs are prepared by larger watershed areas, while individual SWRPs covering a much smaller area may be prepared.

Preguntas Más Frecuentas

1. ¿Qué es un SWRP?

Un Plan de Recursos de Aguas Pluviales (SWRP; por sus siglas en inglés) es un documento de planificación basado en cuencas que incluye una evaluación de los recursos hídricos existentes y una identificación de proyectos, programas y actividades que mejorarán los usos beneficiosos de las aguas pluviales y la escorrentía en clima seco. Se utiliza un enfoque basado en criterios para cuantificar los beneficios del proyecto/programa y priorizar la implementación futura. Los proyectos/programas que brindan múltiples beneficios, como la calidad del agua, el suministro de agua, el manejo de inundaciones, el medio ambiente y los beneficios para la comunidad, se identifican en un SWRP. Cada SWRP se desarrolla en coordinación con múltiples partes interesadas y el público. El desarrollo de un SWRP ofrece oportunidades para que las administraciones públicas y organizaciones colaboren para encontrar formas para capturar, limpiar, infiltrar y/o utilizar la escorrentía que de otro modo dejaría la cuenca. Cada SWRP se maneja de forma adaptativa a lo largo del tiempo para abordar los cambios en curso en las políticas y necesidades normativas.

2. ¿Quién necesita un SWRP y cuáles son los beneficios?

Cualquier administración pública, organización sin fines de lucro, utilidad pública, tribus indígenas reconocidas a nivel federal, tribus indígenas del estado y compañías de agua mutuales pueden desarrollar un SWRP. Desarrollar un SWRP brinda oportunidades para recibir fondos a través del Programa de Subvención de Aguas Pluviales de la Proposición 1, administrado a través de la Junta Estatal de Control de Recursos Hídricos (State Board). Con excepciones limitadas para ciertas comunidades pequeñas desfavorecidas, la Sección 10563 (c) (1) del Código de Agua exige que las aguas pluviales y los proyectos de captura de escorrentía se incluyan en un SWRP para recibir concesiones de aguas pluviales de medidas de bonos aprobadas por el Estado de California después del 1 de enero. 2014. Una de esas medidas de bonos es la Proposición 1, aprobada por los votantes en noviembre de 2014, que autorizó $ 200 millones en fondos para proyectos de administración de aguas pluviales de múltiples beneficios. Además, el desarrollo de un SWRP promueve a las agencias/organizaciones a evaluar el estado de la cuenca y planificar proyectos y programas que proporcionarán múltiples beneficios y abordarán las preocupaciones existentes.

3. ¿Cuáles son los objetivos de un SWRP?

El desarrollo de SWRP es un proceso de colaboración que involucra tanto a los interesados como al público. Las metas relacionadas con un SWRP específicos se establecen a través de esos esfuerzos de colaboración. En general, cada SWRP tiene los siguientes objetivos:

- Mejorar la calidad del agua al reducir los volúmenes de escorrentía y los contaminantes que ingresan a las aguas receptoras para apoyar usos beneficiosos
- Capturar y usar aguas pluviales como un recurso de suministro de agua
- Proteger la vida y la propiedad a través de un mejor manejo de los riesgos de inundación
- Utilizar proyectos de aguas pluviales para mejorar los beneficios ambientales y comunitarios
- Identificar proyectos de múltiples beneficios que logren más de uno de los objetivos identificados anteriormente

4. ¿Cuáles son los objetivos del SBC SARW SWRP?

El SWRP de la Cuenca del Río Santa Ana del Condado de San Bernardino (SBC SARW) cumplirá con los objetivos generales identificados anteriormente, además de algunos objetivos específicos de la región. El objetivo principal del SBC SARW SWRP es cuantificar los diversos beneficios que resulten debido a la implementación de proyectos y programas incluidos en el plan. Esto permite que el Distrito de Control de Inundaciones (Distrito) y las agencias asociadas del Condado de San Bernardino soliciten fácilmente las oportunidades de financiamientos disponibles no solo a través del State Board y el Programa de Subvenciones de Tormentas, sino también de otras oportunidades de financiamiento relacionadas con el agua. La cuantificación de los beneficios se requiere dentro del SWRP; sin embargo, el SBC SARW SWRP va más allá de esas expectativas para facilitar la solicitud y obtención de fondos.

5. ¿Qué información está incluida en un SWRP?

Cada SWRP será diferente, pero todos serán preparados teniendo en cuenta la pauta establecida en el documento SWRP Guidelines desarrolladas por el State Board. Como mínimo, la siguiente información se incluirá en los SWRP, en conformidad con las directrices:

- Descripción de cuencas y subcuencas cubiertas en el plan, incluidas las prioridades de calidad del agua, identificación de aguas superficiales y recursos de aguas subterráneas, cuenta de suministros de agua locales y proveedores, y un resumen del hábitat natural existente y el espacio abierto dentro de la cuenca
- Identificación de grupos regionales de administración del agua, agencias públicas, gobiernos, organizaciones sin fines de lucro, servicios públicos y otras partes interesadas y el desarrollo de un proceso mediante el cual los organizadores del SWRP consultan, cooperan y colaboran entre sí
- Métodos cuantitativos para la identificación y priorización de proyectos de captura de escorrentía en aguas pluviales y clima seco, incluyendo un análisis basado en métricas integradas de proyectos de múltiples beneficios
- Identificación y priorización de proyectos de aguas pluviales en función de cómo cada proyecto mejoraría el suministro de agua, la calidad del agua, el manejo de las inundaciones, el medio ambiente y los beneficios para la comunidad
- Identificación de recursos para la implementación del plan y la programación del proyecto, incluyendo estrategias para mantener y modificar el SWRP para proyectos futuros a través de un proceso de manejo adaptativa
- Disposiciones para la participación de la comunidad en el desarrollo e implementación del plan

6. ¿Cómo podemos incluir un proyecto en el SBC SARW SWRP?

Si su agencia quisiera asociarse con el Distrito en un proyecto de beneficios múltiples ubicado dentro del área de SBC SARW, y ese proyecto se alinea con los objetivos del SWRP, nos gustaría saber de usted. Envíe un correo electrónico a SWRP@cwecorp.com e incluya la información solicitada en el folleto de solicitud del proyecto, incluyendo nombre de la persona de contacto, agencias asociadas, nombre/componentes del proyecto y las condiciones del proyecto. Cuanto mejor planeado y mejor cuantificado sea su proyecto, más probable será obtener fondos del Estado. Los beneficios múltiples provistos por los proyectos incluidos en SBC SARW SWRP se cuantificarán y los resultados de este análisis no solo respaldarán las futuras solicitudes de subvenciones de la Proposición 1, sino también otras oportunidades de financiamiento relacionadas que puedan existir en el futuro.

7. ¿Cuál es la diferencia entre un SWRP y un IRWMP?

Un Plan Regional Integrado de Administración del Agua (IRWMP), como el Plan One Water One Watershed (OWOW) preparado por la Autoridad del Proyecto Acuático de Santa Ana (SAWPA), es diferente de un SWRP y un IRWMP no se convierte automáticamente en un documento equivalente a un SWRP (SWRP Equivalent). De acuerdo con el Departamento de Recursos Hídricos de California, un IRMWP es un documento de planificación integral para alentar el desarrollo de estrategias regionales voluntarias para el manejo de los recursos hídricos. Los proyectos identificados en un IRWMP deben abordar al menos un problema relacionado con el agua, pero no están obligados a proporcionar beneficios múltiples, como se requiere en un SWRP. Además, el desarrollo del IRWMP fue en respuesta a la Proposición 50, mientras el desarrollo del SWRP fue en respuesta a la Proposición 1. Otra diferencia es que los IRWMP se preparan en general por áreas de cuencas hidrográficas grandes, mientras un SWRP se puede preparar para una área mucho más pequeña.

San Bernardino County Santa Ana River Watershed Stormwater Resource Plan

The Flood Control District is seeking partners

Multi-Benefit Project Request Form

We want to know about your projects for inclusion in the Stormwater Resource Plan. If your project involves a partnership with the District and provides at least two benefits, then complete the form below. We will perform a metrics-based analysis of project benefits. Potential project benefits are listed below.

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- Pollutant load reduction
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- Runoff rates and runoff volume reductions
- Flood elevation reduction
- Parcel/structure removal from floodplain
- Property value saved

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- Groundwater recharge
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Community
- Employment opportunities
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- Community involvement
- Enhancement/creation of
  - public spaces
  - walking paths
  - bike trails
  - sidewalks

Environmental
- Wetlands enhancement/ creation
- Riparian area enhancement
- Streambed restoration
- Increased urban green space

Tell us about your project

Project Name: _____

Submitting Agency: _____ Lead Agency: _____

Project Partners: _____

Contact: _____ Email: _____ Phone: _____

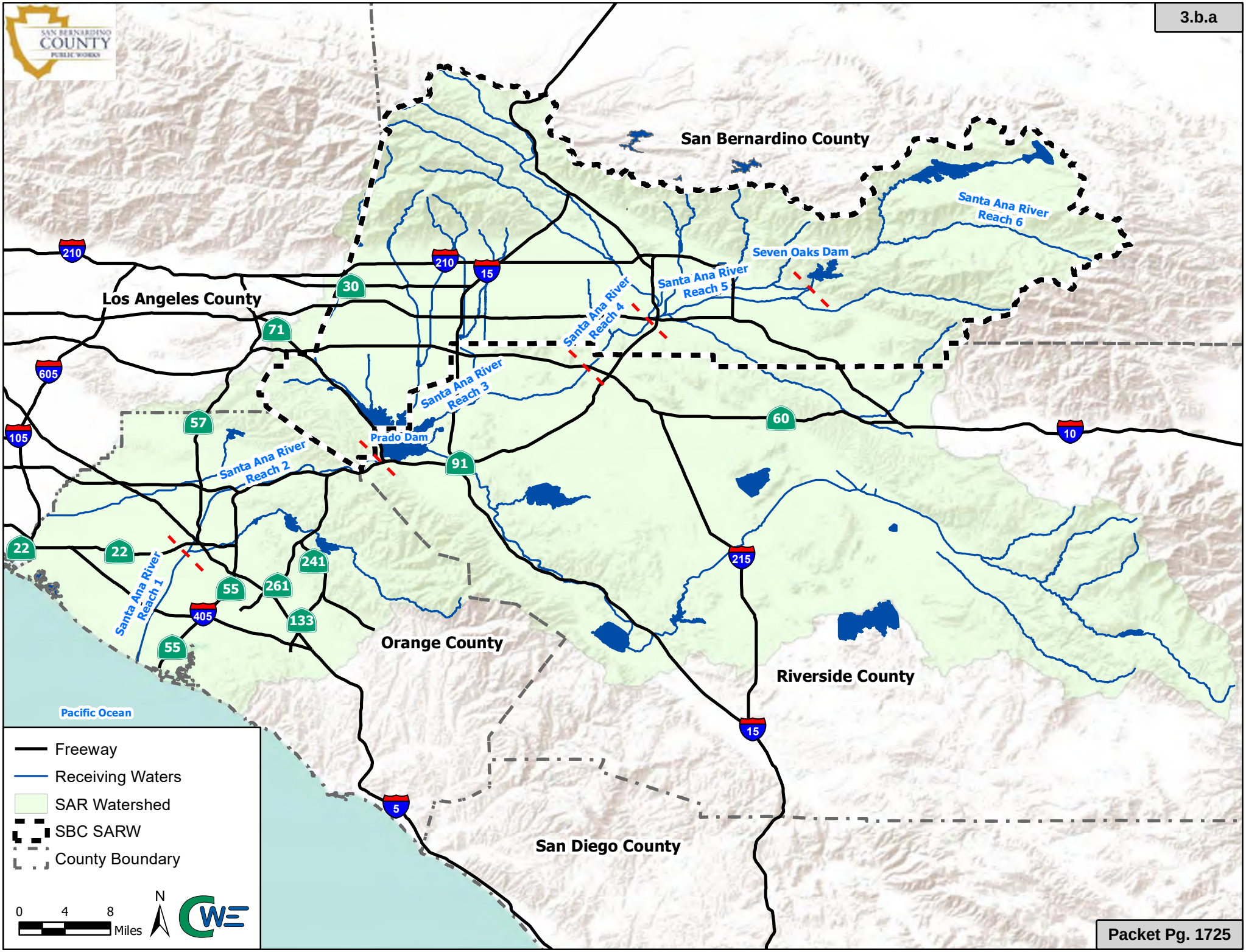
List main project components _____

_____

_____

How far along is the project?

- ☐ Just an idea
- ☐ Concept developed
- ☐ Preliminary design report
- ☐ Soils investigation
- ☐ Hydrology study
- ☐ Topographic survey
- ☐ Hydraulic study
- ☐ Flood study
- ☐ Design plans in progress
- ☐ Design plans completed


San Bernardino County
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Riverside County
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Pacific Ocean
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Santa Ana River Reach 2
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Lytle Creek Wash
Cajon Creek
East Twin Creek
Warm Creek
City Creek
Big Bear Lake
Waterman Canyon
Plunge Creek
Cucamonga Canyon Wash
Bear Creek
San Antonio Creek
Twin Creek
Lytle Creek
Seven Oaks
Day Creek
Santa Ana River
Carbon Canyon Creek
Cypress Channel
Deer Creek
Mill Creek
Mill Creek
Rialto Channel
Little San Goronio Creek
San Timoteo Creek
Prado Dam
Santa Ana River
Chino Creek

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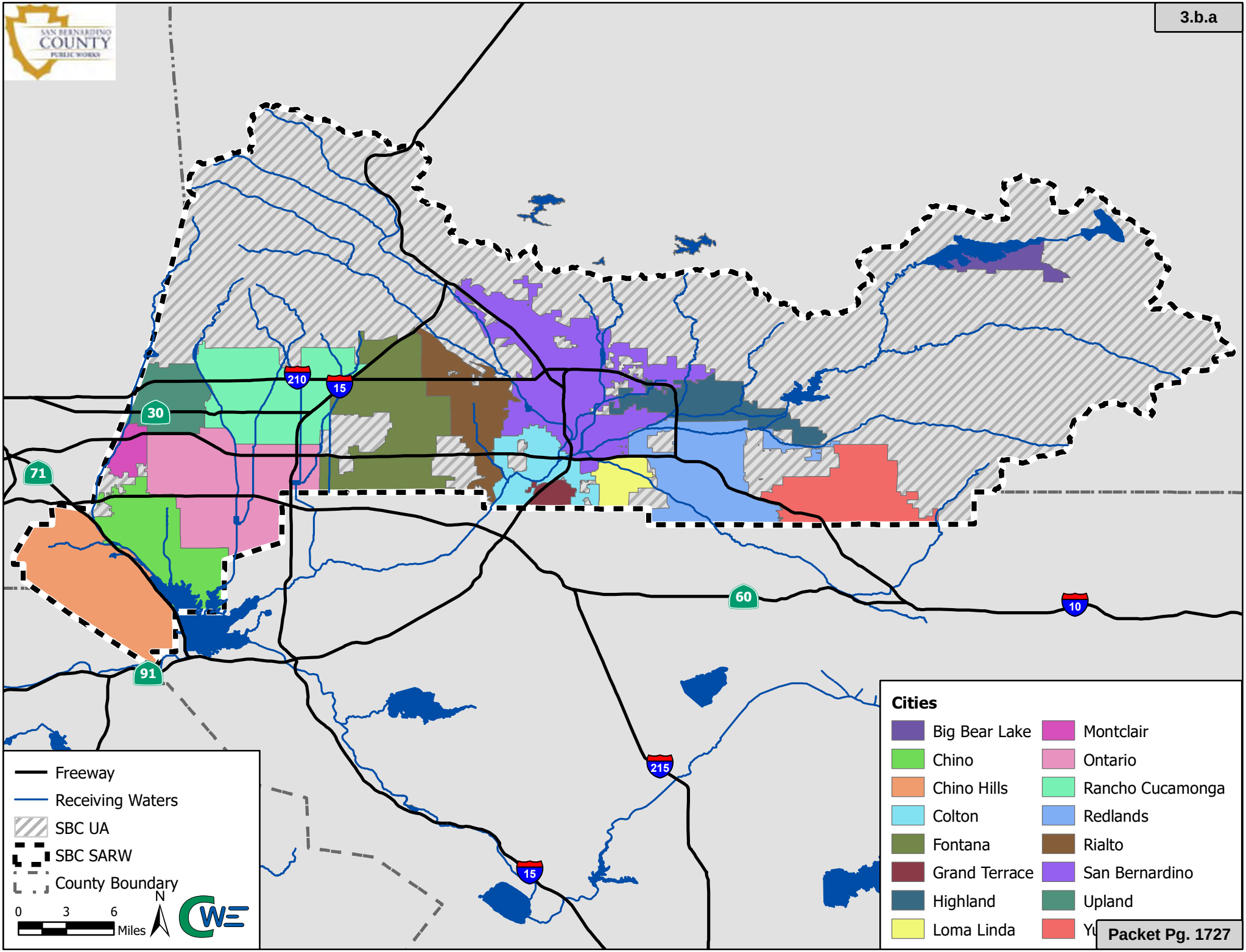
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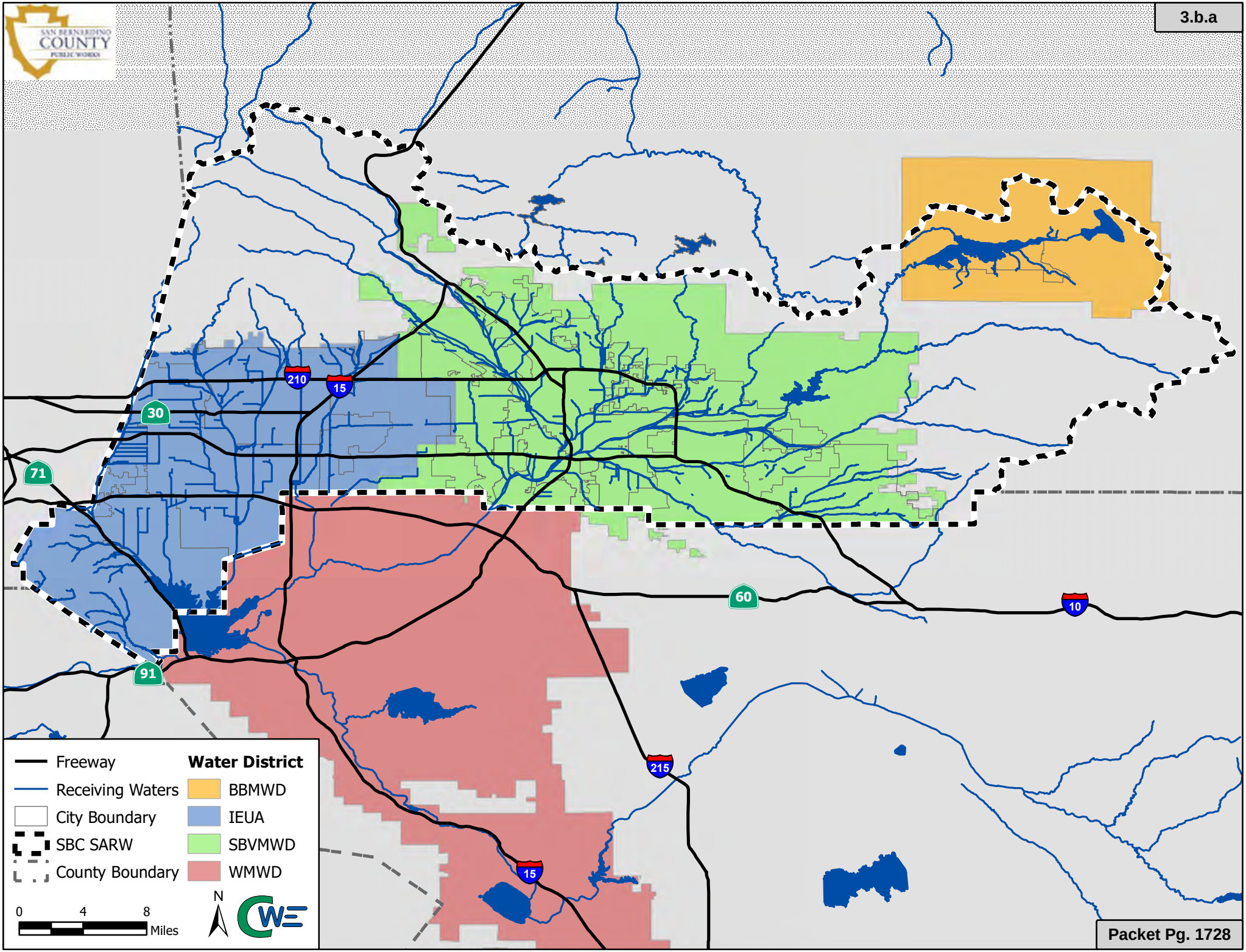
Redlands
Rialto
San Bernardino
Upland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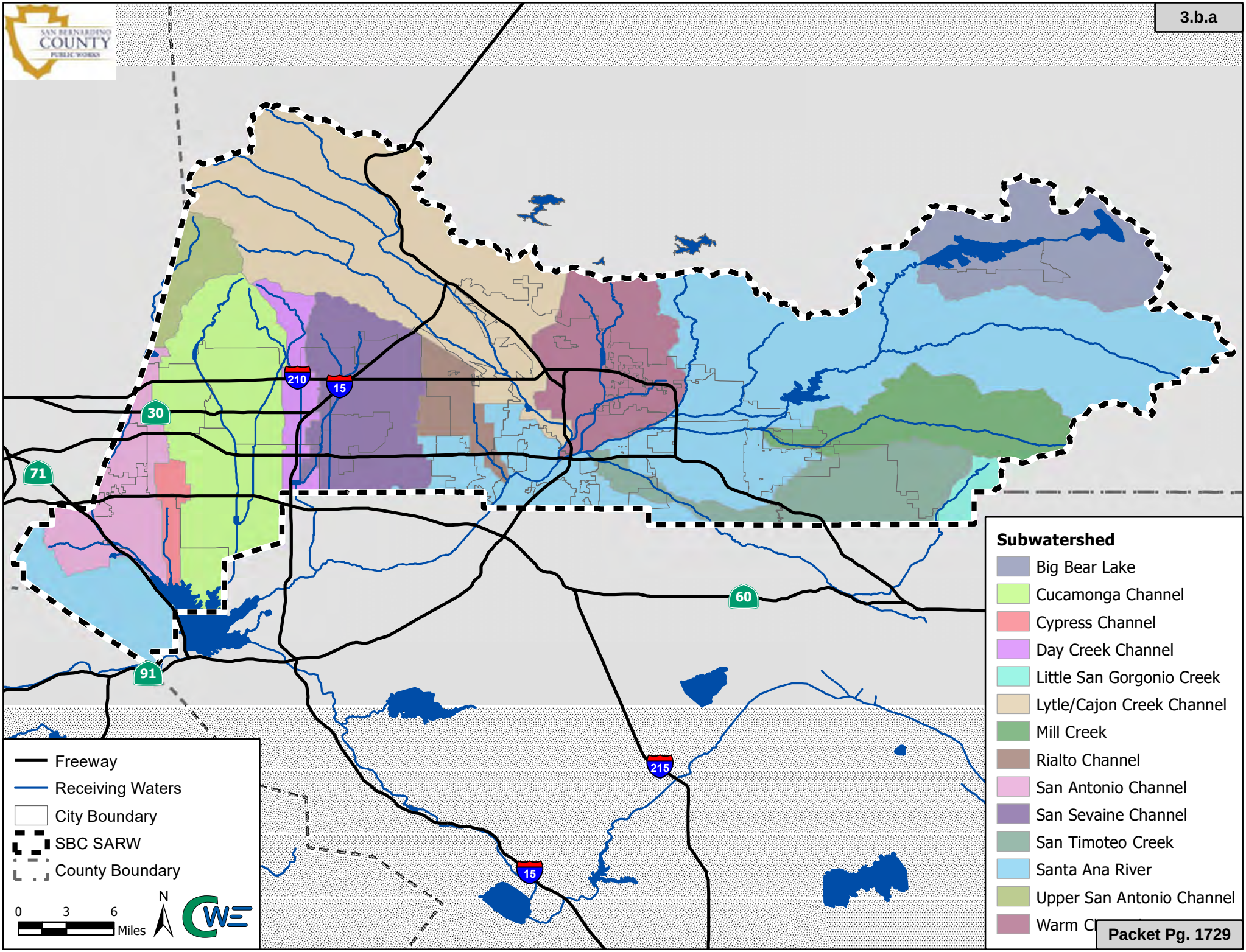
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Cypress Channel
Day Creek Channel
Little San Gorgonio Creek
Lytle/Cajon Creek Channel
Mill Creek
Rialto Channel
San Antonio Channel
San Sevaine Channel
San Timoteo Creek
Santa Ana River
Upper San Antonio Channel
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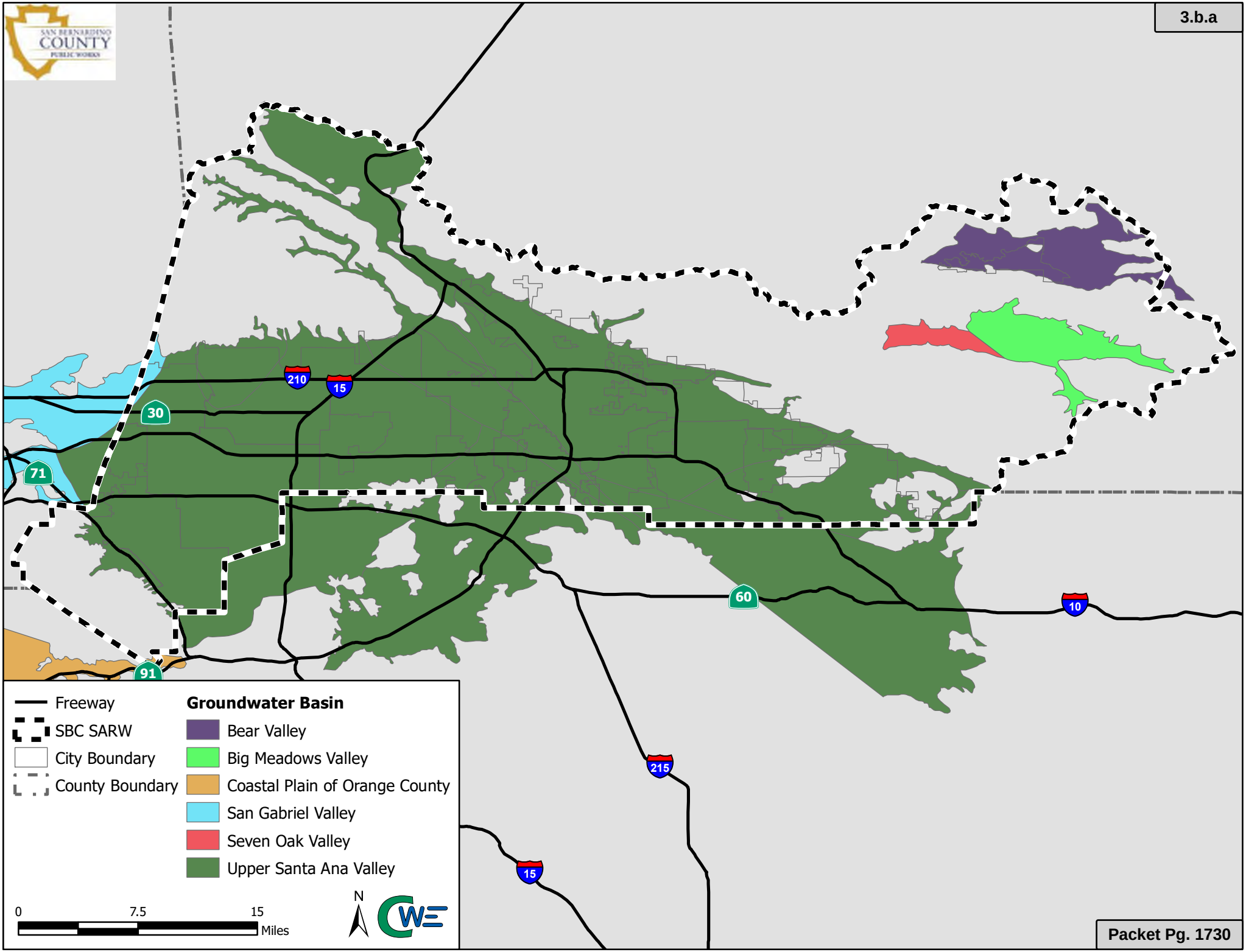
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Big Meadows Valley
Coastal Plain of Orange County
San Gabriel Valley
Seven Oak Valley
Upper Santa Ana Valley
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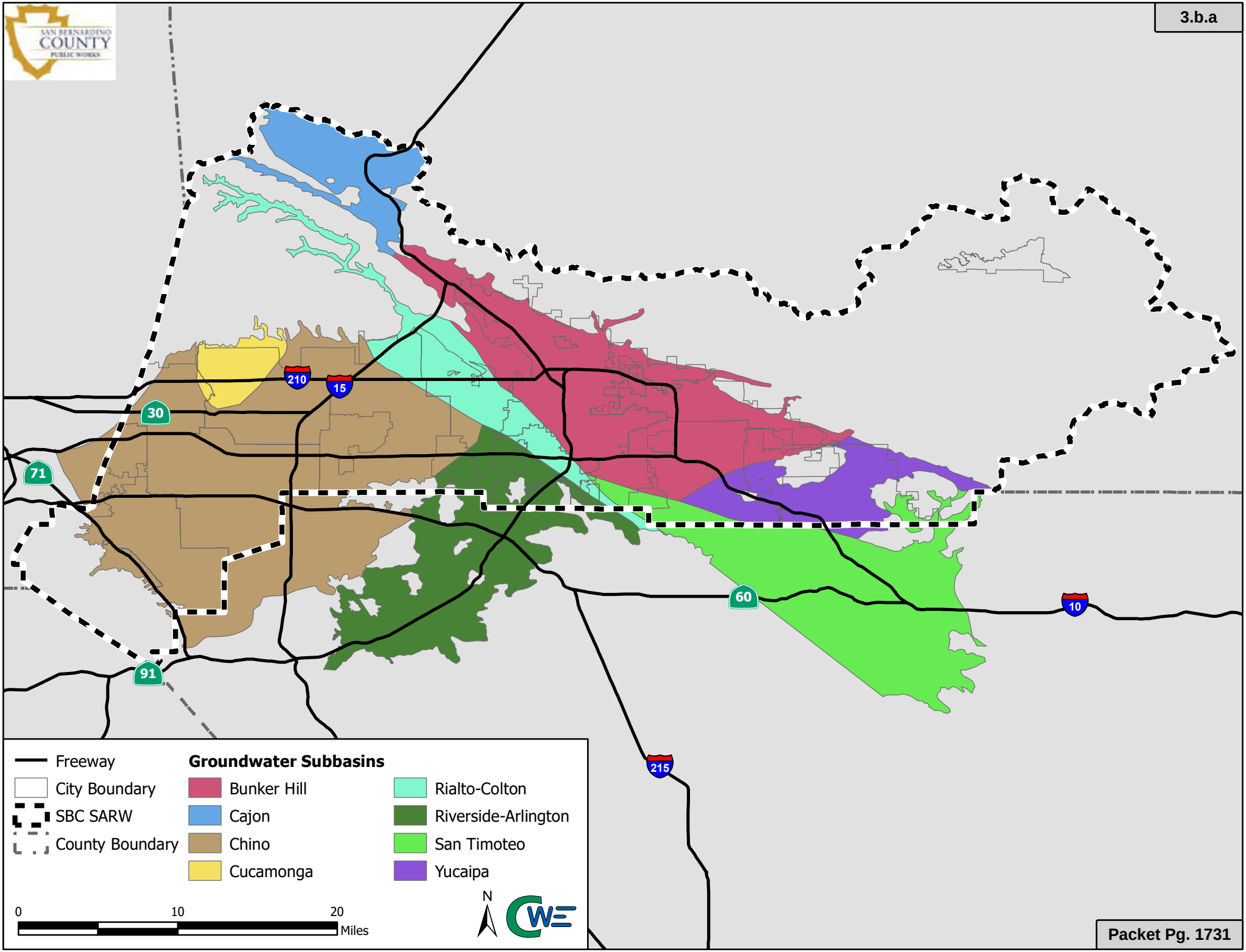
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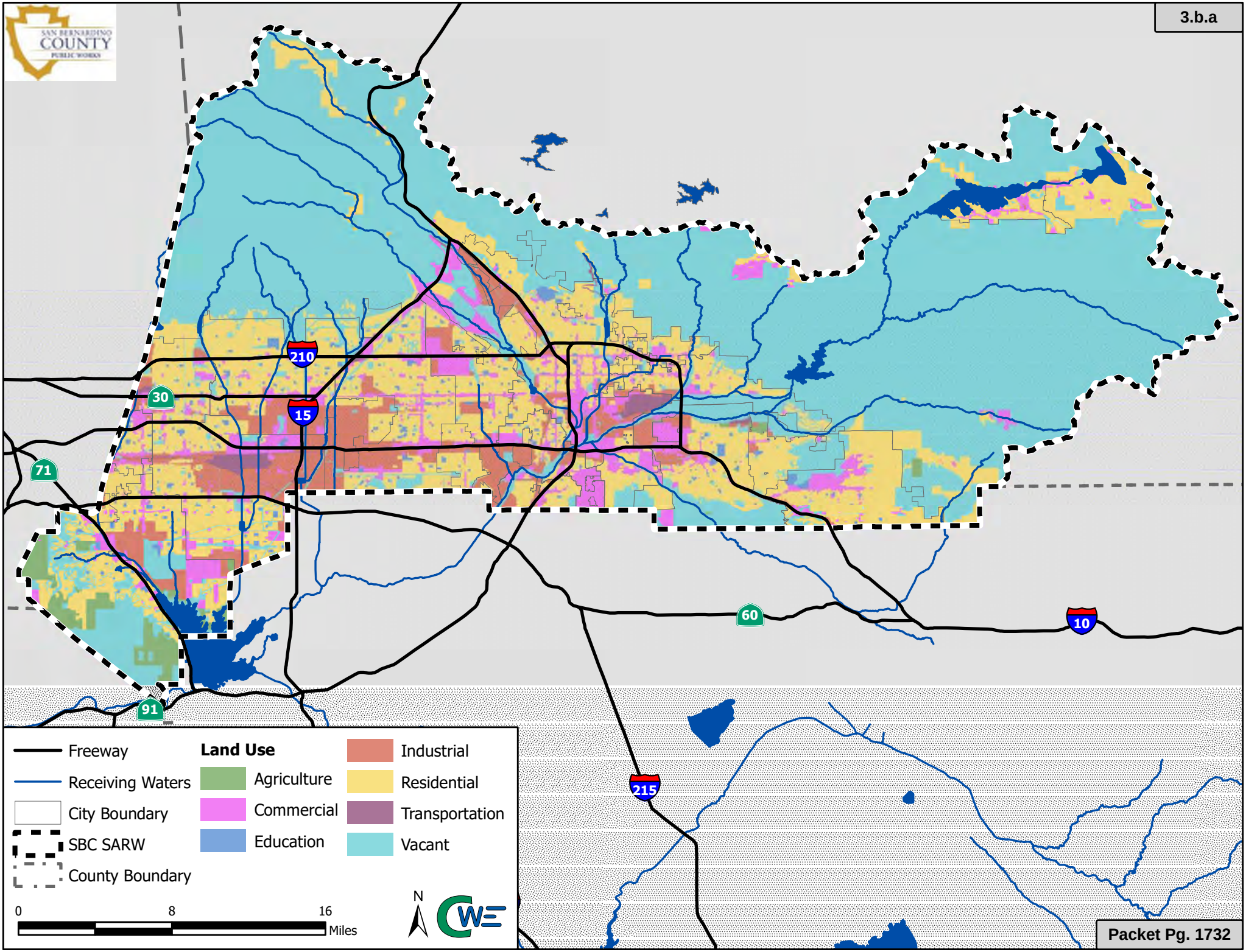
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Receiving Waters
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County Boundary
Land Use
Agriculture
Commercial
Education
Industrial
Residential
Transportation
Vacant
0
8
16
Miles
N

What is a SWRP?

A SWRP is a watershed based, public/stakeholder-driven, and adaptively managed plan that evaluates existing water resources and identifies projects, programs, and activities that will enhance the beneficial uses of stormwater and dry-weather runoff.

Adaptive Management

New Data
(water quality, studies, objectives, etc.)

Public and Stakeholder Input

SWRP Development
Apply Assessment Tools
Evaluate Multiple Benefits
Determine Implementation Approach

Benefit Categories

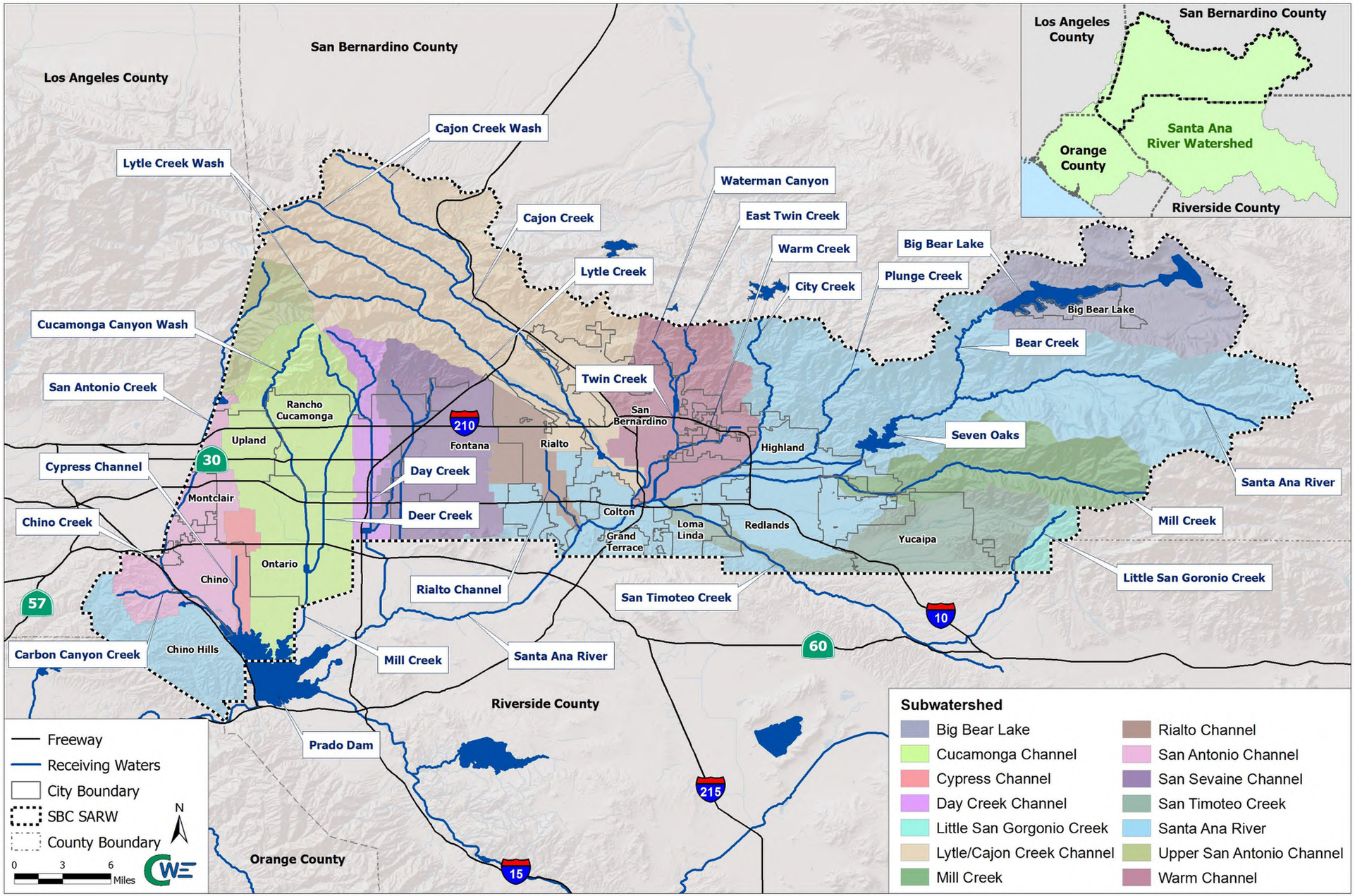
- Water Quality
- Flood Management
- Water Supply
- Community
- Environmental

San Bernardino County

Santa Ana River Watershed Stormwater Resource Plan

SAN BERNARDINO COUNTY PUBLIC WORKS

SWRP Area Map



San Bernardino County

Santa Ana River Watershed Stormwater Resource Plan

SAN BERNARDINO COUNTY PUBLIC WORKS

What types of projects are included?

Groundwater Recharge

Habitat Restoration

Channel Improvements

Water Quality Enhancements

Passive Recreation

Recycled Water

What are the multiple benefits?

Projects, programs, and activities identified in the SWRP will provide the multiple benefits described below.

GOALS	OBJECTIVES
Enhance Water Quality	Pollutant Load Reduction Stormwater Runoff Reduction
Maximize Water Supply	Stormwater Recharge Recycled Water Recharge
Improve Flood Management	Runoff Rate & Volume Reduction Flood Elevation Reduction Floodplain Parcels/Structures Removal Saved Property Value
Protect the Environment	Wetlands Enhancement/Creation Riparian Area Enhancement Streambed Restoration Increased Urban Green Space
Provide Community Benefits	Employment Opportunities Public Education and Community Involvement Recreational Paths Enhancement/Creation Public Use Area Enhancement/Creation

OUTCOMES

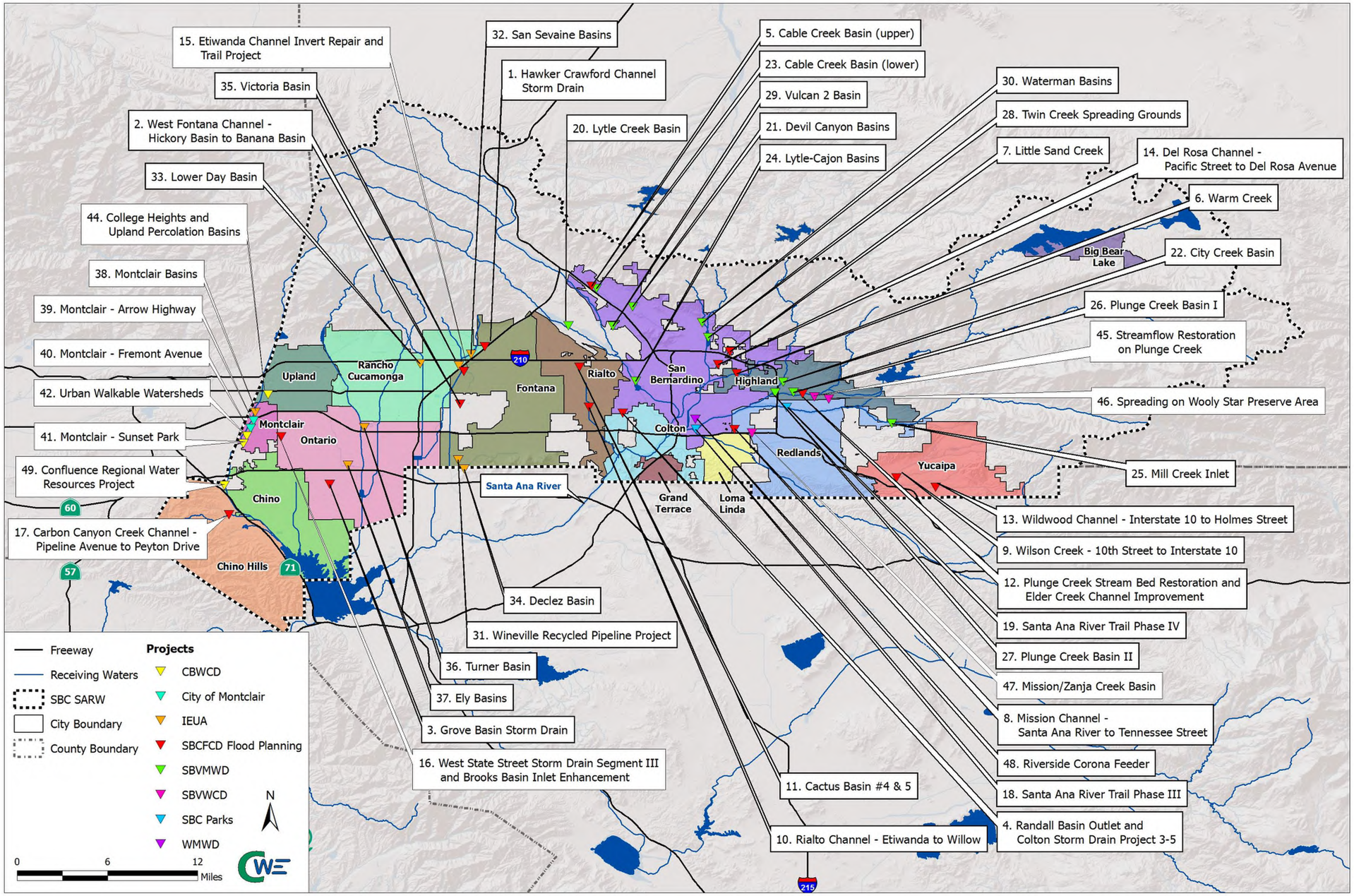
- Removal of roughly **four quadrillion** (4×10^{15}) MPN **E. coli bacteria** per year.
- Reduce the discharge of untreated stormwater by approx. 41,500 **acre-feet** per year.
- Cumulatively capture on average around 41,500 **acre-feet** of stormwater per year and use the volume to recharge local aquifers.
- Capture about 5,600 **acre-feet** of recycled water per year for groundwater recharge.
- Provide a benefit of reducing the peak flow rate during floods, with a maximum predicted flow rate reduction of 600 **cfs**.
- Cumulatively prevent 41,500 **acre-feet** of stormwater from reaching flood-prone areas.
- Reduce the water surface elevation during a flood event, with a maximum predicted flood elevation reduction of almost 9 **feet**.
- Remove over 1,700 **parcels** from the risk of flooding during a 100-year storm event. These parcels have a combined value of over **$510 million**.
- Enhance or create 2 **acres** of wetlands.
- Restore or enhance almost 31 **acres** of riparian habitat.
- Restore at least 2,300 **feet** of streambed to natural conditions, creating and preserving critical habitat for endangered species.
- Increase the amount of urban green space by about 66 **acres**.
- Construction is estimated to provide roughly 4,400 **job-years** of employment opportunities to the community. Estimated at cumulatively providing over 1,100 **new jobs**.
- Public education in at least **five projects**, including interpretive signage to increase the public's understanding of water quality protection and using stormwater as a resource.
- Increased permanent community involvement in at least **three projects**.
- Create or enhance over 24 **miles** of multi-use paths and trails for public use.
- Over 64 **acres** of new public use and recreational space will be created by the construction of the projects.

San Bernardino County

Santa Ana River Watershed Stormwater Resource Plan

SAN BERNARDINO COUNTY PUBLIC WORKS

SWRP Projects



San Bernardino County

Santa Ana River Watershed Stormwater Resource Plan

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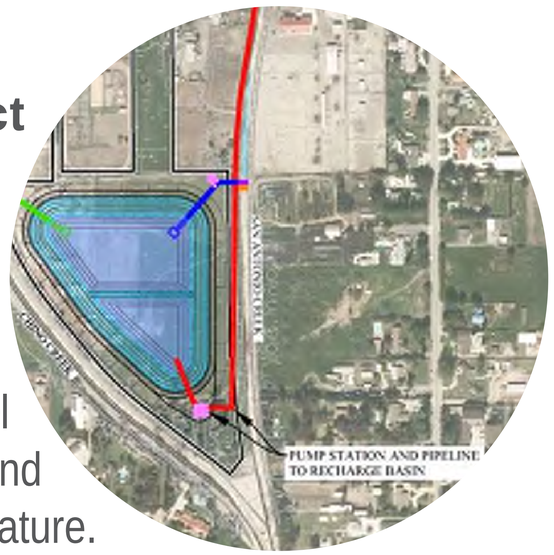
SWRP Example Projects

Cactus Basin No. 4 and 5

This project will provide beneficial uses in Disadvantaged Communities in Rialto and the Inland Empire by increasing the volume of stormwater captured to rechage groundwater, while enhancing water quality and protecting thousands of structures from flooding.

Confluence Basin Project

This project will construct a new groundwater recharge and storage reservoir where Chino and San Antonio Creeks meet. A habitat and bioremediation channel will be used as an educational and wetland habitat feature.



Elder Creek

The Elder Creek/Plunge Creek confluence project, a continuation of SBVWCD's Plunge Creek restoration project, will rehabilitate the ecological function of the Santa Ana River Wash area. The project will spread stormwater through braided channels to restore natural watershed processes, enhance groundwater recharge, and improve downstream water quality. The project will also improve Elder Gulch upstream of the confluence to reduce sedimentation and protect surrounding areas from flooding.

San Bernardino County

Santa Ana River Watershed Stormwater Resource Plan

SAN BERNARDINO COUNTY PUBLIC WORKS

Next Steps

June 29, 2018	Public SWRP Draft posted online
August 7, 2018	Public Comments due
August 31, 2018	Comments addressed in Final Draft SWRP
October 31, 2018	Final SWRP
Late 2018	Present SWRP to SAWPA
Late 2018/Early 2019	Proposition 1 Funding Application Released
2019	Apply for Funding
2020 - Onward	Implement Projects

Email:
swrp@cwecorp.com
for additional information

E: Vulnerability to Catastrophic Interruption of Water Supply and Disaster Preparedness

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Attachment 1 – Earthquake Literature Search

1 Background

This appendix addresses vulnerability of the region's water supply system to catastrophic events that may interrupt the water supply system in the Upper Santa Ana IRWM Plan Region (region). California Water Code Section 10632 (c) requires that Urban Water Management Plans address catastrophic supply interruptions. While not the only cause for catastrophic water supply interruption, the postulated Magnitude 8+ Earthquake certainly will be the predominant example in the region. Since a large magnitude earthquake is generally considered the most significant event for the region, we will concentrate on earthquake effects as our primary water supply interruption, knowing that other events would be treated similarly. Literature to be reviewed includes post-earthquake surveys of water system damage, earthquake planning reports, purveyor's Urban Water Management Plans and available reports prepared by the Department of Water Resources. We have concentrated the following discussions with a magnitude 8+ earthquake. Other catastrophic interruptions caused by regional power failure, terrorist attack, or other man-made or natural catastrophic event could cause similar conditions and issues to water supply systems in the region. For purposes of this report, a major earthquake is defined as an earthquake on the San Andreas Fault (SAF) on the order of 8.0.[1]

The work conducted for this appendix is intended to be the first step and is at the conceptual level. Additional detailed work should be conducted in the future to further evaluate options to effectively address water supply system vulnerabilities. This appendix includes the discussion of the following:

- An earthquake literature search of major earthquake events and what has been learned from such events.
- Evaluation of Catastrophic interruption of the regional facilities
- Vulnerabilities of region's water supply system to SWP supply interruption.
- Vulnerably of local purveyors' system to an earthquake .
- Summary of Finding and Recommendations including Water Shortage Contingency Plan

[1] The California Division of Mines and Geology has prepared two "Planning Scenarios" for major earthquakes in southern California. The first was a Magnitude 8.3 Earthquake on the San Andreas Fault (California, 1982). The second was a magnitude 7 earthquake on the San Bernardino Valley segment of the San Jacinto Fault (California, 1993).

- Options to reduce the impacts in case of catastrophic water supply system failure.
- Water Shortage contingency planning.

The region is located in a seismically active area of Southern California. Four major fault zones are found in the region, including the San Jacinto Fault, the Chino-Corona segment of the Elsinore Fault, the Cucamonga Fault, and the San Andreas Fault (SAF). Numerous other minor faults associated with these larger fault structures may also present substantial hazards.

The SAF is a right-lateral strike-slip fault that runs approximately 800 miles through western and southern California. The fault marks a transform boundary between the Pacific Tectonic Plate and the North American Tectonic Plate.

In Southern California, the SAF runs along the southern base of the San Bernardino Mountains, crosses through Cajon Pass, and continues northwest along the northern base of the San Gabriel Mountains. Historical records indicate that massive earthquakes have occurred in the central section of the SAF in 1857 and in the northern section in 1906 (the San Francisco Earthquake). In 1857, an estimated magnitude 8+ earthquake occurred on the San Andreas Fault rupturing the ground for 200 to 275 miles, from near Cholame to Cajon Pass and possibly as far south as San Gorgonio Pass. The recurrence interval for a magnitude 8 earthquake along the total length of the fault is estimated to be between 50 and 200 years. It has been 147 years since the 1857 rupture. A study completed by Yuri Fialko (2005) suggests that the SAF in Southern California has been stressed to a level sufficient for an earthquake of magnitude 7.0 or greater.

A detailed earthquake-related literature search was conducted to prepare this report. The literature search included review of the following events and reports:

- Loma Prieta Earthquake of October 17, 1989
- Northridge Earthquake of January 17, 1994
- Santa Clara Valley Water District Water Infrastructure Reliability Project
- San Simeon Earthquake of December 22, 2003
- Denali Earthquake of November 3, 2002
- City of San Diego Water Supply Study
- City of Vancouver Regional Water Distribution System Study
- San Fernando Earthquake of 1971
- Kobe (Japan) Earthquake of January 17, 1995
- California Division of Mines and Geology Planning Scenarios

Attachment A summarized this literature search.

2 Evaluation of a Catastrophic Interruption to Regional Facilities

The California Aqueduct has been designed to "break" at the Devil Canyon Powerplant in a large earthquake.

Some of Valley District's pipelines cross the San Andreas Fault. This section evaluates the impact of a catastrophic interruption on Valley District's regional facilities used to convey SWP water supplies and specific actions that may be taken to minimize the impact on water deliveries.

2.1 Facility Evaluation

The individual facilities that were examined in this analysis are as follows:

- Foothill Pipeline
- Santa Ana River Connector (SARC) Pipeline
- Greenspot Pump Station
- Morton Canyon Connector
- Greenspot Pipeline
- Tate Pump Station
- Crafton Hills Pump Station
- Crafton Hills Reservoir
- Crafton Hills Pipeline, portion of EBX
- Yucaipa Pipeline
- Bryant Street Pipeline
- Lytle Pipeline
- Baseline Feeder System

Given a loss of each of the above facilities, the examination will include:

- How the water supply needs of the affected service area could be met.
- To what degree local groundwater and/or surface water can replace the loss of the SWP
- What projects would be required to mitigate the loss of the facility.

- What projects could be implemented to mitigate the impact of catastrophic failures of these facilities.

Figure AF-1 shows the location of Valley District's major facilities relative to fault lines.

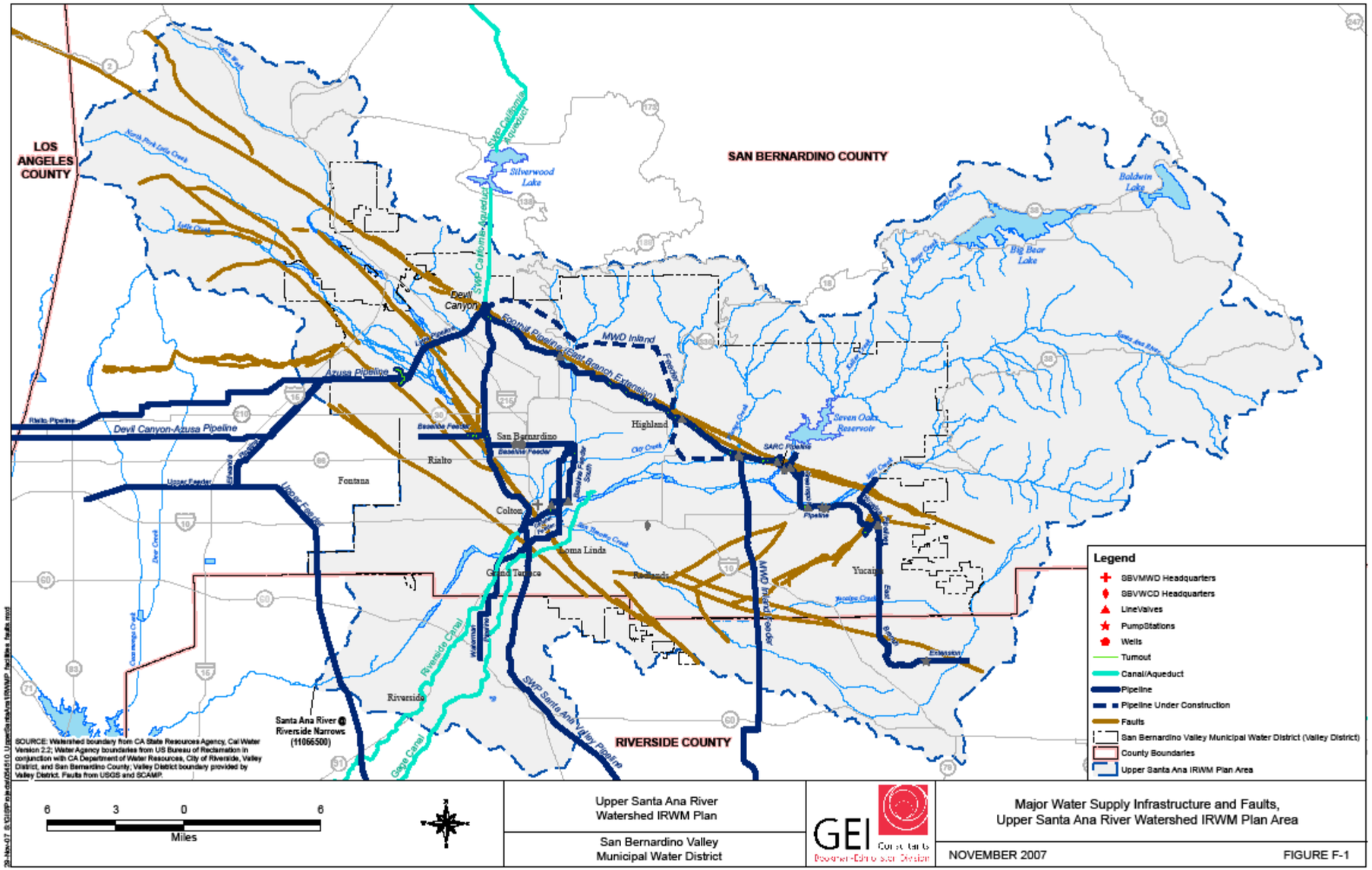
In general, Valley District direct deliveries are to surface water treatment plants that were built to treat local surface water and SWP water. Local surface water, collected and conveyed by the purveyor's own system is the least costly and highest quality. Valley District's SWP deliveries supplement these supplies.

Valley District also makes direct deliveries for irrigation. These deliveries are assumed to be able to be suspended during severe events and will not be investigated further.

Table AF-1 shows the Valley District conveyance facilities and the surface water treatment plants that receive deliveries of imported and surface water from those facilities. This table shows how interruption in each of the Valley District facilities may impact water deliveries for the local purveyors. Valley District's conveyance system is used to implement the Santa Ana-Mill Creek Cooperative Water Project and effect deliveries of local surface water and exchanges of local surface water and SWP water. Furthermore, these facilities could be used to convey local surface water from the Santa Ana River and/or Mill Creek in the east to delivery points in the west along the Lytle Creek Pipeline. In the past, Valley District has demonstrated this capability by delivering local surface water from the Santa Ana River to Devil Canyon where it was transferred to Metropolitan Water District of Southern California and conveyed to the Weymouth Water Filtration Plant.

It should also be mentioned that the California Division of Mine and Geology planning scenario for a major earthquake on the San Jacinto Fault concludes that the Santa Ana Valley (a SWP facility) Pipeline will also be damaged extensively as the fault and pipeline cross several times. Since Valley District does not have any current delivery points along this pipeline, it is not considered in this analysis.

Figure F-1
Water Supply Infrastructure and Faults



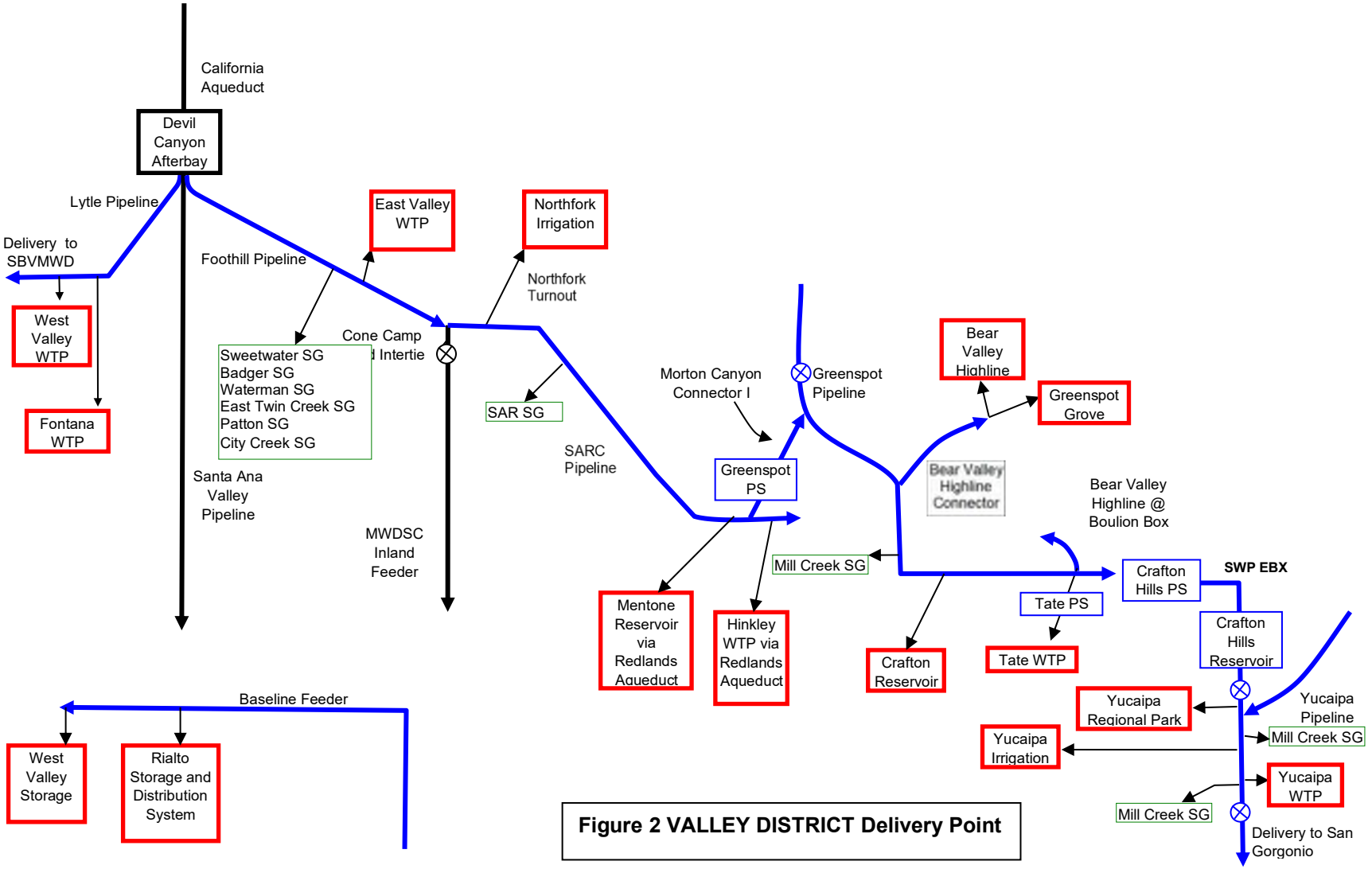


Figure 2 VALLEY DISTRICT Delivery Point

NOTE: Arrows indicate the primary flow direction. In some cases, water can also flow in the opposite direction, in an emergency, for short durations.

Table AF-1
Valley District Facilities Used to Deliver Water to Retail Agencies

Agency	Foothill Pipeline	SARC Pipeline	Morton Canyon Connector	Green-spot Pipeline	Green-spot Pump Station	Devil Canyon - Azusa	Tate Pump Station	Crafton Hills PS	Crafton Hills Reservoir	EBX[1] Reach 1 Pipeline	EBX Reach 2 Pipeline	Yucaipa Pipeline	Baseline Feeder
San Bernardino Municipal Water Department	✓	✓[2]	✓[2]	✓[2]	- -	- -	- -	- -	- -	- -	- -	- -	- -
East Valley Water District	✓	✓[2]	✓[2]	✓[2]	- -	- -	- -	- -	- -	- -	- -	- -	- -
City of Redlands – Hinckley	✓	✓	✓[3]	✓[3]	✓[3]	- -	- -	- -	- -	- -	- -	- -	- -
City of Redlands – Tate	✓	✓	✓	✓	✓	- -	✓	- -	- -	- -	- -	- -	- -
Bear Valley MWC - In lieu obligation and irrigation	✓	✓	✓	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Yucaipa Valley Water District	✓	✓	✓	✓	✓	- -	- -	✓	✓	✓	✓	✓	- -
Fontana Water Company	✓[2]	✓[2]	✓[2]	✓[2]	- -	✓	- -	- -	- -	- -	- -	- -	- -
West Valley Water District	✓[2]	✓[2]	✓[2]	✓[2]	- -	✓	- -	- -	- -	- -	- -	- -	✓
City of Rialto (SWP thru WVWD)	✓[2]	✓[2]	✓[2]	✓[2]	- -	✓	- -	- -	- -	- -	- -	- -	✓

Notes:

[1]EBX: East Branch Extension of the California Aqueduct

[2] Used only in an emergency condition to deliver Santa Ana River and/or Mill Creek water in a westerly direction.

[3] Could be used to receive a water delivery from Bear Valley Mutual Water Company

Valley District's conveyance system is used to implement the Santa Ana-Mill Creek Cooperative Water Project and effect deliveries of local surface water and exchanges of local surface water and State Project water.

The Devil Canyon - Azusa Pipeline is owned by San Gabriel Valley Municipal Water District. Valley District owns 50% of the conveyance capacity of the pipeline from Devil Canyon to the Lytle Creek area and uses this capacity to convey water to West Valley, Rialto, and Fontana. It could also be used in an emergency to convey local surface water.

The Baseline Feeder is used to convey groundwater to Rialto and West Valley. The groundwater is produced by the City of San Bernardino on behalf of Valley District and by Rialto for Rialto.

Valley District deliveries to San Bernardino Municipal Water Department are for recharge. Changes in recharge impact well hydrographs in six to seven months.

2.2 Findings and Recommendations

Table AF-1 summarizes the Valley District facilities which purveyors utilize. This table also includes Valley District facilities that could be used to make other deliveries in an emergency situation. Table AF-1 shows that all purveyors listed could be impacted by interruption in the Foothill Pipeline, SARC Pipeline and Morton Canyon Connector. Therefore, these four pipelines are the most vulnerable Valley District facilities in the case of a major earthquake along the San Andreas Fault. Specific recommendations to manage the catastrophic interruption are discussed below.

2.2.1 Alternative Local Supplies

2.2.1.1 Interties between Purveyors

Table AF-2 lists interconnections between purveyors. These interties could be used to balance supplies between purveyors. An interconnection between the City of San Bernardino and East Valley is currently being used to facilitate blending. This use is anticipated to end in the near future.

Table AF-2 – System Interties between Purveyors

Transfer	Direction	Capacity (MGD)	Remarks/data source
City of San Bernardino/East Valley	Either	4	Three interties. One currently used to facilitate blending.
City of San Bernardino/Riverside	To San Bernardino	2	(San Bernardino UWMP, Pg 2-10)
City of San Bernardino/West Valley	Either	3	(San Bernardino UWMP, Pg 2-10)
City of San Bernardino/Loma Linda	Either	5	(San Bernardino UWMP, Pg 2-10)
City of San Bernardino/Colton	To Colton	3	(San Bernardino UWMP, Pg 2-10)
City of San Bernardino/Rialto	Either	3.6	(San Bernardino UWMP, Pg 2-10)
City of San Bernardino/ Riverside Highland	To Riverside/ Highland	3	(San Bernardino UWMP, Pg 2-10)
Fontana/Cucamonga Valley	Either	3.6	Fontana UWMP (2500 gpm)
West Valley/Fontana	Either		West Valley UWMP.
West Valley/Rialto	Either		West Valley UWMP.
West Valley/Colton			West Valley UWMP.
Redlands/Loma Linda	To Loma Linda		Greg Gage
Rialto[1]/Marygold	To Marygold		Rialto has historically conveyed 1,500 afy of groundwater to Marigold. The agreement under which this was accomplished is expiring.

Sources: San Bernardino Municipal Water Department 2005 UWMP; Jack Nelson, Yucaipa Valley; Ron Buchenwald, East Valley; Greg Gage, Valley District, West Valley 2005 UWMP.

[1] Rialto has several connections with other systems, including four connections with West Valley Water District, and connections with City of San Bernardino, Fontana Water Company, and Riverside Highland Water Company.

Based on the limited sources of data, this list may be incomplete.

2.2.1.2 Use of Big Bear Lake

Big Bear Lake has a capacity of over 70,000 acre-feet. The goal of Big Bear Lake Municipal Water District is stabilization of the level of Big Bear Lake by managing the amount of water released to the downstream water rights holder. That is, water is kept stored in the lake at all times for recreational use. Bear Valley Mutual Water Company (Mutual) has rights to a large portion of the lake. Through an agreement with Big Bear Municipal Water District (Big Bear), Valley District provides SWP water to Mutual instead of water being released from the lake. However, in an emergency situation, it may be possible for water to be released from the lake for a short duration. A legal framework could be established to make this water available in case of a catastrophe that prevented Valley District from making its deliveries under the agreement with Big Bear.

2.2.2 Increased Groundwater Production Capacity and Reliability

In general, the groundwater basin is presently able to meet peak demands using wells without Valley District facilities. If the catastrophe is an earthquake, the most likely impact on groundwater production capacity will be damage to the electrical system of the well or to the electricity supplier's system, and backup power supplies at key production wells will be necessary

Thus, depending on the system of each purveyor, increasing the purveyor's groundwater production capacity and the reliability of that capacity may improve the area's ability to operate after a catastrophic failure.

2.2.3 Alternative Conveyance of Surface Water

2.2.3.1 Alternatives to Foothill Pipeline System

As stated earlier, Foothill Pipeline together with Santa Ana River Connector Pipeline are the most vulnerable facilities if a major earthquake were to occur along the San Andreas Fault and the most critical during a catastrophic interruption. The following systems could provide some alternative conveyance of surface water should portions of the Foothill Pipeline System fail:

- Metropolitan's Inland Feeder can provide redundancy of the Foothill Pipeline to the intertie at Opal Avenue. The Inland Feeder could also be used to pump water from Diamond Valley Lake north to the intertie with the Valley District Foothill Pipeline. The conveyance capacity of the Inland Feeder operating from Diamond Valley Lake to the north is reported to be 250 cfs.

- The proposed conjunctive use project would include facilities that could convey stored groundwater from the San Bernardino Basin Area to purveyors as a substitute for imported water.

2.2.4 Additional Surface Storage

If the ability to import SWP water is lost or the region is faced with major interruption of regional and local facilities due to a catastrophic event, it is important to have ample local surface storage to meet immediate water demands. While there may be significant water stored below ground, the ability to extract and deliver this water may also be disrupted by a catastrophic event. The following suggestions could further prepare the Region for such an emergency:

- Inventory surface water storage facilities throughout the region and determine the amount of existing storage capacity compared to need to satisfy emergency water

demands. The Valley District should conduct an evaluation of feasible storage needs for the Region.

- Select appropriate delivery methods for the waters (i.e., trucking or alternative or backup pipelines).
- Rank agencies by their current amount of surface water storage and their operating storage amounts to determine which areas of the Region are in need of additional surface storage. (How far would people have to walk or drive to get to water? Which cities or communities are most at risk for water shortages?)
- Investigate adding additional local surface water storage facilities that could supply water to the entire Region in the event of an emergency. (North and South Lake projects and conservation pool behind Seven Oaks Dam.)

3 Vulnerability of Region's Water Supply System to SWP Supply Interruption

The scenario considered by this document is a large earthquake along the San Andreas Fault severing the State Water Project (SWP) California Aqueduct just above Devil Canyon power plant. In addition to the threat of earthquake, a disruption on the SWP could be caused by levee failure in the Sacramento-San Joaquin Delta or by other disruptions in transmissions facilities. These two disasters would have an impact on the delivery of SWP water into the region. This chapter will investigate the effects of an interruption of the SWP system on Valley District's customers.

3.1 Valley District SWP Deliveries

Deliveries of SWP water to Valley District have averaged approximately 15,000 acre-feet per year (1999-2003 Western-San Bernardino watermaster records). San Gorgonian Pass Water Agency is also receiving SWP water that would be affected by interruption of SWP deliveries. These direct deliveries are projected to increase to 34,000 acre-feet per year by 2030 based on the UWMP projections within the Region. Historically, direct deliveries have peaked during summer months with the greatest deliveries in July, August, and September. In the event that State Water Project deliveries are severely reduced, more demand will be placed on local groundwater supplies. For example, in a one-month shutdown, additional demands on groundwater within the Valley District service area would be 3,000 to 6,000 acre-feet (current to future demands, shut down in the summer); in a six-month shutdown, additional groundwater demands would be 10,000 to 30,000 acre-feet (current to future demands, shut down in May to September); and in a 12-month shutdown, additional demands on groundwater would be 15,000 to 34,000 acre-feet (current to future demands).

3.2 Overview of Known Earthquake Vulnerabilities of State Water Project

Publications available from the Department of Water Resources address the institutional requirements of responding to an emergency.

3.2.1 California Division of Mines and Geology Planning Scenarios

The California Division of Mine and Geology planning scenario for a major earthquake on the San Jacinto Fault concludes that the Santa Ana Valley Pipeline of the SWP will be damaged extensively as the fault and pipeline cross several times.

The planning scenario for a magnitude 8.3 earthquake north of the San Bernardino area and on the San Andreas Fault concludes that though all of the SWP facilities of the California Aqueduct are designed to resist the effects of a great earthquake comparable to the scenario event, widespread damage to the aqueduct will inevitably occur. For planning purposes, a minimum of three months will be required to accomplish those repairs necessary to restore water deliveries to southern California. Severe damage to the East Branch where it crosses the San Andres Fault at Barrel Springs is expected. No major damage to aqueduct facilities between Lake Silverwood and the Devil Canyon Power Plant is expected (this scenario assumes that surface fault rupture would terminate some 25 km northwest of Devil Canyon). The Santa Ana Valley Pipeline would be subjected to intense shaking and possible ground failure.

3.2.2 Seismic Risk Analysis for California State Water Project – Reach C

The objective of this study (Shah, 1976) was to develop a seismic hazard map for the east branch of the SWP. The study concluded that with respect to the pumping and power plants, the hazard or probability of exceeding the design load level employed for the substructures and superstructures during the next 50 years was very small (on the order of 5 percent). For the switchyards, however, the probability of exceeding their design load level during the next 50 years is large (on the order of 30 to 60 percent).

The following recommendations were made as a result of the above study.

- "The risk of damage or destruction to the pumping and power plant substructures and superstructures is minimal during the next 50 to 100 years, and therefore no action is required. However, for the mechanical and electrical equipment within these plants it is recommended that a thorough survey be made to evaluate their ability to resist seismic loads."

- "All switchgear equipment should be modified so as to resist a minimum peak ground acceleration of 0.3 g. This load level corresponds to a return period of approximately 200 years or more along [the East Branch]."

- "Since the ground shaking along the Santa Ana Valley pipeline is relatively high, in excess of 0.5 g for a 1000 year return period), an investigation should be made to determine the advisability of providing a cut-off facility for this portion of the [East Branch]."

- "Because of the large risk potential, a central operations and maintenance center with facilities and capabilities for dealing with earthquake induced damage should be set up for the region south of the Devil Canyon Power Plant."

3.3 Finding and Recommendations

Valley District currently requires the agencies it serves to have a back-up water supply in case the State Water Project (SWP) supply is not available. Assuming the back-up supply is groundwater produced from the San Bernardino Basin Area (SBBA), 15,000 additional acre-feet per year of groundwater production would be needed if the earthquake happened in the near future, and potentially 34,000 acre-feet of additional groundwater production if the earthquake happened around 2030.

The average instantaneous pumping rate for the 199 wells (with data available) of the major water purveyors in the SBBA is approximately 1,438 gpm. Based on well production rates at 70 percent of their instantaneous pumping rate, annual production would be about 323,100 acre-feet. For the remaining wells without instantaneous pumping rate data, the total maximum annual production between 2001 and 2005 was about 60,800 acre-feet. This yields a total maximum annual groundwater production capability of 383,900 acre-feet. The projected actual groundwater pumping for the Baseline Run 1 ranged from between 193,200 acre-feet in 2010 to 289,100 acre-feet in 2034, with an annual average of 248,900 acre-feet per year for the period 2006-2044. Thus, the additional groundwater production that could be used if the state aqueduct was severed is approximately 95,000 acre-feet (383,935 – 289,105) which is greater than the estimated 2030 need of 34,000 acre-feet. The 95,000 acre-feet represents approximately 9 percent of the 1,000,000 acre-feet of usable storage in the SBBA.

In the event of a SWP shutdown, there is sufficient groundwater storage, production facilities and transmission facilities to likely provide short-term water deliveries to customers in the Valley District service area. To prepare for such an outage, SWP and local supplies should be stored in the local groundwater basins, whenever available.

3.3.1 Pipeline Redundancy

Pipeline redundancy in the region is important if interruption occurs in the region along the Foothill Pipeline. On a regional-scale, projects like the Baseline Feeder, the proposed conjunctive use project and the MWDSC Inland Feeder provide additional options of conveyance in an emergency situation.

Although a loss of SWP water for a short period of time can be overcome, the SWP is critical to long-term management of the groundwater basin. The following suggestions are intended to help further prepare the Region for a shutdown of the State Water Project.

3.3.2 Recharge with SWP Water when it is Available

The SBBA is essentially an underground storage reservoir that contributes to the water reliability of the Region during periods of drought. By recharging water from the SWP when it is available, the Region can prepare in advance for drought or disruptions in the SWP

system. This is a primary management strategy of the San Bernardino Valley Regional Urban Water Management Plan and the Upper Santa Ana River Watershed Integrated Regional Water Management Plan.

3.3.3 Surface Storage in the Region

Additional surface storage in the region can help provide water supplies during a catastrophic failure of the California Aqueduct.

3.3.4 Exchange and Banking Program Utilizing Santa Ana River Water

In years when water available from the Santa Ana River exceeds the capacity of local treatment plants and spreading grounds, the excess amount could physically be delivered to the Inland Feeder and into Metropolitan's water system in exchange for SWP water from Metropolitan. This banked water could be recovered and delivered to the region if a catastrophe occurs along the California Aqueduct.

4 Vulnerabilities of Local Purveyors Water Supply System to an Earthquake in the Region

A catastrophic 8.0 earthquake near San Bernardino could lead to pipeline rupture, loss of electricity, and well failure, substantially reducing water supplies available in the Region. The quality of both surface and groundwater supplies could also be affected by the failure of existing wastewater treatment facilities. Figure AF-1 shows the San Andreas Fault trace through the Valley District service area with a five mile fault buffer zone. In the case of a 7.8 earthquake, anything within five miles of the fault is likely to be damaged or destroyed (Caltech meeting, July 31, 2007). In addition, regional infrastructure within this zone includes the SWP CA Aqueduct coming from Lake Silverwood to Devil Canyon, regional water facilities owned by Valley District (Foothill Pipeline, Greenspot Pipeline, Lytle Canyon Pipeline, and the East Branch Extension), and Metropolitan's Inland Feeder will be impacted. Prudent preparation for a catastrophic earthquake would suggest planning for no water deliveries from the SWP.

4.1 Overview of Known Earthquake Vulnerabilities of Purveyor's Systems

This section has been prepared based on review of Urban Water Management Plans of agencies receiving direct deliveries from Valley District. California Water Code Section 10632 (c) requires that Urban Water Management Plans address catastrophic supply interruptions.

4.1.1 San Bernardino Municipal Water Department

San Bernardino Municipal Water Department's Supplemental Emergency Plan is designed for implementation during emergency water shortages that could occur as a result of earthquake, flood, fire, or other catastrophes. SBMWD maintains portable backup power supply and diesel- and/or natural gas-driven wells at critical locations within the distribution system to provide domestic water for emergency purposes during sustained power outages. Additionally, they have entered into a Mutual Aid Agreement with surrounding water agencies.

4.1.2 East Valley Water District

East Valley has in place back-up power supplies at critical locations within the distribution system. The District maintains portable pumps that can be used to transfer water between zones, but cannot be used for production. East Valley's storage capacity of 25.5 million gallons would provide a potable supply for customers' non-irrigation uses (assumes

implementation of Water Shortage Contingency Plan) for an estimated two to three days. A Mutual Aid Agreement with surrounding water agencies is also in place for the provision of water supply and/or manpower.

East Valley has an agreement with Arrowhead Drinking Water Company to deliver potable water tanks to selected sites within the District's service area. The trucks will be manned by District personnel to distribute water to customers for drinking purposes.

Were surface water deliveries to East Valley disrupted, East Valley has adequate groundwater production capacity to meet peak day. This presumes that East Valley's facilities remained intact.

4.1.3 West Valley Water District

Extended multi-week supply shortages due to natural disasters or accidents that damage all West Valley water sources are unlikely. The District's 23 storage reservoirs hold 65.6 million gallons, which is sufficient water to meet the health and safety requirements of 50 gallons per day per capita for the 60,121 customers for 21 days. This assumes zero non-residential use. Under emergency power outages or catastrophic earthquake conditions, the existing storage is expected to provide a minimum supply of 3.5 days of average day demand or 1.7 days under maximum summer demand.

The District is planning to construct an additional 12.5 million gallons of storage within the next few years for a total of 78.11 million gallons, which would give the District 4.2 days of average day demand. The District also has interconnections with three other agencies for emergency supplies.

The District has portable back-up generators that can be used in the event of an area-wide power outage. These generators can be located on both wells and booster stations to continue water production. These generators will be located in the northern part of the distribution system. Water can then be boosted to higher zones or gravity fed to the lower zones. In addition to the portable generators, the District is constructing back-up generators at the Zone 5 and 6 booster stations.

West Valley's groundwater production capacity is approximately 80 percent of peak day demand. It obtains water from two Valley District facilities, the Lytle Pipeline and the Baseline Feeder. These facilities are required to meet peak day demand.

4.1.4 Yucaipa Valley Water District

Yucaipa Valley's Major Disaster Plan and Alerting Procedures deal with non-drought-related water shortages, including those that might result from earthquakes. It outlines the responsibilities of the District's designated emergency response personnel, alerting

procedures, alternate headquarters, communications, transportation, and relationships with regional and state emergency response officials.

To the extent well capacity exists, the Yucaipa basin can be temporarily exercised beyond its long-term safe yield in response to shortages.

It is East Valley's intent to maintain groundwater production facilities adequate to meet peak day demand without use of surface water.

4.1.5 City of Redlands

The Redlands UWMP notes that the Redlands Municipal Utilities Department has an emergency plan that supplements the Citywide Emergency Plan. It notes that in case of an earthquake, required actions are to "coordinate the resources necessary for repair of water infrastructure," and to "utilize vendor lists to identify available water haulers, temporary water lines, piping, heavy equipment, etc."

Redlands does not have adequate capacity to meet peak day demand without use of surface water. Redlands obtains surface water from Mill Creek and SWP wheeled by SBVWMD. During a typical summer, Mill Creek is the main source during early summer, but this supply is substantially reduced by late summer. SWP water is the dominate source in late summer. Depending on the supply of Mill Creek water, Redlands may not be able to meet peak day demands without SWP water.

4.1.6 Fontana Water Company

Fontana is dependent on imported surface water to meet demands. Presently, the water is all delivered via the Lytle Pipeline. It is possible that in the future, some of the imported water will be conveyed by Metropolitan's Foothill Feeder (also known as the Rialto Pipeline). These two lines are parallel, however, and it is reasonable to presume that the same event that damages one will damage the other.

4.1.7 City of Rialto

Rialto's UWMP notes that the city's storage reservoirs can meet the health and safety requirements of 50 gallons per day per capita for 11 days. This assumes no non-residential use. The City is retrofitting key well sites to enable the City to bring in portable generators for use during a power outage.

Rialto obtains water from two Valley District facilities, the Lytle Pipeline and the Baseline Feeder. It is believed that both these facilities are required to meet peak day demand.

4.2 Findings and Recommendations

- The purveyors in the region will primarily rely on groundwater during catastrophic events. Therefore, they must ensure they have reliable and adequate backup power supplies at critical locations within the distribution system as well as key production wells. The backup power supplies should be tested periodically to ensure proper operations during emergencies.

- Local purveyors should examine their current storage and interties capacities and plan for additional storage and interties to ensure adequate water supply is available for health and safety during catastrophic events.

5 Summary of Findings and Recommendations

5.1 Findings

These findings have been developed from a search of literature reporting the impacts of major earthquakes and limited work by water purveyors. More detailed, site-specific analyses are needed to better quantify and identify impacts from major earthquakes or other catastrophic outages.

- **Reliability of Groundwater Wells.** Review of post-earthquake lifeline performance reports reveals little discussion of groundwater well failure. However, loss of commercial power, damage to electrical equipment and aboveground appurtenances, or damage to the distribution system may effectively put the well out of service. Liquefaction, especially in areas where there is high groundwater levels between depths of 5 to 50 feet, may cause ground settlement and interfere with continued well operation.

  No discussion of the performance of well head treatment systems during earthquakes was found. This may be due to the limited amount of well head treatment in place during prior earthquakes. As well head treatment typically includes purchased equipment installed in a field location, there is significant opportunity for lapses in the seismic design.

  The groundwater basin and the groundwater production wells are a reliable part of the water supply system for the San Bernardino area.

- **Reliability of Pipelines**. Pipelines are generally the most fragile part of a water system. Generally, damage is a function of displacement rather than shaking. Empirical algorithms have been developed to predict seismic reliability of pipelines.
- **Reliability of Pump Stations**. Past earthquakes indicate that the structural and mechanical elements of a pump station are highly resistant to earthquake damage. The most likely failures are to the electrical equipment and loss of commercial power.
- **Reliability of Surface Water Treatment Facilities**. The major elements of a surface water treatment system are typically concrete structures that are very resistant to damage. However, these facilities include a large variety of mechanical equipment, much of it long and light weight that is subject to damage not only from the direct force of an earthquake, but also to the wave action created by the earthquake. Similar to a pump station, power supply and electrical equipment are fragile.

- **Reliability of the State Water Project**. While little specific information was found on anticipated damage to the SWP, the high susceptibility of the Santa Ana Valley Pipeline is recognized. A major vulnerability of the SWP is the Sacramento-San Joaquin Delta. The SWP does have a Business Resumption Plan and an Emergency Operations Plan.
- **Length of Outages.** The Loma Prieta earthquake affected a large number of separate systems. The San Jose Water Company serves most of San Jose and all of Los Gatos. Los Gatos was hard hit and half of the water customers lost water service. In San Francisco, the worst hit area was the Marina District. Fires and liquefaction both affected the district. East Bay Municipal Water District serves 1.1 million customers and suffered $3.7 million in damage. Damage included a break in a 60-inch raw water line.

  After the Northridge earthquake, the Los Angeles Aqueducts No. 1 and 2 were in and out of service for temporary and permanent repairs over several months, these facilities were not critical at that time. Alternate supplies were available and drought conditions limited supply to these aqueducts.

  Table AF-3 shows the length of outages for water operation during the Loma Prieta and Northridge earthquakes.

  Valley District's Emergency Operations Plan includes estimates for repair of Valley District facilities. Electrical and pipe repairs are estimated to take 35 to 77 days. Pump repairs are estimated to take 168 to 273 days.

  Tables AF-4 and AF-5 summarize the degree to which purveyors depend on Valley District facilities for deliveries over a period of days to one year. These tables presume normal operations by the purveyor with the exception that non-potable deliveries (West Valley and Yucaipa) are suspended.

Table AF-3 – Length of Outages for Water Operation during Loma Prieta and Northridge Earthquakes

Earthquake	Purveyors	Time to Restore Water Operation
Loma Prieta	San Jose WC	36 hrs/98%
	San Francisco	6 days/most areas
	East Bay MWD	3 days/normal operation
Northridge	City of L.A.	12-65 days

Table AF-4 – Percent of Present (P) and Future (F) Peak Day, Potable Demand conveyed by SBVWMD facilities when no local surface water is available. Assumes imported water used prior to local groundwater

Purveyor	Foothill Pipeline	SARC Pipeline	Greenspot Pump Station	Morton Canyon Connector	Greenspot Pipeline	Tate Pump Station	Crafton Hills PS	Crafton Hills Reservoir	Crafton Hills Pipeline	Bryant Street Pipeline	Yucaipa Pipeline	Lytle Pipeline	Baseline Feeder
San Bernardino Municipal Water Dept	0	0		0	0								
East Valley Water District	12 (P) 24 (F)	12 (P) 24 (F)		12 (P) 24 (F)	0								
Redlands	36 (P) 41 (F)	36 (P) 41 (F)	24 (P) 25 (F)	51 (P) 35 (F)	24 (P) 25 (F)	24 (P) 25 (F)							
Yucaipa Valley Water District	24(P) 49 (F)	24(P) 49 (F)	24(P) 49 (F)	24(P) 49 (F)	24(P) 49 (F)		24(P) 49 (F)	24(P) 49 (F)	24(P) 49 (F)	24(P) 49 (F)	0		
Fontana Water Company	0	0		0	0							unknown	
West Valley Water District	0	0		0	0							23 (P) 36 (F)	12(P) 27 (F)
City of Rialto	0	0		0	0							7 (P) 6 (F)	unknown

Notes:
San Bernardino Municipal Water Department figure does not include deliveries of surface water for wells under the influence of surface water as it takes six to seven months for the hydrographs of these wells to respond. If these deliveries were included, they would be 14% of peak day demand.
Does not include deliveries for irrigation or indirect deliveries.
Gray shading indicates a conveyance facility that cannot under any circumstances be used to convey water to the agency.

Table AF-5 – Groundwater and Local Surface Water Production Capacity as percent of peak day demand

Purveyor	Percentage	Remarks
San Bernardino Municipal Water Department	113%	
East Valley Water District	104%	
Redlands	≈ 75 to 85%	Assumes late summer when local surface water supplies are low. When local surface water supplies are high, Redlands can produce approximately 85 to 95% of demand.
Yucaipa Valley Water District	95%	Yucaipa's intent is to maintain groundwater production facilities adequate to meet peak demand. As of August 2007, they do not meet this goal.
Fontana Water Company	Significantly less than 100%	
West Valley Water District	78%	Projected to decrease to 59% in the future.
Rialto	unknown	
Notes: Does not include non-potable use by West Valley and Yucaipa.		

5.2 Recommendations for Disaster Preparedness

This section includes the consultants recommendations based on the literature review and discussions with District staff and purveyors. The following recommendations have not been included in the administrative draft of the IRWM Plan. After these recommendations, the projects already included in the IRWM Plan that would enhance disaster preparedness will be reviewed.

5.2.1 General Recommendations

- Consider a Seismic Improvement Program/Water Infrastructure Reliability Project to review the adequacy of Valley District facilities to withstand an earthquake. East Bay Municipal Utilities District and Santa Clara Valley Water District (Santa Clara Valley Water District, 2005) are two agencies that have performed such studies. High priority facilities include Foothill Pipeline, Santa Ana River Connector, Morton Canyon Connector, and Greenspot Pipeline.
- Consider the opportunities that Big Bear Lake presents as an emergency source of water after an earthquake that interrupts SWP deliveries for many weeks.
- Consider using the existing MWD agreements to allow the use of Metropolitan Water District facilities to bypass failed Valley District facilities (and the reverse).

- Review ability to provide drinking water immediately following an earthquake. Arrangements to provide bottled water may be appropriate.
- The USGS Multi-hazards Demonstration Project (MHDP) is leading an effort to create a scenario document for a future M7.8 southern San Andreas Fault earthquake. The document will describe in detail the effects of the earthquake. It will form the basis for a November 2008 statewide earthquake response exercise. The USGS contact for this project is Dale Cox, dacox@usgs.gov, 916/997-4209. It is probable that useful information for disaster preparedness planning will come out of this effort.

5.2.2 Proposed Projects to Provide Conveyance System Redundancies for the Regional Facilities

The proposed conjunctive use project could provide the backup well production needed for the retail water agencies in an emergency when SWP supplies have been severed.

5.3 Alternative Local Supplies

This section is intended to initiate a discussion of options that would improve the water supply reliability in case of a catastrophic failure of portions of the Valley District water system.

5.3.1 Interties between Purveyors

Table AF-6 lists interconnections between purveyors. These interties could be used to balance supplies between purveyors. An interconnection between the City of San Bernardino and East Valley is currently being used to facilitate blending. This use is anticipated to end in the near future. Fontana Water Company has historically depended on supplies delivered through its interconnection with Cucamonga Valley to meet peak day demand.

Table AF-6 – System Interties between Purveyors

Transfer	Direction	Capacity (MGD)	Remarks/data source
City of San Bernardino/East Valley	Either	4	Three interties. One currently used to facilitate blending.
City of San Bernardino/Riverside	To San Bernardino	2	(San Bernardino UWMP, Pg 2-10)
City of San Bernardino/West Valley	Either	3	(San Bernardino UWMP, Pg 2-10)
City of San Bernardino/Loma Linda	Either	5	(San Bernardino UWMP, Pg 2-10)
City of San Bernardino/Colton	To Colton	3	(San Bernardino UWMP, Pg 2-10)
City of San Bernardino/Rialto	Either	3.6	(San Bernardino UWMP, Pg 2-10)
City of San Bernardino/ Riverside Highland	To Riverside/ Highland	3	(San Bernardino UWMP, Pg 2-10)
Fontana/Cucamonga Valley	Either	3.6	Fontana UWMP (2500 gpm)
West Valley/Fontana	Either		West Valley UWMP.
West Valley/Rialto	Either		West Valley UWMP.
West Valley/Colton			West Valley UWMP.
Redlands/Loma Linda	To Loma Linda		Greg Gage
Rialto[1]/Marigold	To Marigold		Rialto has historically conveyed 1,500 afy of groundwater to Marigold. The agreement under which this was accomplished is expiring.

Sources: San Bernardino Municipal Water Department 2005 UWMP; Jack Nelson, Yucaipa Valley; Ron Buchenwald, East Valley; Greg Gage, Valley District, West Valley 2005 UWMP.

[1] Rialto has several connections with other systems, including four connections with West Valley Water District, and connections with the City of San Bernardino, Fontana Water Company, and Riverside Highland Water Company.

Based on the limited sources of data, this list may be incomplete.

5.3.2 Big Bear Lake

Big Bear Lake has a capacity of over 70,000 acre-feet, most of which is owned by the Bear Valley Mutual Water Company. To enhance tourism, Big Bear Municipal Water District entered into an agreement with BVMWC and Valley District whereby Valley District makes deliveries to BVMWC "in lieu" of BVMWC taking delivery from the lake. The net effect is that water remains in the lake to enhance tourism. An agreement could be written that might make water from the lake available for municipal use in case of a catastrophe.

5.3.3 Increased Groundwater Production Capacity and Reliability

If the catastrophe is an earthquake, the most likely impact on groundwater production capacity will be damage to the electrical system of the well or to the electricity supplier's system.

Thus, providing emergency generators for "key" wells would help improve the area's ability to operate after a catastrophic failure.

5.4 Alternative Conveyance of Surface Water

5.4.1 Alternatives to Foothill Pipeline System

The following systems could provide some alternative conveyance of surface water should portions of the Foothill Pipeline System fail:

- Metropolitan's Inland Feeder parallels the Foothill Pipeline from Devil Canyon to Opal Avenue. The Inland Feeder could also be used to convey water stored in Diamond Valley north to the Valley District service area. The conveyance capacity of the Inland Feeder operating from Diamond Valley Lake to the north is reported to be 250 cfs.

- The proposed conjunctive use project would increase the ability to convey groundwater between agencies following a catastrophe.

- The proposed East Branch Extension Phase II will convey SWP water from the eastern portion of the Foothill Pipeline to Crafton Hills Pump Station. This will provide redundancy for the SARC Pipeline, Greenspot Pump Station, Morton Canyon Connector I, and Greenspot Pipeline.

5.4.2 Alternatives to the Lytle Pipeline

- Metropolitan's Foothill Feeder, also called the Rialto Pipeline, parallels the Lytle Creek Pipeline from Devil Canyon east for approximately nine miles. With turnouts it could provide alternative conveyance to West Valley's and Fontana's surface water treatment plants.

- The Baseline Feeder conveys groundwater to West Valley and Rialto. This groundwater is an alternative to SWP water conveyed by the Lytle Pipeline. It should be noted that Rialto's connection to Lytle Pipeline is not yet completed.

5.4.3 Alternatives to Baseline Feeder System

- The Lytle Creek Pipeline conveys SWP water to West Valley and can convey SWP water to Rialto when the connection is completed. This surface water is an enhancement to groundwater conveyed by the Baseline Feeder.

5.5 Back-Up Power Supplies

5.5.1 Power Supplies for Groundwater Wells

A catastrophic earthquake may cause loss of electricity for an indeterminate amount of time. In order to ensure water supplies in the immediate aftermath and weeks following a major earthquake, it is critical to have back-up generators or internal combustion engines for important production wells throughout the Region.

- Inventory wells in the Region with back-up generators.
- Determine the number of wells that could be equipped with internal combustion engines.
- Rank groundwater wells by their ability to supply water to purveyors. Wells with higher production capacities, more conveyance connections, or delivery pipeline options are preferential.
- Select a distribution of wells across the basin to be provided with back-up generators or internal combustion engines, decreasing the likelihood of a localized event impacting a majority of the most important wells.

5.5.2 Back-Up Power Supplies for Other Water Supply Facilities:

Similar evaluations should be conducted for other facilities such as water treatment plants and the key pumping plants, and back-up power generation should be put in place for use during emergencies.

6 Water Shortage Contingency Plan

Each water agency in the region is required by law to have a water shortage plan and emergency catastrophe plan. If there is a shutdown in the SWP system or a long-term drought that affects imported or local supplies, each agency in the region should participate in conservation activities that maximize use of the shared water supplies, both local surface water and ground water. These conservation efforts should be coordinated at a regional level.

The following provides examples of rules, regulations, and procedures that could be implemented to restrict or reduce water use. These could be implemented upon determination that there exists, or there is a threat of, a water shortage that affects the region's ability to provide adequate potable water supplies for the purveyors to deliver to their customers. Each agency should have a water shortage plan that is tailored to their customers in order to reach water conservation targets.

6.1 Stage I Conservation – Additional 20% Reduction

Upon determination that additional water conservation is needed, the following prohibitions can be considered and adopted with the goal of achieving an additional **20 percent** reduction in water consumption—the water conservation measures referenced in Stage I, and the following:

(a) All outdoor irrigation should occur only after 8 p.m. and before 7 a.m.

(b) Prohibit the use of potable water to wash sidewalks, walkways, driveways, parking lots, open ground, and other hard-surface areas by direct application.

(c) Prohibit the use of non-drinking-water fountains, except for those using recycled water.

(d) Prohibit the use of water that results in any flooding or run-off in gutters or streets. Limit water deliveries to residential and non-residential users to 90 percent of their water consumption for the same billing cycle during a pre-determined Base Year.

(b) Levy a surcharge of **200 percent** on all water use in excess of the maximum water use allotment referenced in subparagraph (a) above, assessed to the account of the customer.

(c) Limit the use of water from fire hydrants to fire suppression and/or other activities immediately necessary to maintain health, safety, and welfare of residents.

(d) Prohibit the use of potable water for dust control and compaction for construction projects.

(e) Prohibit the washing of automobiles, trucks, trailers, boats, and other types of mobile equipment not occurring upon the immediate premises of a commercial car wash and/or commercial service station that uses recycled water.

(f) Encourage restaurants to refrain from serving water to their customers, except upon specific request.

(g) Limit the use of potable water to irrigate grass, lawns, ground cover, shrubbery, crops, vegetation, ornamental trees, etc., to Saturdays, Mondays, and Wednesdays for even-numbered addresses and Sundays, Tuesdays, and Thursdays for odd-numbered addresses, or as otherwise established by resolution from the Board of Directors of the respective agencies.

(h) Limit water main flushing to emergency situations only.

(i) Wait list applications for Intent to Serve Letters and suspend their further processing.

Pursue a vigorous public information campaign regarding current water supply conditions and the need to reduce water consumption by such means deemed appropriate.

Meet with other water purveyors, public school districts, park agencies, and golf courses that use water sources other than purveyor-supplied water, to seek voluntary reduction in irrigation of decorative landscape and reduce irrigation of turf and play areas.

In addition to those measures stated above, adoption of water conservation measures on an urgency basis may be warranted.

6.2 Stage II Conservation – Additional 35% Reduction

Upon determination that additional water conservation is needed, the following prohibitions can be considered and adopted with the goal of achieving up to an additional **35 percent** reduction in water consumption. The water conservation measures referenced in Stage I and Stage II, and the following:

(a) Limit water deliveries for residential uses to **65 percent** of their water consumption for the same billing cycle during a pre-determined Base Year.

(b) Levy a surcharge of **400 percent** on all water use in excess of the maximum water use allotment reflected in subparagraph (a) above, and that can be assessed to the account of the customer.

(c) Require all swimming pools to be covered when not in use.

(d) Prohibit the use of potable water to irrigate grass, lawns, ground cover, shrubbery, crops, vegetation, ornamental trees, etc., and lock all irrigation meters.

(e) Suspend Intent-To-Serve Letters. However, the expiration period can be extended commensurate with the time of suspension.

In addition to those measures stated above, adoption of water conservation measures on an urgency basis may be necessary.

6.3 Stage III Conservation – Additional 50% Reduction

Upon determination that additional water conservation is needed, the following prohibitions can be considered and adopted with the goal of achieving up to an additional **50 percent** reduction in water consumption. The water conservation measures referenced in Stage I, II, and III above, and the following:

(a) Limit water deliveries for residential uses to **50 percent** of their water consumption for the same billing cycle during a pre-determined Base Year.

(b) Levy a surcharge of **500 percent** on all water use in excess of the maximum water use allotment reflected in subparagraph (a) above, and that can be assessed to the account of the customer.

(c) Prohibit the setting of new water meters and suspend all Will-Serve Letters.

In addition to those measures stated above, adoption of additional water conservation measures on an urgency basis may be necessary.

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Ron Buchwald, East Valley, August 2007
Tom Crowley, West Valley, August 2007. Email on August 28.
Chris Diggs, Redlands, August 2007
Jack Nelson, Yucaipa Valley, August 2007
Matt Litchfield, August 2007

2005 Urban Water Management Plans:

East Valley Water District
Fontana Water Company
City of Redlands
West Valley Water District
Yucaipa Valley Water District

Attachment 1

Earthquake Literature Search

This section has been prepared based on the insights included in reports prepared by water agencies outside this IRWM Plan area that summarize their experience and include their after-action reports prepared following earthquakes.

Loma Prieta, California, Earthquake of October 17, 1989.

The U.S. Geological Survey's Professional Paper on the performance of the built environment in the Loma Prieta Earthquake was compiled of a number of separate papers. Information from two of those papers that focused on water systems is discussed here (Schiff, 1998).

A section of the Professional Paper (Le Val Lund, primary author) had the following conclusions:

"On the basis of this preliminary reconnaissance survey, the 1989 Loma Prieta earthquake has reinforced the lessons learned in previous earthquakes that water and wastewater systems should do the following.

- Provide emergency power for critical operating, treatment, and support facilities
- Maintain portable light plants, generators, chlorinators, and pumps
- Develop a separate radio-communication system, independent of the telephone system
- Maintain an inventory of repair materials, parts, and fuel
- Improve the State-wide and mutual-aid programs
- Establish guidelines for State-wide emergency water-quality sampling and public notification
- Conduct an earthquake-response assessment of system facilities
- Develop an emergency-response plan
- Incorporate into local or regional emergency-response plans a more active participation by water and wastewater agencies
- Provide a method, possibly computer based, for logging problems and system operations to establish priority for repair activities
- Conduct a cross-training program to include all personnel in emergency response
- Train personnel in appropriate communication procedures
- Conduct regular periodic emergency-response exercises
- Provide flexible pipe joints
- Provide flexible pipe connections to wells, tanks, pumps, and other rigid structures

- Provide adequate anchorage for air valves and other heavy appurtenances that are installed in an inverted-pendulum position
- Design mechanical appurtenances in treatment-plant basin facilities for wave action
- Provide for a breakaway or fusible connections and (or) safety cables or chains to prevent malfunctioning mechanical equipment from interfering with other equipment in treatment-based basins
- Provide for redundancy in water and wastewater systems
- Install isolation valves and establish a regular valve-maintenance program
- Anchor water-quality-testing equipment and supply cabinets"

A separate section of the Professional Paper (Mark Pickett, primary author) focused in part on the lessons learned from the Loma Prieta Earthquake for utility operations, including preparedness and response. A brief review of the points made on utility operations is below:

- **Organization**. Important improvements in organization that were frequently identified were (1) better definition of leadership roles, (2) clearer statement of unit duties, (3) improved emergency planning to reflect the detailed events that must be dealt with in real disasters, and (4) better preparation through "what if" thinking and plan exercising.
- **Energy Sources**. Points that could provide better preparedness for loss of electrical power included:
    - Maintain close relationships with the local electrical-power company to ensure priorities of the utility and the water agency are understood.
    - Portable electrical-power generators should be provided with the proper fittings and connections for each intended use. Generators should be periodically tested.
    - Permanent engine-driven generator sets should be provided at critical support facilities.
    - Regularly scheduled periodic tests should be conducted under load.
- **Portable Equipment.** All utility personnel noted that more portable equipment was needed than was on hand in their organization. Portable equipment needs scheduled maintenance and safe and accessible storage. Personnel need to know how to operate the equipment and the equipment limitations.
- **Communications and Public Information.** Pre-disaster preparation includes development of "fill-in-the-blank" media-release forms, development of procedures to disseminate information to the media, securing of communications equipment and access to communications networks, and preparation for post-disaster investigations.

- **Inventory.** Adequate supplies and access to those supplies needs to be maintained.
- **Emergency-Response Planning**. In general, utility emergency-response plans were not well documented or pre-exercised before the earthquake.
- **Mutual-Aid Planning.** Adequate mutual-aid planning includes coordination with other water agencies, participation in regional meetings and test exercises, preparation to provide aid to adjacent Federal and State organizations, and authorization from fire department officials for utilization of fire engines as booster equipment.
- **Training**. Extensive training of employees is required.
- **Long-Term Recovery Planning.** Recovery planning needs to take into account reconstruction, rate-structure changes, integration of new knowledge into operations, collection of revenues, and record keeping for State or Federal reimbursement.

Northridge Earthquake, California, Magnitude 6.8 Earthquake of January 17, 1994

The National Institute of Standards and Technology report on the lifeline performance in the Northridge Earthquake had the following observations and recommendations concerning the performance of water facilities (Schiff, 1997).

"Seismic performance of dams, large buried reservoirs, and wells in the 1994 Northridge earthquake showed significant improvement from the 1971 San Fernando earthquake. Facilities constructed since the San Fernando earthquake that incorporated lessons learned from that earthquake performed well. These include concrete tanks and pumping stations that were subjected to very strong ground motions. The prestress-concrete water tanks were constructed using criteria more conservative than those contained in AWWA Standards for Wire-Wound Circular Prestressed Water Tanks (AWWA D110)."

"There is a need for performance criteria for water systems so that piping systems and other water system facilities and equipment can be evaluated and seismic specification established in a consistent manner. With performance criteria, water systems performance and the consequences of disruption can be evaluated. With this information a case can be made for getting public support to enhance system performance in a timely and cost-effective manner."

"The largest impact on water system performance was the failure of water lines, both large supply lines and smaller lines in the distribution system. Most pipeline damage has the result of ground deformations. This earthquake had no surface faulting, but there were many areas with ground deformations in locations that had not previously been predicted. Thus, a general level of improved materials and methods may be needed to improve system performance rather than concentrating on special problems of fault crossings. The uncertainty in predicting the location of damage increases the importance of system

redundancy and alternate supplies from other sources, such as groundwater basins and alternate aqueduct systems for water supplies."

"Many of the pipe failures appear to be related to cracks in bells that are probably associated with their method of fabrication. There is a need to study the seismic strength of welded steel bell and spigot joints and methods to improve the seismic performance of the joint. The joint performance should be compared with the current (AWWA) Standard for Welded Steel Pipe."

"The performance of surface-supported tanks was poor and damage was similar to that observed in previous earthquakes. Many of the damaged tanks were old and predate current seismic design standards. The loss of tank contents was frequently associated with failure of input and output pipe connections. These failures are due to the use of cast iron fittings and inadequate flexibility to accommodate the movement of the tank, which was typically lifting rather than sliding. The roofs and upper parts of side walls on several tanks were damaged due to sloshing. Several examples of elephant foot buckling were observed."

"There is a need for follow up surveys to determine the performance of tanks constructed using current seismic standards and to determine the relative performance of anchored and unanchored tanks. Methods to address the damage due to sloshing should be identified for existing and new tanks. Based on the effect of tank performance on water system performance, the need for reducing the risk of tank damage by improving anchorage, stiffening to prevent buckling, and reducing effects of sloshing can be determined."

"Sloshing in large basins in water filtration and water reclamation plants caused damage in both 1989 Loma Prieta and the Northridge events. Although not critical, the damaged equipment can cause malfunction of other equipment. For example, sloshing caused the jamming of the chain drive sludge scrapers in seven out of 44 final clarifiers of a water reclamation plant. There is a continuing need to consider sloshing and shaking in the design of mechanical equipment and baffles in large basins of water and wastewater treatment plants."

"Air and vacuum valves on pipelines are configured in an inverted pendulum above the ground surface. In the Northridge event many valves toppled, had cracked bodies or damaged floats (balls). Also the damage may have been caused by transient pressures in the pipeline. A study is required to improve the performance of these valves in an earthquake."

"The disruption of commercial power emphasizes the need for reliable emergency power supplies. While emergency power for pumping stations and treatment plants performed well, there were indications that testing units under full load may enhance performance.

"The 1971 San Fernando and 1987 Whittier Narrows earthquakes experience had encouraged water agencies to prepare emergency response plans and establish emergency operations centers. These plans have been tested and implemented by lifeline agencies. Water system emergency response plans generally worked well in the Northridge earthquake. This was attributed to their periodic testing. It is important that plans address expected problems in communicating with personnel and with transportation problems. Because of transportation problems and the disruption of several lifelines, it is important that water system disaster plans make provisions for supporting most needs of their workers, including food and temporary housing. In the recovery after the earthquake, outside contractors may be retained to speed the recovery. It is important that all personnel be aware of OSHA requirements for entering confined spaces, such as large diameter pipes, conduits and tunnels. To improve the performance of utility work crews, utilities should consider providing support for worker families that have been directly affected by the earthquake. For example, this could include providing assistance with getting shelter or help in evaluating damage to homes."

"Boil water orders were issued as a precaution. Because of the time needed to confirm that water is safe once an order is issued, the public may be needlessly inconvenienced. Consideration should be given to developing a mobile water quality laboratory to expedite, in the field after repairs have been made, the determination if the water is safe for drinking. More rapid methods for evaluating the safety of water should be explored."

"There is a need for adequate documentation of emergency response and recovery costs. For public utilities, as is the case for most water systems, a record is needed for reimbursement from FEMA. Documentation is also needed to substantiate insurance claims."

"The disruption of the water supply demonstrated that many critical facilities were not prepared with emergency water supplies or even a means for connecting an external source into their system."

"This is a need for better public education about the consequences of water system disruption and use of appropriate mitigation measures."

"While the performance of customer water is outside of the jurisdiction of water utilities, damage to these systems was costly and disruptive in the Northridge earthquake. The Oliveview Hospital, which was reconstructed after experiencing severe damage in the San Fernando earthquake had to be evacuated due to the failure of water systems within the hospital. The vulnerability of water systems in buildings should be evaluated and standards improved to reduce the losses and disruption from these systems."

This report also addresses damage and repair of supply pipelines. Since supply pipelines are the main facilities of SBVWMD, these estimates may be of particular interest. They are summarized in Table 1.

Table 1– Repair of Supply Pipelines after Northridge Earthquake

Pipeline Description	Repair time	Remarks
54- to 33-inch modified prestressed concrete cylinder pipe	65 days	Castaic Lake Water Agency's pipeline from treatment plant to service area. 35 leaks. New fabricated sections were installed and pulled rubber gasket joints were welded in place.
SWP – West Branch, 85-inch welded steel pipe to Jensen WTP	2 days	10-foot section of damaged pipe replaced with pipe fabricated at MWD yard.
Los Angeles Aqueduct No.1		Aqueduct No. 1 had damage at four locations; and it was able to be operated at very low flow for about a week to allow repairs to Aqueduct No. 2, then shut down for repairs. Operated at one-half capacity, after temporary repairs were made, during a planned Metropolitan shutdown. It was out of service from April 1 until summer for permanent repairs.
Los Angeles Aqueduct No. 2	One week	Out of service for the first week after earthquake for repairs.
78-inch North Branch Feeder (Metropolitan)	45 days	From Jensen Plant to Simi Valley. 15 to 20 major pulled pints and 500 cracks. Replacement air and vacuum valves delivered by manufacturer in two days.
48-inch, Granada Trunk Line (LADWP)	12 days	Welded Steel Pipe and modified prestressed concrete cylinder pipe. Four major pulled mechanical couplings and two tension and compression failures.
68-inch, WSP, Rinaldi Trunk Line (LADWP)		Welded Steel Pipe. Three pulled welded bell and spigot joints and a tension and compression failure.

Santa Clara Valley Water District Water Infrastructure Reliability Project

At the time of Santa Clara's Water Infrastructure Reliability Report, the system could suffer up to a 60-day outage if a major event, such as a 7.9 magnitude earthquake on the San Andreas Fault, were to occur.

Recommended improvements to the system included:

- Life Safety – retrofit of all operations buildings
- Emergency Planning and Studies – Recovery Plan and Retailer Shortages Agreement
- Agreements – Mutual aid, contractor retainer, pipe rental companies, welder retainer, retailer incentives
- Capital Improvements – SCVWD-owned well fields
- Operational Improvements – Stockpile pipes and system materials
- SCADA Improvements

The estimated cost of these improvements was $150 million (report data May 2005). With these improvements the estimated outage period would reduce to 7 to 14 days.

San Simeon, California, Magnitude 6.5 Earthquake of December 22, 2003

The San Simeon earthquake damaged two of 19 dams in the area.

There was no reported damage to groundwater wells other than the loss of power from a few hours to several days.

Steel water tanks damaged included two in the City of Paso Robles water system, one in a private system serving a mobile home park, three (of four) at the City of Templeton, and an elevated tank in the City of Guadalupe.

Pipeline breaks were reported in most purveyor systems (Lund, 2003).

Denali, Alaska, Magnitude 7.9 Earthquake of November 3, 2002

Population near the epicenter is limited to about 10,000 people in rural locations. Nearly all residents rely on private wells for water supply. Two events of well casings ejecting out of the ground were reported. These events may be attributed to accumulated frost heave forces on casing pipe that lost its soil resistance temporarily due to shaking and/or liquefaction.

City of San Diego

In 2001, the City of San Diego completed a study of the expected operational performance of the City of San Diego Water Supply pipelines when exposed to possible future scenario earthquakes. The analysis used a specialized GIS software package.

For the most serious earthquake, the study determined that it would take 1.7 days to stabilize the system, 20 days to restore backbone pipes, 35 days to restore distribution pipes, and 74 days to complete all pipe repairs.

The study also examined the costs and benefits of different seismic improvement programs and developed benefit/cost ratios for each program (Collins, 2001).

While the City of San Diego has a large number of reservoirs in the distribution system, this study did not examine those systems.

City of Vancouver, Canada

In 2000, the City of Vancouver completed a study of the expected operational performance of the Regional Water Distribution System. In the event of a Design Basis Earthquake, a 475-year event, the report concluded the following (JELC Working Committee, 2000):

1. The present system will be severely impacted. Chlorine facilities evaluated have life safety concerns. Fiberglass tanks containing sodium hypochlorite and ammonia may overturn due to lack of anchorage.

2. An estimated 30 pipeline failures will occur, making much of the system inoperable.

3. All pump stations that were evaluated will likely be inoperable as a result of nonstructural and, in some cases, structural damage. All but two pump stations are dependent on commercial power. If power is out, pump stations without self-contained power will be inoperable.

4. All reservoir roofs/column supports are vulnerable. Some may collapse. In general, tanks should remain operable.

A later discussion of the development of an alternate water supply for Vancouver proposed development of procedures to allow use of two existing irrigation wells for potable supply should the city's supplies from reservoirs fail in an earthquake. In addition, a dedicated fire protection system, possibly supplied with sea water, was proposed (City of Vancouver).

San Fernando, California, Magnitude 6.7 Earthquake of 1971

Immediately following the earthquake, approximately 100,000 customers were without water, and a citywide "boil water" advisory was issued. Within 5 days, water service was restored to all but a few thousand customers; after 10 days, less than 100 scattered customers were without water. All "boil water" orders were lifted after 12 days (Housing and Urban Development, 2001).

Two dams, Van Norman and Pacoima were seriously damaged by this earthquake. Van Norman was replaced and Pacoima was repaired.

Kobe, Japan, Magnitude 6.8 Earthquake of January 17, 1995

An estimated 2,000 water pipeline failures occurred, draining reservoirs and limiting water available for fire suppression. Transmission and distribution pipeline and water purification plant damage resulted in 300,000 people still without water one month following the earthquake.

An aggressive earthquake mitigation program had replaced most of the city's cast iron pipe prior to the earthquake. Without that, program failures and restoration time could have been far greater. About 6 percent of Kobe's ductile iron pipe had a special seismic joint that appears to have had little or no damage. An earthquake monitoring and control system isolated 18 reservoirs saving the water for drinking in the days following the event.

The earthquake monitoring and control system consists of an earthquake ground motion monitoring center, telemetry, and reservoirs with earthquake isolation valves at 21 locations. There are dual reservoirs at each of the 21 sites; one has an isolation valve to be controlled following an earthquake, and one does not. This concept allows shutdown of one reservoir while maintaining service should the second reservoir inadvertently shut down. If the system can keep up with system leakage, the isolated reservoir can be put back on line from the control center. If the system cannot keep up with demand, the reservoir remains isolated (Ballantyne, 1995).

There were two major issues identified that had delayed system restoration:

- No water pressure was available to check the repairs while the tunnels remained out of service.
- Access – limited by collapsed buildings and traffic congestion.

California Division of Mines and Geology Planning Scenarios

The California Division of Mines and Geology has prepared two special publications intended to provide an understanding of the impacts of major earthquakes in southern California. The first was a Magnitude 8.3 Earthquake on the San Andreas Fault (California, 1982). The second was a magnitude 7 earthquake on the San Bernardino Valley segment of the San Jacinto Fault (California, 1993). Both studies anticipate significant damage to the State Water Project. That information is discussed in a later section of this report that focuses on the State Water Project. Impacts to other water facilities in the SBVWMD service area are discussed here.

The San Andreas publication hypothesized an earthquake in which the southern limit of surface fault rupture is outside of the San Bernardino service area (approximately 10 miles northwest of Devil Canyon Power Plant). Thus, it does not directly address facilities within the San Bernardino service area. Within the area that is affected (generally west and north of San Bernardino), it does not anticipate widespread damage to primary transmission lines, although some pipe failures will occur. In distribution lines, there will be hundreds of breaks and thousands of leaks. Pumping plants are generally more compact structures and, with the exception of related electrical equipment and transformers, will probably not suffer as great of damage as distribution pipelines.

The San Jacinto publication hypothesized an earthquake within Valley District's service area and thus, substantially more impact on SBVWMD. The publication's planning scenario states that within 25 miles of the fault, damage to treatment facilities, pumping stations, and transmission and distribution pipelines will reduce service by 20 percent for up to five days. Restoration will take up to two weeks. People will be asked to use emergency supplies, boil their water, or take other safety measures against contamination. Delays will be necessary because waste water lines must be repaired before fresh water lines. The most serious

problems will be concentrated in the low lying areas of San Bernardino and the Santa Ana River Basin. The extent of damage and contamination of wells and groundwater will depend on groundwater levels at the time of the earthquake.

Specific failures hypothesized by the San Jacinto publication to facilities that convey SBVWMD water include (State Water Project facilities are discussed in a later section):

- San Gabriel Valley MWD's pipeline closed for 5 to 10 days. Fault displacement.
- Valley District's Foothill Pipeline closed for 4 to 6 days. Moderate liquefaction potential.
- Valley District's Baseline Feeder closed for 4 to 6 days.

The main source for this hypothesis was the then General Manager of SBVWMD, Louis Fletcher.

Regional Electrical System Vulnerability

During this evaluation, no recent information was available from Southern California Edison on the anticipated likelihood of a widespread failure of the electrical system serving the San Bernardino Area. Nor was information found on the times required to restore power after the Loma Prieta Earthquake. In the absence of that data, we reviewed the impacts of the Northridge earthquake.

The total generating capacity supplying the greater Los Angeles area at the time of the Magnitude 6.8 Northridge Earthquake of January 17, 1994, was approximately 10,000 MW. When the earthquake occurred at 4:30 AM the southern California area was exporting approximately 1800 MW to the Northwest over AC and DC interties that link Southern California to Oregon and Washington State. As a result of the earthquake, the AC and DC interties were opened and the power grid in the United States west of Denver was spilt into three separate islands. Due to the loss of power, there were short-term outages, up to three hours, in British Columbia, Montana, Wyoming, Idaho, Oregon, and Washington.

Within the City of Los Angeles, restoration times of power at major substations varied from 6:18 AM to 11:03 PM on the day of the earthquake. Due to distribution system failures, power remained out for a longer period for some customers. But, within 24 hours power was restored to over 90 percent of its customers. Had the earthquake occurred during the summer when loads are heavier, restoration would have taken longer.

F: Objectives Workshop Feedback Matrix

IRUWMP Workshop #4 (February 2021)

The following tables list the feedback obtained regarding measuring success in meeting goals during a ConceptBoard exercise, and how the information was incorporated into the IRUWMP.

Goal #1: Improve Water Supply Reliability

How will we know we've achieved this goal?	How do we measure success?	How was this item captured in the IRUWMP?
Increased GW basin recharge	Completion of GW basin storage projects	Captured under Objective 1c.
	Continue to develop SW capture basins throughout the San Bernardino Basin	Captured under Strategies – "Increase Stormwater Capture", and notes that this strategy supports Goals 1, 2, 3 and 5.
	GW model will help answer the question of the deficit in each basin. Then look at supplies to determine reasonable recharge targets. Use Usable Storage Study to inform decisions	Captured under Objective 1c. The 10,000 AFY metric is within the available storage amount for local basins. The limitation is assumed to be water available for recharge, not storage capacity. Also included mention of the integrated model under needs discussion.
	Regular updates to model for each basin	Captured as part of groundwater management strategies.
	Better utilize in-lieu recharge via SWP/RW	Captured as a part of Objective 1b.
	Replenish Big Bear - in-lieu recharge ~200 AFY/ reduce in-lieu deliveries of SWP to BVMWC	Captured as a part of Objective 1c (separate numerical objectives not available for all basins, so one numerical objective used for all basins)
Increased local supplies	Annual Change in Groundwater Storage Report can track and measure success.	Incorporated into metrics for Objective 1c
	Additional local storage to capture and or import supplies	Captured as a part of Objective 1c
	Additional recharge locations/options to benefit all groundwater producers in the Basins. (new recharge basins or Injection wells??)	Captured as part of Objective 1c and as part of strategies
	Increased use of RW (SNRC, Clean Water Factory, Replenish Big Bear) - quantifiable	Captured as a part of Objective 1b.

	Make sure we have enough wells to extract the available gw supply (declining gw levels, Usable Storage Study could inform quantifying this)	Captured as a part of Objective 1b.
Maintained access to clean drinking water for all	Community surveys: Do residents believe they have access to clean water?	Included under the needs discussion related to water quality
	Low numbers of boil water/ do not drink orders?	Captured as part of Objective 3a
Improved resiliency to supply interruptions	Water Infrastructure specs. inventory (awareness of the condition of different portions of our delivery system allows us to plan for potential failures)	Captured under the needs discussion of Chapter 6 under “Disaster Preparedness”
	Continue to import as much SWP water as available	Captured as a part of Objective 1c
	Create additional interties, mutual aid agreements, etc..	Captured under Objective 1d.
	4 interties planned - keep this as a metric	Captured under Objective 1d. Numerical objective not used for this objective as the objective was expanded to include all strategies for improving system resiliency and ability to respond to emergencies.
	More emergency storage to supply water during power outages (BBLDWP Wolf Reservoir project)	Captured under Objective 1d
Robust emergency response approach	Increased participation in regional emergency groups (ex: ERNIE) alongside operations staff	Captured under Objective 1d
	Revitalize ERNIE group so everyone is aware of the regional resources available/try to get full participation of all Integrated Plan stakeholders	Added “developing agreements for mutual aid” to Objective 1d. ERNIE added to the objective narrative.
	Evaluate how a seismic event may impact groundwater wells, especially older wells	This information is captured by the seismic risk assessments conducted by each agency as part of meeting urban Water Management Plan requirements.
	Risk assessment and mitigation plan/prioritized actions	This information is captured by the seismic risk assessments conducted by each agency as part of meeting urban Water Management Plan requirements.

	Power outage vulnerabilities (PSPS and other) - what are the best options available to mitigate? Battery backups being considered	Captured under Objective 1d.
	Emergency response plans and mutual aid agreements that address pressing disasters as well as after action summaries	Captured under Objective 1d
	Exercises between agencies around communication and disaster response - once a year meeting/forum	Captured under Objective 1d
	could survey stakeholders to see who is involved/where needs are	Captured as part of the disaster preparedness needs narrative that notes a more detailed analysis is needed to determine impacts.
Comply with conservation legislative requirements	All agencies comply with Urban Water Use Objective (2024)	Captured under Objective 1a.
	Agencies continue to meet and report their achievements. Seek input on any hurdles.	Captured as part of plan for annual reporting of progress towards meeting goals and objectives.

Goal #2: Balance Flood Management and Increase Stormwater Recharge

How will we know we've achieved this goal?	How do we measure success?	How was this item captured in the IRUWMP?
Urban stormwater capture to increase recharge and improve surface water quality	Balance capacity required for flood control with available capacity to retain storm water.	Captured under Objective 2a.
	Number and acre feet of projects	Captured under Objective 2b.
	Sample WQ at sites before and after project installation	This type of monitoring would be expected to be included as part of pre- and post- project monitoring of stormwater capture projects.
	Requires coordination among agencies	Coordination among agencies is encouraged across all projects. Project partners is a scoring criteria for project prioritization.
	Consider potential water quality impairments that might impact GW	Captured under the groundwater management needs discussion.

Multi-benefit flood projects	Number of new project permitted and acre feet of projected recharge	Captured under Objective 2b.
	Number and type of alternate benefits, water quality, habitat, recharge, recreation	Captured under Objective 2b.
Flood control projects in DAC areas	Identify areas in most need and track project completion, # ppl impacted, flood risk reduction etc.	Captured under needs discussion and Objective 2c.
Joint use of flood control basins for recharge	Number and capacity of planned and implemented projects which benefit both flood management and water supply.	Captured under Objectives 2a and 2b.
	Number of Planning MOU's for new joint use projects	Captured under Objective 2a.

Goal #2: Balance Flood Management and Increase Stormwater Recharge

How will we know we've achieved this goal?	How do we measure success?	How was this item captured in the IRUWMP?
Urban stormwater capture to increase recharge and improve surface water quality	Balance capacity required for flood control with available capacity to retain storm water.	Captured under Objective 2a.
	Number and acre feet of projects	Captured under Objective 2b.
	Sample WQ at sites before and after project installation	This type of monitoring would be expected to be included as part of pre- and post- project monitoring of stormwater capture projects.
	Requires coordination among agencies	Coordination among agencies is encouraged across all projects. Project partners is a scoring criteria for project prioritization.
	Consider potential water quality impairments that might impact GW	Captured under the groundwater management needs discussion.
Multi-benefit flood projects	Number of new project permitted and acre feet of projected recharge	Captured under Objective 2b.
	Number and type of alternate benefits, water quality, habitat, recharge, recreation	Captured under Objective 2b.

Flood control projects in DAC areas	Identify areas in most need and track project completion, # ppl impacted, flood risk reduction etc.	Captured under needs discussion and Objective 2c.
Joint use of flood control basins for recharge	Number and capacity of planned and implemented projects which benefit both flood management and water supply.	Captured under Objectives 2a and 2b.
	Number of Planning MOU's for new joint use projects	Captured under Objective 2a.

Goal #3: Improve Water Quality

How will we know we've achieved this goal?	How do we measure success?	How was this item captured in the IRUWMP?
No violations of drinking water standards	Continue to work with DDW on current and upcoming PHG's, and MCL's. The objective would be there are no MCL violations for our region over the next five years	Captured under objective 3a
	Formulate a regional response to DDW, SWRCB and OEHHA to the upcoming PFAS/PFOA and other CEC's PHG and MCL's.	The need to address PFAS is noted under the water quality needs discussion.
Additional groundwater treatment to improve quality	WVWD has treatment on 4 wells alone - the Valley has a phenomenal amount of groundwater treatment. Next step - quantify capacity of all groundwater treatment and determine what percentage of total water supply comes from treated groundwater to set an objective for how much additional treatment to add in next 5 years.	Captured under Objective 3b
	Track pounds of contaminants removed from wellhead treatment facilities	Captured under Objective 3b
	Review periodic reports that indicate a reduction of contaminants over time.	Captured under Objective 3b
	Report the amount of Pounds of a constituent is removed during the treatment processess (e.g., 500 pounds of TCE removed during treatment (insert other constituents removed)	Captured under Objective 3b

Coordinated strategy to manage TDS and nitrogen in groundwater	Improving the quality of water in Big Bear Lake through Replenish Big Bear. Improves quality of groundwater and supports habitat downstream of Seven Oaks Dam	Project can be included in the recycled water supplies discussion. This is a great example of a multi-benefit project that uses highly treated recycled water.
	Continue to develop the Salt and Nutrient Management Plan for the Upper Santa Ana River Watershed Groundwater basins with the SAR Integrated Model	Captured under Objective 3c
	Review and follow recommendations in TDS/Nitrogen Mgmt Plans	Captured under Objective 3c

Goal #4: Improve Habitat and Open Space

How will we know we've achieved this goal?	How do we measure success?	How was this item captured in the IRUWMP?
Implement multi-benefit projects that increase recreation, public access and education opportunities	Propose a planning element during new project siting, which evaluates if the proposed project site's region is presently underserved in terms of recreation and open space.	Captured by the strategy "Incorporate Opportunities to Improve Habitat and Increase Recreation and Public Access During the Facilities Design Process"
	Seek new grant funding in bonds or local programs for including recreation or public access in flood/water supply projects	Pursuing funding is included as a part of the plan implementation chapter.
	Bring in representatives from different levels of the community to ensure benefits for all.	Captured by the strategy "Incorporate Opportunities to Improve Habitat and Increase Recreation and Public Access During the Facilities Design Process"
	Have multi-year plan in place across agencies and have action plan for grant funding to help secure federal funding	Pursuing funding is included as a part of the plan implementation chapter.
Preserved and improved habitat	Implementation of the HCP - what is currently being done. HCP has identified projects that have been required to meet permits. This would show baseline and projects that have been implemented.	Project acres identified in the HCP incorporated into Objective 4a.
	Track additional projects currently not included in HCP that would help meet requirements (ex: project in Rialto).	Project tracking for the IRUWMP is not limited to HCP projects.

	Do not duplicate efforts. Monitor implementation of the HCP through this integrated plan.	Tracking of progress in meeting objectives is captured under the Implementation chapter.
	Track number of acres/sq ft of public access/recreational spaces or linear feet of walkways/trails etc tied to our projects	Captured under Objectives 4a and 4b.
	Serve as a resource to other agencies projects to advise them on how to preserve water quality, improve stormwater runoff in their own projects (preservation of native plants etc)	Falls under the strategy of "Increase Outreach and Engagement"
Coordinate with San Bernardino County and the Cities on General Plans for Open Space and the RCIP	Number of new acres of open space or habitat preserves under endowed management	Captured under Objective 4a.
	Request members provide an update on if they have served on a committee, attended workshops or otherwise participated in County Plans	This will be a part of the annual report card development process.

Goal #5: Address Climate Change through Adaptation and Mitigation

How will we know we've achieved this goal?	How do we measure success?	How was this item captured in the IRUWMP?
Adapt to climate change impacts to water resources	Diverse, robust portfolio of imported and local supplies to be resilient to climate change impacts	Captured under Objectives 1b and 5a.
	Increased production and use of recylced water - producing a valuable resource with nominal increase in energy demand.	Captured under Objectives 1b and 5a.
	Manage changes in water supply variability, both local and imported. Success Measure: Long-term reliability of supply - ability to maintain level of service even with reductions in imported and local supplies	Captured under Objectives 1b, 1c and 5a.

	Quantify the number and size of multi-benefit flood/recharge projects. Water supply adaptation, and flood protection adaptation	Captured under Objectives 2b and 2d.
Reduce/offset energy consumption and GHG emissions associated with water facilities	If agencies meet urban water use objectives to prove effective demand management. Both a water supply and energy issue (both adaptation and mitigation)	Captured under Objective 1a
	Measurable reduction in energy intensity of water supplies (e.g. KWh/AF)	Captured under Objective 5b
	Helpful to measure changes in demand over time, both average and seasonal	Captured under Objective 1a
	X MW of renewable energy generation capacity installed X MWh of energy storage installed	Captured under Objective 1b
	Energy management in water distribution and wastewater collection systems. (e.g. storing water for use in high electricity demand periods, pumping off-peak)	Captured under Objective 1b
Meeting state level climate change objectives, as well as objectives from local Climate Action Plans. **Successful implementation of local and regional projects for adaptation / mitigation** **Continue to improve local, regional and statewide**	Threat of wildfire and flooding impacts on water quality. - Protection of supplies -Emergency aid agreements -Ability to bounce back, evaluate performance, share resources Success Measure: Number of partnerships / mutual aid agreements Looking back on results of disasters - were we able to avoid severe impacts and/or recover quickly? Reduced impact of event	Captured under Objective 1a

understanding of climate change impacts	Implementation of microgrids (local generation, storage and use of electricity) where feasible and appropriate to improve reslience to potential impacts to the regional electricity grid due to climate change. When electricity system is experiencing peak demand, so is water system.	Captured under Objective 5b.
	Increased public awareness of climate change and its impacts	Falls under the strategy of "Increase Outreach and Engagement"
	YVWD working on energy project at WWTP. (Jennifer to provide more info)	Specific projects to be included under Projects chapter.
	Key question - how can we measure regional impacts of a local program?	Captured under the Implementation chapter that discusses progress tracking.

G: Project List

Primary Goal	Project	Project Sponsor	Project Costs and Funding	Contact Name	Contact Email	Project Location
IMPROVE WATER SUPPLY RELIABILITY	**IMPROVE WATER SUPPLY RELIABILITY**					
	Active Recharge City Creek Tributary Project	San Bernardino Valley Water Conservation District	$32,823,285	Daniel Cozad	dcozad@sbvwcd.org	City Creek East of the 210 Freeway
	Active Recharge in the Santa Ana River Tributaries [East]	San Bernardino Valley Water Conservation District	$88,000,000			
	Active Recharge in the Santa Ana River Tributaries [West]	San Bernardino Valley Municipal Water District	$127,000,000	Bob Tincher	bobt@sbvmwd.com	
	Active Recharge Mill Creek Tributary Project	San Bernardino Valley Water Conservation District	$2,595,052	Daniel Cozad	dcozad@sbvwcd.org	Mill Creek at SBVWCD Diversion
	Active Recharge Transfer Project [East]	San Bernardino Valley Conservation District	$88,000,000	Erwin Forgerson	Eforgerson@sbvwcd.org	
	Active Recharge Twin Creek Tributary Project	San Bernardino Valley Water Conservation District	$16,667,990	Daniel Cozad	dcozad@sbvwcd.org	Twin Creek Spreading Grounds
	Active Recharge Waterman Creek Tributary Project	San Bernardino Valley Water Conservation District	$23,709,212	Daniel Cozad	dcozad@sbvwcd.org	Waterman Spreading Grounds
	Active Recharge Plunge Creek Tributary Project	San Bernardino Valley Water Conservation District	$10,207,218	Daniel Cozad	dcozad@sbvwcd.org	Plunge Creek West of Orange Street
	Bunker Hill Conjunctive Use Project	San Bernardino Vally Municipal Water District	$14,200,000	Bob Tincher	bobt@sbvmwd.com	
	Cactus Basin Recharge Pipeline	San Bernardino Valley Municipal Water District	$2,500,000	Bob Tincher	bobt@sbvmwd.com	
	Calimesa Aquifer Storage and Recovery	Yucaipa Valley Water District	$6,250,000	Matthew Porras	mporras@yvwd.us	City of Calimesa, 33°58'24"N, 117° 2'54.29"W
	Calimesa Recycled Water Conveyance Project	Yucaipa Valley Water District	$5,500,000	Matthew Porras	mporras@yvwd.us	This project is a linear pipeline mainly located in Calimesa Blvd. 33°58'57.03"N, 117°3'5.16"W
	Central Feeder and EBX Intertie Project	San Bernardino Valley Municipal Water District	$2,000,000	Wen Huang	wenh@sbvmwd.com	
	City of Beaumont WWTP	City of Beaumont		Amer Jakher	ajakher@ci.beaumont.ca.us	

Primary Goal	Project	Project Sponsor	Project Costs and Funding	Contact Name	Contact Email	Project Location
IMPROVE WATER SUPPLY RELIABILITY	City of Redlands WWTP	City of Redlands		Kevin Watson	kwatson@cityofredlands.org	1950 Nevada Street, Redlands
	City of San Bernardino Tertiary Treatment System (Formerly known as City of San Bernardino	San Bernardino Municipal Water Department	$8,730,000			
	Devil Canyon Recharge Project	San Bernardino Valley Municipal Water District	$10,000,000	Bob Tincher	bobt@sbvmwd.com	
	Enhanced Recharge in Santa Ana River Basins Phase 1B	San Bernardino Valley Municipal Water District	$55,000,000	Bob Tincher	bobt@sbvmwd.com	
	Enhanced Recharge in Santa Ana River Basins Intake Improvement	San Bernardino Valley Municipal Water District	$3,000,000	Bob Tincher	bobt@sbvmwd.com	
	Enhanced Recharge in Santa Ana River Basins Phase 1C	San Bernardino Valley Municipal Water District	$3,000,000	Bob Tincher	bobt@sbvmwd.com	
	Erwin Lake Fire Flow	Big Bear Lake Department of Water and Power		Reggie Lamson	rlamson@bbldwp.com	
	Foothill Pipeline Infrastructure Improvements	San Bernardino Valley Municipal Water District	$10,000,000	Bob Tincher	bobt@sbvmwd.com	
	Foothill Pipeline Interior Relining	San Bernardino Valley Municipal Water District	$10,000,000	Bob Tincher	bobt@sbvmwd.com	
	Groundwater Reclamation Interagency Project (GRIP)	City of Redlands	$9,100,000	Kevin Watson	kwatson@cityofredlands.org	
	Henry N. Wochholz WWTP (Salinity and Groundwater Enhancement Project)	Yucaipa Valley Water District	$27,700,000	Kathryn Hallbergy	khallberg@yvwd.us	880 W. County Line Rd, Yucaipa CA, 92399
	IEUA Regional Treatment Plant 4	Inland Empire Utilities Agency		Elizabeth Hurst	ehurst@ieua.orh	
	Medical Center No. 2 Reservoir	San Bernardino Municipal Water Department	$18,100,000	Miguel Guerrero	miguel.guerrero@sbmwd.org	X = 6767194.45 feet; Y = 1874365.95 feet (NAD 83, State Plane, Zone 5, CA, Feet)
	Recharge in Cactus Basin		$5,000,000			
	Recycled Water System Expansion	City of Redlands	$4,858,700	Kevin Watson	kwatson@cityofredlands.org	1950 Nevada Street, Redlands

Primary Goal	Project	Project Sponsor	Project Costs and Funding	Contact Name	Contact Email	Project Location
IMPROVE WATER SUPPLY RELIABILITY	Regional Recycled Water Recharge Pipeline	San Bernardino Valley Municipal Water District	$25,000,000	Bob Tincher	bobt@sbvmwd.com	
	Replenish Big Bear (formerly Big Bear Valley Water Sustainability Project)	Big Bear Area Regional Wastewater Agency	$61,152,000	David Lawrence	dlawrence@bbarwa.org	BBARWA Wastewater Treatment Plant 121 Palomino Drive, Big Bear
	Reservoir Seismic Upgrades	City of San Bernardino Municipal Water Department	$27,800,000	Steve Miller	Steve.Miller@sbmwd.org	Thirteen (13) reservoir sites spanning the City of San Bernardino.
	Riverside North Aquifer Storage & Recovery Project	San Bernardino Valley Municipal Water District	$45,000,000	Bob Tincher	bobt@sbvmwd.com	
	Riverside-Corona Feeder	Western Municipal Water District	$176,000,000			
	Seven Oaks Dam Borrow Pit Groundwater Recharge and Habitat Restoration Project	San Bernardino Valley Water Conservation District	$7,700,000	Daniel Cozad	dcozad@sbvwcd.org	Lattitude: 34° 5'58.32"N Longitude: 117° 7'12.28"W
	Calimesa Recharge Basin	South Mesa Water Company	$5,872,190	Dave Armstrong	darmstrong@southmesawater.com	
	Stormwater Capture and Recharge	City of Riverside Public Utilities	$3,000,000	Leo Ferrando	Lferrando@riversideca.gov	33.98346 , -117.34607
	Twin Creek Channel and Spreading Grounds	San Bernardino Valley Municipal Water District		Michael Fam	mfam@dpw.sbcounty.gov	Lat. 34.1657 Long.-117.2674
	Weaver Basins	San Bernardino Valley Municipal Water District	$6,000,000	Wen Huang	wenh@sbvmwd.com	Recycled Water Recharge from SNRC & CWF
IMPROVE WATER QUALITY	**IMPROVE WATER QUALITY**					
	Big Bear Lake Management Plan	Multiple Agencies	$260,000			
	Cable Creek Basin (Upper)	County of San Bernardino Flood Control District	$20,000,000	Michael Fam	mfam@dpw.sbcounty.gov	Lat. 34.1961 Long. -117.3635
	City of Beaumont Desalter	City of Beaumont		Amer Jakher	ajakher@ci.beaumont.ca.us	
	Desalter and Brine Disposal (Salinity Concentration Reduction and Minimization - (YVRWFF)	Yucaipa Valley Water District	$7,913,000	Kathryn Hallberg	khallberg@yvwd.us	35477 Oak Glen Rd., Yucaipa CA, 92399

Primary Goal	Project	Project Sponsor	Project Costs and Funding	Contact Name	Contact Email	Project Location
IMPROVE WATER QUALITY	Little Sand Creek - Concept 1 &2 - City of San Bernardino	County of San Bernardino Flood Control District	$6,825,600 concept 1; $3,216,957 concept 2	Michael Fam	mfam@dpw.sbcounty.gov	Lat. 34.1446 Long. -117.2474
	RIX Facility Basin Levee Project	San Bernardino Municipal Water Department	$3,300,000	Kevin Stewart	kevin.stewart@sbmwd.org	RIX Location
	Sari Improvement Project					
	Security Fencing of Groundwater Recharge Facilities	San Bernardino Valley Water Conservation District	$1,640,000	Daniel Cozad	dcozad@sbvwcd.org	Lattitude: 34° 5'57.38"N Longitude: 117° 7'51.11"W
BALANCE FLOOD MANAGEMENT AND INCREASE STORMWATER RECHARGE	**BALANCE FLOOD MANAGEMENT AND INCREASE STORMWATER RECHARGE**					
	Alluvial Fan Development Guideline	Water Resources Institute - California State University San Bernadino		Janiene Friend	Janiene.Friend@water.ca.gov	
	Cactus Basins #3	San Bernardino County Parks Department	$21,300,000	Ken Eke	keke@dpw.sbcounty.gov	N34 07' 28", W117 23' 19"
	Cactus Basins #4 and #5	San Bernardino County Parks Department	$21,300,000	Ken Eke	keke@dpw.sbcounty.gov	N34 07' 51", W117 23' 27"
	Carbon Canyon Creek Channel	SBCFCD	$19,500,000	Michael Fam	mfam@dpw.sbcounty.gov	Lat. 33.9877 Long. -17.7239
	City Creek Levee Repair - Highland	County of San Bernardino Flood Control District	TBD	Michael Fam	mfam@dpw.sbcounty.gov	Lat. 34.1277 Long. -117.1908
	Del Rosa Feasibility Study	County of San Bernardino Flood Control District	$7,878,455 (concept 1) $2,930,297 (concept 2) $1,500,000 (Feasibility	Michael Fam	mfam@dpw.sbcounty.gov	Lat. 34.0941 Long. -117.2581
	Elder Creek Channel -Highland	County of San Bernardino Flood Control District	$14,700,000	Michael Fam	mfam@dpw.sbcounty.gov	Lat. 34.1082 Long. -117.1725
	Grove Basin Outlet Storm Drain	City of Ontario and SBFCD	$9,300,000	Michael Fam	mfam@dpw.sbcounty.gov	Lat. 34.0120 Long. -117.6180
	Hawker Crawford Channel	City of Fontana and SBFCD	$8,900,000	Michael Fam	mfam@dpw.sbcounty.gov	Lat. 34.1503 Long. -117.4870
	Mission Channel Feasibility Study	County of San Bernardino Flood Control District	$1,500,000	Michael Fam	mfam@dpw.sbcounty.gov	Lat. 34.0741 Long -117.2704

Primary Goal	Project	Project Sponsor	Project Costs and Funding	Contact Name	Contact Email	Project Location
BALANCE FLOOD MANAGEMENT AND INCREASE STORMWATER RECHARGE	Mission Channel-Santa Ana River to Tennessee Street	County of San Bernardino Flood Control District	$8,190,000	Michael Fam	mfam@dpw.sbcounty.gov	Lat. 34.0655 Long. -117.2335
	Randall Basin	San Bernardino County Parks Department	$1,460,000	Ken Eke	keke@dpw.sbcounty.gov	N34 05' 09", W117 21' 09"
	Rialto Channel Willow Ave. To Etiwanda Ave. Rialto	County of San Bernardino Flood Control District	$40,200,000	Michael Fam	mfam@dpw.sbcounty.gov	Lat. 34.0769 Long. -117.3779
	San Antonio Storm Drain	City of Ontario	$23,300,000	Michael Fam	mfam@dpw.sbcounty.gov	Lat. 34.0213 Long. -117.6588
	San Timoteo Creek Basin Slope Repair-Redlands	County of San Bernardino Flood Control District	$410,000	Michael Fam	mfam@dpw.sbcounty.gov	Lat 34.0265 Long. -117.2008
	Sand/Warm Confluence	San Bernardino County Parks Department		Ken Eke	keke@dpw.sbcounty.gov	N34 07' 05", W117 15' 29"
	West Fontana Channel Hickory to Banana Basin	County of San Bernardino Flood Control District	$11,500,000	Michael Fam	mfam@dpw.sbcounty.gov	Lat. 34.0941 Long. -117.4924
	West State Street Storm Drain- Montclair	County of San Bernardino Flood Control District	$23,600,000	Michael Fam	mfam@dpw.sbcounty.gov	Lat. 34.0603 Long. -117.6809
	Wildwood Channel- Interstate 10 to Holmes St. - Yucaipa	County of San Bernardino Flood Control District	$16,670,920	Michael Fam	mfam@dpw.sbcounty.gov	Lat. 34.0137 Long. -117.0635
	Wilson Creek -10th Street to Interstate 10 - Yucaipa	County of San Bernardino Flood Control District	$11,000,000	Michael Fam	mfam@dpw.sbcounty.gov	Lat. 34.0250 Long. -117.0790
	Wilson III Basin Project	City of Yucaipa	$8,900,000	Michael R. Seal	mseal@yucaipa.org	The project is proposed to be located within an approximate 100 acre site at the confluence
IMPROVE HABITAT AND OPEN SPACE	**IMPROVE HABITAT AND OPEN SPACE**					
	Combined SBKR and Water Recharge Enhancement - Wash Plan Implementation	San Bernardino Valley Water Conservation District	$1,371,101	Daniel Cozad	dcozad@sbvwcd.org	Lattitude: 34° 6'12.20"N Longitude: 117° 9'27.62"W
	Hidden Valley Duck Ponds Mitigation Project	San Bernardino Valley Municipal Water District	$2,000,000			
	Lake Rialto	City of Rialto	$6,000,000	Thomas Crowley	tjcrowley@rialotca.gov	Area directly south of the City of Rialto Wastewater Treatment Plant, 501 E. Santa Ana Ave,

Primary Goal	Project	Project Sponsor	Project Costs and Funding	Contact Name	Contact Email	Project Location
IMPROVE HABITAT AND OPEN SPACE	LIDS for Kids- Low Impact Development	Inland Empire Resource Conservancy District	$237,000	Brian/Mandy	ey@iercd.orgmparkes@iercd.org	
	Lytle Creek Watershed Assessment and Restoration	Water Resources Institute - California State University San Bernadino	$260,000	Janiene Friend	Janiene.Friend@water.ca.gov	
	Pedley Landfill Removal and Native Habitat Restoration Mitigation Project	San Bernardino Valley Municipal Water District	$5,000,000			
	Plunge Creek Stream Bed Restoration - Highland	County of San Bernardino Flood Control District	$7,480,000	Michael Fam	mfam@dpw.sbcounty.gov	Lat. 34.1147 Long. -117.1399
	Removal of Invasive Plant	Inland Empire Resource Conservancy District	$300,000	Brian/Mandy	brobey@iercd.org; mparkes@iercd.org	
	Rialto Channel Mitigation for Santa Ana Sucker	San Bernardino Valley Municipal Water District	$4,000,000	Wen Huang	wenh@sbvmwd.com	
	Rubidoux Nature Center, Evans and Sunnyslope Creeks - Habitat, Rehabilitation, and Enhancement Mitigation Project	San Bernardino Valley Municipal Water District	$3,000,000			
	San Timoteo Basin Mitigation Project-Redlands	County of San Bernardino Flood Control District	$500,000	Michael Fam	mfam@dpw.sbcounty.gov	Lat 34.0303 Long. -117.2047
	San Timoteo Canyon State Park Habitat Conservation	R.L.C.	$5,500,000	Jack Easton	jeaston@riversandlands.org	The study area is about 10,000 acres generally centered on coordinates Lat. 33.976550° /
	Santa Ana River Habitat, Parks, and Water Project	City of Riverside Public Utilities/ San Bernardino Valley Municipal Water District	$40,000,000	Greg Herzog, Chris Jones	@riversideca.gov, chrisj@sbvmwd.com	
	SAR Trail - Phase III	San Bernardino County Parks Department		Ellie Hargrove	ehargrove@dpw.sbcounty.gov	Waterman Ave to California St, San Bernardino to Redlands (along south side of river)
	SAR Trail - Phase IV	San Bernardino County Parks Department		Ellie Hargrove	ehargrove@dpw.sbcounty.gov	California St to Garnet St, (along south side of river) in San Bndo and Redlands
	Upper Santa Ana Watershed Alluvial Sage Scrub Habitat Restoration Mitigation Banking Construction Program	San Bernardino Valley Water Conservation District		Daniel Cozad	dcozad@sbvwcd.org	Lattitude: 34° 5'56.71"N Longitude: 117° 9'4.47"W
	Warm Creek – Baseline Street to Sand Creek Confluence – Concept 1	County of San Bernardino Flood Control District	$6,350,000	Michael Fam	mfam@dpw.sbcounty.gov	Lat 34.1213 Long. -117.2474
	Warm Creek – Del Rosa Confluence to Sand Creek Confluence – Concept 2	County of San Bernardino Flood Control District	$26,126,325	Michael Fam	mfam@dpw.sbcounty.gov	Lat 34.1161 Long. -117.2662

Primary Goal	Project	Project Sponsor	Project Costs and Funding	Contact Name	Contact Email	Project Location
IMPROVE HABITAT AND OPEN SPACE	Warm Creek Restoration Project	Inland Empire Resource Conservancy District	$63,000	Brian/Mandy	brobey@iercd.org; mparkes@iercd.org	
	Wash Habitat Conservation Plan	San Bernardino Valley Water Conservation District	$800,000	Daniel Cozad	dcozad@sbvwcd.org	Lattitude: 34° 5'56.71"N Longitude: 117° 9'4.47"W
ADDRESS CLIMATE CHANGE THROUGH ADAPTATION AND MITIGATION	**ADDRESS CLIMATE CHANGE THROUGH ADAPTATION AND MITIGATION**					
	Energy Resiliency Project - HWRWRF	Yucaipa Valley Water District	$25,000,000	Matthew Porras	mporras@yvwd.us	880 County Line Road, Yucaipa Ca 92399
	Energy Resiliency Project - YVRWFF	Yucaipa Valley Water District	$20,000,000	Matthew Porras	mporras@yvwd.us	35477 Oak Glen Road, Yucaipa, CA 92399
	Hydroelectric Acquistion Projects	SBV Water User Consortium	TBD	Wen Huang	wenh@sbvmwd.com	
	Waterman Turnout Hydroelectric Plant	San Bernardino Valley Municipal Water District	$4,500,000	Bob Tincher	bobt@sbvmwd.com	
PROJECTS REMOVED FROM LIST	**PROJECTS REMOVED FROM LIST**					
	Beaumont Avenue Recharge Facility	San Gorgonio Pass Water Agency		Project Complete		
	Opal Recharge and Flood Control Basin	City of Redlands		Removed at the request of Project Sponsor		
	Downtown Storm Drain Project	City of Redlands		Removed at the request of Project Sponsor		
	RIX Flow Outage Mitigation for Santa Ana Sucker	San Bernardino Valley Municipal Water District		Removed at the request of Project Sponsor		
	Stanfield Marsh	No Agency Listed		No Agency Listed; Do Not Include		
	Bogart Park Wetlands	No Agency Listed		No Agency Listed; Do Not Include		
	BCV Forest Land Reserved	No Agency Listed		No Agency Listed; Do Not Include		
	I.E. Sustainable Watershed Project	No Agency Listed		No Agency Listed; Do Not Include		
	Central Feeder Pipeline	San Bernardino Valley Municipal Water District	$117,000,000	Bob Tincher	bobt@sbvmwd.com	
	West End Pump Station	San Bernardino Valley Municipal Water District	$10,000,000	Bob Tincher	bobt@sbvmwd.com	
	Yucaipa Connector	San Bernardino Valley Municipal Water District	$4,500,000	Bob Tincher	bobt@sbvmwd.com	
	Rialto-Colton Basin Groundwater Recharge Study	San Bernardino Valley Municipal Water District	$280,000	Bob Tincher	bobt@sbvmwd.com	
	Pellesier Ranch Recharge and Water Treatment Plant	City of Riverside Public Utilities	$17,700,000	Inactive Project, Agency Not Pursuing		
	Santa Ana River Construction Area	San Bernardino Valley Municipal Water District	$122,000,000	Bob Tincher	bobt@sbvmwd.com	

Primary Goal	Project	Project Sponsor	Project Costs and Funding	Contact Name	Contact Email	Project Location
PROJECTS REMOVED FROM LIST	Installation of Groundwater Monitoring Wells in Santa Ana River Forebay	San Bernardino Valley Water Conservation District	$640,000	Daniel Cozad	dcozad@sbvwcd.org	
	Bunker Hill Basin Water Supply Reliability	West Valley Water District	$13,000,000	Inactive Project, Agency Not Pursuing		

H: Blank Project Submittal Form

Upper Santa Ana River Watershed
2020 Integrated Regional Urban Water Management Plan

Call for Projects – Project Submittal Form

Please email all forms and supporting documents to Dawn Flores (dflores@woodardcurran.com) and Laine Carlson (lcarlson@wsc-inc.com)

Please check one. This form is to:

☐ Update an existing project in the 2015 IRWMP/current project list

If updating an existing project, only the information that has changed needs to be provided; other sections can be left blank

☐ Submit a new project to be included in the 2020 IRUWMP

Note: new projects can be submitted at any time and will be added to the list once approved.

1. Contact Information

General Information	
Project Name	
Lead Agency or Organization	
Organization Address	
Project Partners (if applicable)	
Contact Information	
Primary Contact Name	
Organization	
Title	
Phone Number	
Email	

2. Project Description

Project Information	
Readiness for implementation (conceptual or developed)	
Type (planning or implementation)	
Location (address, coordinates and/or other location description to describe the project area)	

Project Description

Provide a 1-2 paragraph project description. Include a discussion of any facilities that will be constructed or programs to be implemented, and how these will provide water resource-related benefits to the Region.

Relationship to other Projects in the Region

Can the project be integrated with other regional projects?

Has there been any coordination with other entities within or outside of the Region?

3. Project Benefits

Check the benefits the project will provide. All projects must provide one or more benefits. Project components that will ensure these benefits should be included in the Project Description.

Improve Water Supply Reliability
☐ Reduce demand for water
☐ Increase utilization of local supplies
☐ Increase storage of water in groundwater basins during wet years
☐ Improve system resiliency and the ability to respond to emergency supply interruptions
☐ Ensure equitable access to clean drinking water
Balance Flood Management and Increase Stormwater Recharge
☐ Utilize flood control retention/detention basins for recharge
☐ Reduce the risk of flooding while providing multiple benefits, where possible
☐ Improve flood control or reduce the risk of flooding in disadvantaged communities
☐ Improve surface water quality and increase recharge by capturing stormwater in urban areas
Improve Water Quality
☐ Reduce or eliminate violations of drinking water quality standards
☐ Improve surface and groundwater quality by treating water supply
☐ Manage total dissolved solids and nitrogen in groundwater
☐ Ensure equivalent water quality services for disadvantaged communities
Improve Habitat and Open Space
☐ Improve habitat and open space
☐ Increase recreation and public access in and around local waterways
Address Climate Change through Adaptation and Mitigation
☐ Adapt to the impacts of climate change on water resources
☐ Reduce or offset energy consumption or GHG emissions associated with water and wastewater systems

Additional Benefits

Check which Disadvantaged Communities (DAC), Native American Tribal Communities and Environmental Justice concerns are features of the project:

☐ Benefits to DACs. Explain:

☐ Benefits to Native American Tribal communities. Explain:

☐ Addresses Environmental Justice[1] concerns. Explain:

[1] Environmental Justice is defined by State Law as: “the fair treatment and meaningful involvement of all people regardless of race, color, sex national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations, and policies.”

4. Project Schedule

Provide the current status of the project (e.g., initial study, planning, design, environmental review, in construction) and include a timeline for the project.

5. Project Costs and Funding

Project Costs

Provide the total estimated project cost.

Funding

List potential sources of funding for the project and percent of project that has been funded or financed, if available.

Basis for Project Cost

Describe the basis for the project cost, such as a feasibility study, partial design, etc. If a cost estimate has been prepared, please list that document here.

6. Supporting Information

Technical Feasibility

Provide the name of supporting documents that indicate/justify project feasibility.

Economic Feasibility

Has a cost-effectiveness or benefit-cost analysis been performed for the Project? Provide a copy of (or link to) the economic analysis, if available.

7. Other Considerations

Has the lead agency or organization adopted the latest Upper Santa Ana River Watershed 2015 Integrated Urban Water Management Plan and/or will the lead agency or organization adopt the 2020 Integrated Regional Urban Water Management Plan?

I: Water Management Strategies

Appendix I: Description of Water Management Strategies

The water management strategies identified in Part 1 Chapter 6 are described in detail in this Appendix.

Reduce Water Demand

Implement Urban Water Use Efficiency

Urban Water Use Efficiency (WUE) involves reducing potable water used for municipal, commercial, industrial, irrigation and aesthetic purposes, and is an important element in almost every water purveyor's water resource planning efforts. Such efficiency methods include incentives, public education, and other efficiency-enhancing programs. Significant progress has been made to reduce urban water use in the Region. This strategy will also mitigate against climate change by reducing the energy use and GHG emissions associated with conveying water over long distances and treating water for potable use. The Region plans to continue these programs and work on other strategies such as implementing water rate structures that reduce water waste.

This strategy aligns with the Region's objective to comply with conservation legislative requirements (AB 1668 and SB 606).

Implement Agricultural Water Use Efficiency

Agricultural WUE includes improvements in technology and management of water, both on-farm and at the water supplier level through incentives, public education, and other programs. Future agricultural WUE measures will focus on development of new technologies and further economic incentives.

Though implementation of this strategy will help the Region to achieve its goal of improving water supply reliability and adaptively managing climate change impacts, since agriculture is not a large industry in the Region, implementing agricultural WUE will provide limited benefit to the Region.

Increase Water Supply

Increase Recharge

Recharge projects increase local groundwater supplies, which can help the Region both mitigate and adapt to climate change. Groundwater use may be a critical resource during droughts, which are expected to intensify as a result of climate change. Local groundwater supplies can also mitigate climate change by offsetting GHGs associated with transporting imported water over long distances. Recharging surface water runoff also protects downstream surface water flows and key habitats that sequester carbon and reverse GHG pollution.

Flood control projects, such as new detention basins, can be used to increase recharge of local stormwater runoff in addition to reducing flood risk in the Region. These projects will have the

additional benefit of increasing groundwater storage to improve water supply reliability. Secondarily, these projects will improve water quality in surface waters by reducing stormwater runoff volumes.

Increase Surface Water and Groundwater Storage Inside and Outside the Region

This strategy will improve water supply reliability by increasing storage, increasing utilization of local supplies, and preparing for disasters that could cause an interruption in imported water or failure of regional water conveyance. Supplies stored in water banks and other reservoirs can be used as a buffer for drought periods, which are expected to become more frequent and longer as a result of climate change.

Optimize Wet Year Storage and Dry Year Pumping (Conjunctive Use & Groundwater Management)

Conjunctive use, storing water in wet years for later use during dry years, can help improve the Region's long-term and seasonal water supply reliability. This strategy also helps to maximize the utilization of California's "feast or famine" hydrology which is characterized by wet years and dry years with relatively few years in between. Implementation of this strategy supports the Region's objectives of increasing utilization of local supplies and increasing storage. This strategy also increases water supply reliability by helping meet the objective to prepare for disasters by implementing storage projects.

Conjunctive use can help improve the Region's long-term and seasonal water supply reliability. This strategy helps to maximize water storage in wet years for later use during dry years. This supply is essential in drought periods, which are projected to become more common and intense as a result of climate change. Implementation of this strategy supports the Region's objective of managing climate change impacts.

Increase Recycled Water Use

Water supply reliability in the Region can be improved by increasing the use of recycled water. Use of recycled water eliminates the need for an equivalent amount of potable water. Recycled water is also extremely reliable since wastewater flows continue independent of whether it is a wet period or a dry period.

Water recycling can also reduce energy consumption and associated GHG emissions by lowering dependence on imported water supplies. Although recycled water supplies can be affected by drought and increased conservation, the impacts are typically lower than other resources. This supply source is also considered more resilient to temperature and precipitation variation expected with climate change.

Increase Stormwater Capture

Water supply reliability in the Region can be increased by capturing local stormwater that historically flowed to the ocean. The Region is working on a variety of projects that would capture more of this local resource. This strategy will help increase storage and utilization of local supplies and increase local supply reliability. Implementation of this strategy will help

mitigate climate change by decreasing regional dependence on imported water and reducing GHG emissions associated with conveying imported water to the Region.

In addition, local stormwater is of very high quality. Therefore, capturing and recharging more local stormwater not only improves water supply reliability but also improves water quality. Capturing stormwater for groundwater recharge can apply to the Region's objective to manage TDS and nitrogen by diluting these constituents with water that is of higher quality than imported water.

Support Bay Delta Conveyance Project

The DCP is intended to improve habitat in the Delta while improving supply reliability for the SWP. The DCP will also result in improved water quality for the SWP, primarily in dry years when there is less fresh water to keep salt water from flowing into the Delta. The freshwater increases in salts as it passes through the Delta. The DCP will move the SWP intakes to the north and bypass the Delta, limiting the increase in salinity during dry years and thereby improving the quality of water delivered through the SWP to the Region and the rest of Southern California.

Operate Existing Facilities to Increase Recharge

Increasing recharge in existing facilities would maximize groundwater infiltration and storage in recharge areas. Local groundwater supplies are key for the Region as they can reduce the need to import water, effectively decreasing the amount of energy associated with water conveyance over large distances. Groundwater recharge also prevents water tables from dropping and then being pumped from lower depths with high energy costs. Local water supplies will also increase the Region's resiliency to droughts as imported water becomes increasingly vulnerable to climate change.

Modifications and/or adjustments to SBCFCD facilities may be needed to effectively integrate water recharge concepts. While the primary function of SBCFCD is 'flood control', water conservation is part of the SBCFCD mission. Cooperation between the SBCFCD and water agencies will allow for further adaptation of flood control facilities with the facilities of other local agencies for the preservation of local waters. All basins and SBCFCD storm water conveyance systems in Zones 2 and 3 have potential for utilization in groundwater recharge scenarios given the proper study, design concept, and configuration. In addition, avenues for future SBCFCD/local agency agreements can be identified to truly integrate mutual efforts for water conservation.

Implement System Reoperation

System reoperation allows for better management and movement of existing water supplies and includes managing surface storage facilities to optimize the availability and quality of stored water supplies. System reoperation could involve balancing supply and delivery forecasts, coordinating and interconnecting reservoir storage, and optimizing depth and timing of

withdrawals. This strategy will help the Region improve water supply reliability by helping to meet objectives such as increasing utilization of local supplies and increasing storage.

Improve Supply Conveyance – Delta

The Region relies on the SWP for imported water supplies. Improvements to the SWP system increase the reliability of this supply source. The Region recognizes the importance of the SWP and, therefore, desires to support the Delta Conveyance Project (DCP) which would restore reliability to the SWP while also improving habitat.

Improve Supply Conveyance – Regional/Local

Local and regional water supply conveyance in the Region can include both natural watercourses and man-made facilities such as pipelines and flood control channels. Infrastructure associated with these conveyance facilities includes pumping plants and diversion structures. The local/regional conveyance strategy seeks to improve existing conveyance systems by upgrading aging distribution systems, as well increasing system flexibility and reliability through the addition of interconnections among water resource systems. Establishing performance metrics for quantitative/qualitative indicators and assuring adequate resources to maintain the condition and capacity of existing conveyance facilities are also aspects of this strategy.

Conveyance infrastructure improvements and upgrades can improve the operational flexibility of delivery systems to better accommodate peak demands and emergency water needs, which will help the Region to meet its objective of preparing for disasters. Additional local and regional conveyance can also increase utilization of local supplies and continue to ensure equitable access to clean drinking water for all communities. This strategy will also help the Region mitigate climate change by reducing the energy use and GHG emissions associated with transporting water.

Identify Water Transfer Opportunities

Water transfers are temporary or long-term changes in the point of diversion, place of use, or purpose of use by contracting or moving water from one beneficial use to another. Through pipeline interties and other facilities, the Region can make a variety of water transfers and increase supply resiliency. These transfers would typically be used in times of shortage caused by drought or emergency, such as an earthquake. The Region will continue identifying additional interties that would increase the opportunity for future water transfers.

Improve Water Quality

Match Water Quality to Use

Matching water quality to use recognizes that not all water uses require the same quality of water. Agricultural, municipal, landscape and residential water uses have different water quality needs. Achieving water quality standards can also be impacted by natural background

conditions, natural flow conditions, irreversible human impacts, hydrologic modifications, natural features of the water body and economic hardships.

Matching water quality to water use by recognizing the different needs, natural background conditions, hydrologic limitations, and economics ensures that limited public resources can be focused on the most significant problems. Benefits of this strategy can include providing cost saving opportunities by reducing treated water costs if users can be supplied with raw water or recycled water, while reserving high quality water for drinking water purposes. This strategy can help the Region to achieve its goal to improve water quality.

Improve Drinking Water Treatment and Distribution

Public water systems must develop and maintain adequate water treatment and distribution facilities to meet the goal of providing a reliable supply of safe drinking water. The drinking water treatment and distribution strategy includes improving the quality of potable water supplied to customers and improving conveyance systems to improve the quality of supplies delivered from treatment facilities. Implementing this strategy will support the Region's objectives to ensure no violations of drinking water standards by improving water quality and the ability to access and increase groundwater supply that may not have been previously available due to quality concerns. Overall water quality is reported to customers in annual consumer confidence reports. The Region plans to use these reports as a strategy to ensure drinking water quality standards are met. Improving supply quality and distribution will also help achieve the Region's objective to continue to provide high quality drinking water to all communities.

Implement Pollution Prevention Measures

Pollution prevention controls or reduces pollutants from point and nonpoint sources that can affect multiple environmental resources, including water supply, water quality, and riparian and aquatic habitat. Strategies that prevent pollution can include public education, efforts to identify and control pollutant contributing activities, and regulation of pollution-causing activities. Pollution prevention includes implementation of water quality BMPs that reduce contaminant concentrations to reduce loading to 303(d) listed receiving waters and/or supply sources. BMPs can include either structural BMPs, where the BMP involves designing and building structural treatment and control facilities, or non-structural BMPs, where the BMP does not require construction of a physical component to filter stormwater.

Projects that remove contaminants using the soil as a filter have the secondary benefit of mitigating flood risk and increasing stormwater recharge, thereby increasing water supply reliability. Pollution prevention can improve water quality for all beneficial uses by protecting water at its source and therefore reducing the need and cost for other water management and treatment options. By preventing pollution throughout the watershed, water supplies can be used and reused for a broader number and types of downstream water uses. Protecting source water is consistent with a watershed management approach to water resources problems.

Manage Salt and Salinity

This strategy encourages stakeholders to proactively identify the sources of salinity, prioritize the necessary mitigation actions, and work collaboratively with entities that have the authority to take appropriate actions. Effective salt and salinity management will reduce the accumulation of salinity in drinking water supplies. This strategy can help the Region meet several objectives including improving surface and groundwater quality and managing TDS and nitrogen.

Manage Sediment

Sediment management decreases turbidity and suspended sediment concentrations in surface waters that provide drinking water supplies. Sediment management also improves the permeability of drainage areas by filtering water and reducing turbidity, suspended solids, nutrients, and concentrations of trace metals and organic contaminants present in the sediments before the water enters aquifers.

The sediment management strategy can also be used to preserve or improve habitat by conserving or restoring riparian, wetland, and permanent water areas. This strategy protects sediment as a valuable resource for the restoration and renewal of stream habitats, wetlands, riparian vegetation, and floodplains and prevents excessive amounts from degrading surface water quality.

Manage Urban Runoff

The Region plans to work with land use authorities to improve urban runoff management which includes strategies for managing or controlling urban runoff, such as intercepting, diverting, controlling, or capturing stormwater runoff or dry weather runoff. Urban runoff management strategies, coupled with centralized groundwater recharge or decentralized low impact development (LID) projects, can also help to improve groundwater recharge. Several BMPs can be used to manage urban runoff and prevent surface water quality contamination such as public education, bioswales, permeable pavers, vegetated buffers, rainwater harvesting, construction erosion control, and others. Reducing dry weather flows that are often caused by over-irrigation may also be improved through water conservation programs that aim to improve water use efficiency.

The urban runoff management strategy supports the Region’s objective to improve surface and groundwater quality and has the secondary benefits of reducing flood risk.

Remediate Groundwater Contamination Plumes

Groundwater management is currently influenced by the presence of contamination plumes. Avoiding any impacts to and from the plumes and removing the contaminants when possible is a Basin Management Objective for the Region and is also consistent with SGMA.

Flood Management

Manage Flood Risk

Integrated water management seeks a balance between exposure of people and property to flooding, the quality and functioning of ecosystems, the reliability of water supply and water quality, and economic stability that includes both economic and cultural considerations. Through the implementation of integrated flood management techniques, the Region intends to improve stormwater recharge and reduce runoff flows.

Practice Resources Stewardship

Continue Basin Management in Local Groundwater Basins

Local groundwater basins are a major source of supply for the Region. Projects that will implement this strategy should align with management structures already in place for each groundwater basin. For example, the BTAC monitors and manages the SBB. The Region is currently working to maximize the conjunctive use of the SBB. The BTAC also evaluates liquefaction potential on a monthly basis and has a dewatering plan should additional pumping be required to lower water levels and reduce liquefaction potential. As another example, the Yucaipa Subbasin has been designated as a high-priority basin under SGMA and is therefore required to have a Groundwater Sustainability Plan put into place to sustainably mange the Subbasin over the long-term planning and implementation horizon. The Rialto Basin has also just established a Groundwater Council that will be developing a groundwater management plan.

Included in the basin management strategy is the management of high groundwater potential in the SBB. The SBB is uniquely constrained by shallow groundwater levels when the basin is too full. The shallow groundwater conditions have been artesian in the past and occur in an area of South San Bernardino called the Pressure Zone, or Area of Historic High Groundwater. High groundwater levels increase the risk of liquefaction, flood basements and can impact underground utilities. These conditions can also limit opportunities for recharge and/or groundwater banking in the basin.

Develop Watershed Management Projects and Programs

Watershed management utilizes planning, programs, and projects to restore and enhance watershed functions. Watershed planning encompasses a broader perspective on water resources management, including improving and protecting water quality, ecosystems, and open space. Using the watershed as a basic management unit promotes multi-benefit, integrated projects and collaboration among policies and actions, often requiring the involvement of stakeholders. Given this, projects that use watershed management can help the Region to meet several of its objectives including improving surface and groundwater quality and managing TDS and nitrogen.

Development of watershed management projects and programs also promotes integrative planning that enhances ecosystem services. Typically, a diversified watershed ecological system is more robust and resilient to rapid climate changes. Maintaining a healthy watershed

through effective land and resource management will ensure that ecosystems continue to provide key benefits in the face of a changing climate.

Identify Corridors for Species

In anticipation of further growth in the Region, there is a need for a balance between growth of urban areas and the environment to maintain viable habitat for native plant and wildlife species, and to maintain a high quality of life for watershed residents and visitors. An effective means of establishing this balance is the development of open space corridors that allow for multiple species habitat, wetlands, storm flow capture and aquifer recharge, water quality improvements, and passive and active recreational facilities and open spaces. This strategy is currently being implemented through two habitat conservation plans by identifying corridors used by sensitive wildlife species to move from place to place.

Restore Ecosystems

Ecosystem restoration affects the return of selected ecosystems to a condition similar to their undisturbed state, directly improving habitat and open space. Some ecosystems within the Region remain undisturbed; however, much of the low-lying areas are urbanized and therefore highly disturbed. Additionally, fire suppression in the San Bernardino forest has resulted in tree overgrowth that contributes to basins being clogged with debris as mentioned above. Ecosystem restoration, where possible, will indirectly improve stormwater recharge and the preservation of flood plains, and will support climate change mitigation through the sequestration of carbon into plants and trees.

Protect Recharge Areas

The protection of recharge areas focuses on safeguarding of lands that are important locations for groundwater recharge. Natural recharge areas include stream beds and open spaces that allow water to permeate into the ground, while artificial recharge areas can include ponds or basins that collect water and allow it to permeate. These recharge areas can be protected through land use planning, land conservation and habitat protection programs. If recharge areas cease functioning properly, there may not be sufficient groundwater for storage or use.

In the Region, the United States Geological Survey (USGS) determined that most of the natural recharge occurs in the unlined streams and creeks within the San Bernardino Valley. Recharge also occurs in the flood control detention basins along the foothills. Protection of recharge areas include two primary goals: 1) ensuring that the streams, creeks, and flood control detention basins are not lined with concrete; and 2) preventing pollutants from entering groundwater to avoid expensive treatment that may be needed prior to potable, agricultural, or industrial beneficial uses.

Due to the Region's high utilization of local groundwater basins, recharge area protection is a key strategy to ensure the sustainability and reliability of the groundwater supply. Protecting recharge areas will help the Region increase utilization of the local water source and contribute to multi-use opportunities such as habitat and recreation.

Implement Agricultural Lands Stewardship

Agricultural lands stewardship protects and promotes agricultural production through integrating positive water resource management strategies into agricultural activities. This includes preserving agricultural land, maintaining and creating wildlife habitat within agricultural land, reducing land erosion and runoff pollution, removing invasive species, and creating riparian buffers. Since agriculture is not a large industry in the Region, practicing agricultural lands stewardship will provide limited benefit to the Region.

Continue Forest Management and Hazardous Fuels Reduction in Forest

SBCFCD uses the Fuels Management Program to proactively thin trees in the forest that would have historically been thinned by wildfire. This practice reduces flood risk by reducing, or eliminating, debris that runs down streams and fills debris/detention basins following wildfire. Because proactively thinning the forest is a fraction of the cost of cleaning debris, the Region should continue to proactively thin the forest to decrease the potential risk of debris inundating basins after a wildfire. Implementation of this strategy will reduce flood risk and improve the functionality of flood control basins so that more stormwater can recharge the groundwater basins and reduce sediment flowing into channels.

Effective forest management can also help the Region mitigate climate change. Maintaining healthy forested lands and woodlands can help sequester carbon from the atmosphere, reducing GHGs in the atmosphere and mitigating climate change. Wildfire risk is anticipated to increase particularly in the urban-wildland interface communities as a result of climate change. The Hazardous Fuels Reduction program can also help the Region adapt to climate change through the removal of dead, dying, and diseased trees, and any vegetation which creates a hazardous fuel for fires.

Coordinate Land Use Planning and Management with Water Resources Management

Land use planning and management uses land controls to manage, minimize, or control activities that may negatively affect the quality and availability of groundwater and surface waters, natural resources, or endangered/threatened species. More efficient and effective land use patterns promote integrated regional water management and has been incorporated into guidelines for programs such as IRWM and SGMA. Integrating land use and water management consists of planning for housing and economic development needs of a growing population while providing for the efficient use of water, water quality, energy, and other resources.

Through the land use planning and management strategy, the Region intends to work more closely with land use planning agencies to ensure that they consider and implement low impact development policies and other BMPs that improve stormwater infiltration and reduce runoff flows, as well as look for opportunities to expand recreation and public access.

Incorporate Environmental Opportunities and Constraints into the Design Process for Facilities

There may be opportunities to improve environmental resources when designing stormwater capture and recharge facilities. When possible, facilities may be designed to reduce environmental impacts and promote natural habitat.

Incorporate Opportunities to Improve Habitat and Increase Recreation and Public Access During the Facilities Design Process

The Region's expanding population means that new facilities will continue to be needed to manage water supplies. The Region has an opportunity to incorporate habitat improvement, and recreation and public access during the design process of these new facilities. This strategy will maintain and create new opportunities for the public to enjoy the area's waterways and other recreational amenities; enhance the watershed's natural features; and ensure access to the Region's wetlands, lakes, and streams.

Participate in SAWPA Basin Management Task Force

The SAWPA Basin Management Task Force compiles and collects monitoring data to evaluate water quality in the SAR and the groundwater basins. Participation in the Task Force contributes to understanding and reacting to surface and groundwater quality issues in the Region. This strategy will help the Region meet the objective to improve surface and groundwater quality and manage TDS and nitrogen in the groundwater.

People and Water

Provide Economic Incentives

Economic incentives, in the form of loans, grants, or water pricing support, are important for successful implementation of projects as a lack of adequate funds can prevent a project from moving forward. Incentives can result in lower operation costs or lower local costs of implementing a project. The economic incentives strategy can be used to help the Region meet all objectives, depending on the type of project to be implemented.

Maintain and Improve Water-Dependent Recreation

The strategy to maintain and improve water-dependent recreation seeks to enhance and protect water-dependent recreational opportunities and public access to recreational lands through water resources management. Water-dependent recreation within the Region includes opportunities to access or be alongside lakes and river corridors. This strategy is especially applicable to Big Bear Lake where people fish, swim, boat, and participate in other recreational within the reservoir.

Increase Outreach and Engagement

Effective public outreach and engagement increases public awareness of where water comes from and instills water conservation/water use efficiency as a public ethic, resulting in

decreasing demands on local and imported water supplies. Effective outreach and engagement can also prevent pollutants from entering water supplies at the source, helping the Region meet the objective to improve surface and groundwater quality.

The strategy to increase outreach and engagement can also encourage the involvement of community members in meaningful water resources and land use planning. This strategy ensures that the development of recreational and open spaces not only meets the needs of the community but is also widely supported by the general public.

Consider Water and Culture

Linking cultural considerations to water management helps project expected water demands for cultural activities and improves understanding of the perspectives that influence water conservation. This strategy can help the Region meet the objective to comply with conservation legislative requirements. Consideration of water and culture also identifies customer expectations for water quality and land use as they relate to subsistence activities, recreational activities, spiritual activities, historic preservation, public art, and lifeways.

J

2020 IRUWMP Part 4
West Valley Water District
Appendix J

J-1: UWMP Compliance Checklist

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
Chapter 1	10615	A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities.	Introduction and Overview	Part 2 Chapter 10
Chapter 1	10630.5	Each plan shall include a simple description of the supplier's plan including water availability, future requirements, a strategy for meeting needs, and other pertinent information. Additionally, a supplier may also choose to include a simple description at the beginning of each chapter.	Summary	Part 2 Chapter 10
Section 2.2	10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Part 2 Chapter 10
Section 2.6	10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Part 1
Section 2.6.2	10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan and contingency plan.	Plan Preparation	Part 4 Appendix J-2
Section 2.6, Section 6.1	10631(h)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) - if any - with water use projections from that source.	System Supplies	Part 1 Chapter 5
Section 2.6	10631(h)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	N/A
Section 3.1	10631(a)	Describe the water supplier service area.	System Description	Part 2 Chapter 10 Section 1

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
Section 3.3	10631(a)	Describe the climate of the service area of the supplier.	System Description	Part 1 Chapter 2
Section 3.4	10631(a)	Provide population projections for 2025, 2030, 2035, 2040 and optionally 2045.	System Description	Part 2 Chapter 10 Section 1.1
Section 3.4.2	10631(a)	Describe other social, economic, and demographic factors affecting the supplier's water management planning.	System Description	Part 1 Chapter 2
Sections 3.4 and 5.4	10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Part 2 Chapter 10 Section 1.1
Section 3.5	10631(a)	Describe the land uses within the service area.	System Description	Part 3 Chapter 3 Section 1.2
Section 4.2	10631(d)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Part 2 Chapter 10 Section 2
Section 4.2.4	10631(d)(3)(C)	Retail suppliers shall provide data to show the distribution loss standards were met.	System Water Use	Part 2 Chapter 10 Section 2.1.2
Section 4.2.6	10631(d)(4)(A)	In projected water use, include estimates of water savings from adopted codes, plans and other policies or laws.	System Water Use	Part 2 Chapter 10 Section 2.2.1
Section 4.2.6	10631(d)(4)(B)	Provide citations of codes, standards, ordinances, or plans used to make water use projections.	System Water Use	Part 2 Chapter 10 Section 2.2
Section 4.3.2.4	10631(d)(3)(A)	Report the distribution system water loss for each of the 5 years preceding the plan update.	System Water Use	Part 2 Chapter 10 Section 2.1.2
Section 4.4	10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Part 2 Chapter 10 Section 2.3
Section 4.5	10635(b)	Demands under climate change considerations must be included as part of the drought risk assessment.	System Water Use	Part 2 Chapter 10 Section 2.4 Part 1 Chapter 2
Chapter 5	10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Part 2 Chapter 10 Section 3

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
Chapter 5	10608.24(a)	Retail suppliers shall meet their water use target by December 31, 2020.	Baselines and Targets	Part 2 Chapter 10 Section 3.2
Section 5.1	10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	N/A
Section 5.2	10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	N/A
Section 5.5	10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Part 4 Appendix J-7
Section 5.5 and Appendix E	10608.4	Retail suppliers shall report on their compliance in meeting their water use targets. The data shall be reported using a standardized form in the SBX7-7 2020 Compliance Form.	Baselines and Targets	Part 4 Appendix J-7
Sections 6.1 and 6.2	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought.	System Supplies	Part 2 Chapter 10 Section 4 Part 2 Chapter 10 Section 5.3
Sections 6.1	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought, *including changes in supply due to climate change.*	System Supplies	Part 2 Chapter 10 Section 5.3 Part 1 Chapter 3
Section 6.1	10631(b)(2)	When multiple sources of water supply are identified, describe the management of each supply in relationship to other identified supplies.	System Supplies	Part 2 Chapter 10 Section 4 Part 1 Chapter 3
Section 6.1.1	10631(b)(3)	Describe measures taken to acquire and develop planned sources of water.	System Supplies	Part 2 Chapter 10 Section 4.6.2

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
Section 6.2.8	10631(b)	Identify and quantify the existing and planned sources of water available for 2020, 2025, 2030, 2035, 2040 and optionally 2045.	System Supplies	Part 2 Chapter 10 Section 4.7
Section 6.2	10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Part 2 Chapter 10 Section 4.2
Section 6.2.2	10631(b)(4)(A)	Indicate whether a groundwater sustainability plan or groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Part 2 Chapter 10 Section 4.2 Part 1 Chapter 3
Section 6.2.2	10631(b)(4)(B)	Describe the groundwater basin.	System Supplies	Part 2 Chapter 10 Section 4.2 Part 1 Chapter 3
Section 6.2.2	10631(b)(4)(B)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Part 1 Chapter 3
Section 6.2.2.1	10631(b)(4)(B)	For unadjudicated basins, indicate whether or not the department has identified the basin as a high or medium priority. Describe efforts by the supplier to coordinate with sustainability or groundwater agencies to achieve sustainable groundwater conditions.	System Supplies	N/A
Section 6.2.2.4	10631(b)(4)(C)	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	System Supplies	Part 2 Chapter 10 Section 4.2
Section 6.2.2	10631(b)(4)(D)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Part 2 Chapter 10 Section 4.7
Section 6.2.7	10631(c)	Describe the opportunities for exchanges or transfers of water on a short-term or long- term basis.	System Supplies	Part 2 Chapter 10 Section 4.6
Section 6.2.5	10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Part 2 Chapter 10 Section 4.5

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
Section 6.2.5	10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Part 2 Chapter 10 Section 4.5.1
Section 6.2.5	10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Part 2 Chapter 10 Section 4.5 Part 1 Chapter 3
Section 6.2.5	10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	Part 2 Chapter 10 Section 4.5 Part 1 Chapter 3
Section 6.2.5	10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	Part 1 Chapter 3
Section 6.2.5	10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Part 1 Chapter 3
Section 6.2.6	10631(g)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Part 1 Chapter 3 Section 7
Section 6.2.5	10633(a)	Describe the wastewater collection and treatment systems in the supplier’s service area with quantified amount of collection and treatment and the disposal methods.	System Supplies (Recycled Water)	Part 2 Chapter 10 Section 4.5
Section 6.2.8, Section 6.3.7	10631(f)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and for a period of drought lasting 5 consecutive water years.	System Supplies	Part 2 Chapter 10 Section 4.6.2 Part 1 Chapter 7
Section 6.4 and Appendix O	10631.2(a)	The UWMP must include energy information, as stated in the code, that a supplier can readily obtain.	System Suppliers, Energy Intensity	Part 2 Chapter 10 Section 4.8 Part 4 Appendix J-6
Section 7.2	10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality	Water Supply Reliability Assessment	Part 1 Chapter 3

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
		affects water management strategies and supply reliability		
Section 7.2.4	10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Part 1 Chapter 3
Section 7.3	10635(a)	Service Reliability Assessment: Assess the water supply reliability during normal, dry, and a drought lasting five consecutive water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Part 2 Chapter 10 Section 5.3
Section 7.3	10635(b)	Provide a drought risk assessment as part of information considered in developing the demand management measures and water supply projects.	Water Supply Reliability Assessment	Part 2 Chapter 10 Section 6
Section 7.3	10635(b)(1)	Include a description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts 5 consecutive years.	Water Supply Reliability Assessment	Part 2 Chapter 10 Section 6
Section 7.3	10635(b)(2)	Include a determination of the reliability of each source of supply under a variety of water shortage conditions.	Water Supply Reliability Assessment	Part 2 Chapter 10 Section 6
Section 7.3	10635(b)(3)	Include a comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.	Water Supply Reliability Assessment	Part 2 Chapter 10 Section 6
Section 7.3	10635(b)(4)	Include considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.	Water Supply Reliability Assessment	Part 2 Chapter 10 Section 5.1
Chapter 8	10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water Shortage Contingency Planning	Part 4 Appendix J-9
Chapter 8	10632(a)(1)	Provide the analysis of water supply reliability (from Chapter 7 of Guidebook) in the WSCP	Water Shortage Contingency Planning	Part 4 Appendix J-9 Section 1.0

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
Section 8.10	10632(a)(10)	Describe reevaluation and improvement procedures for monitoring and evaluation the water shortage contingency plan to ensure risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented.	Water Shortage Contingency Planning	Part 4 Appendix J-9 Section 10.0
Section 8.2	10632(a)(2)(A)	Provide the written decision-making process and other methods that the supplier will use each year to determine its water reliability.	Water Shortage Contingency Planning	Part 4 Appendix J-9 Section 2.0
Section 8.2	10632(a)(2)(B)	Provide data and methodology to evaluate the supplier's water reliability for the current year and one dry year pursuant to factors in the code.	Water Shortage Contingency Planning	Part 4 Appendix J-9 Section 2.0
Section 8.3	10632(a)(3)(A)	Define six standard water shortage levels of 10, 20, 30, 40, 50 percent shortage and greater than 50 percent shortage. These levels shall be based on supply conditions, including percent reductions in supply, changes in groundwater levels, changes in surface elevation, or other conditions. The shortage levels shall also apply to a catastrophic interruption of supply.	Water Shortage Contingency Planning	Part 4 Appendix J-9 Section 3.0
Section 8.3	10632(a)(3)(B)	Suppliers with an existing water shortage contingency plan that uses different water shortage levels must cross reference their categories with the six standard categories.	Water Shortage Contingency Planning	Part 4 Appendix J-9 Section 3.0
Section 8.4	10632(a)(4)(A)	Suppliers with water shortage contingency plans that align with the defined shortage levels must specify locally appropriate supply augmentation actions.	Water Shortage Contingency Planning	Part 4 Appendix J-9 Section 4.1
Section 8.4	10632(a)(4)(B)	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water Shortage Contingency Planning	Part 4 Appendix J-9 Section 4.2
Section 8.4	10632(a)(4)(C)	Specify locally appropriate operational changes.	Water Shortage Contingency Planning	Part 4 Appendix J-9 Section 4.3
Section 8.4	10632(a)(4)(D)	Specify additional mandatory prohibitions against specific water use practices that are in addition	Water Shortage Contingency Planning	Part 4 Appendix J-9 Section 4.3

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
		to state-mandated prohibitions are appropriate to local conditions.		
Section 8.4	10632(a)(4)(E)	Estimate the extent to which the gap between supplies and demand will be reduced by implementation of the action.	Water Shortage Contingency Planning	Part 4 Appendix J-9 Section 4.6
Section 8.4.6	10632.5	The plan shall include a seismic risk assessment and mitigation plan.	Water Shortage Contingency Plan	Part 4 Appendix J-9 Section 4.4&4.5
Section 8.5	10632(a)(5)(A)	Suppliers must describe that they will inform customers, the public and others regarding any current or predicted water shortages.	Water Shortage Contingency Planning	Part 4 Appendix J-9 Section 5.0
Section 8.5 and 8.6	10632(a)(5)(B) 10632(a)(5)(C)	Suppliers must describe that they will inform customers, the public and others regarding any shortage response actions triggered or anticipated to be triggered and other relevant communications.	Water Shortage Contingency Planning	Part 4 Appendix J-9 Section 5.0
Section 8.6	10632(a)(6)	Retail supplier must describe how it will ensure compliance with and enforce provisions of the WSCP.	Water Shortage Contingency Planning	Part 4 Appendix J-9 Section 6.0
Section 8.7	10632(a)(7)(A)	Describe the legal authority that empowers the supplier to enforce shortage response actions.	Water Shortage Contingency Planning	Part 4 Appendix J-9 Section 7.0
Section 8.7	10632(a)(7)(B)	Provide a statement that the supplier will declare a water shortage emergency Water Code Chapter 3.	Water Shortage Contingency Planning	Part 4 Appendix J-9 Section 7.1
Section 8.7	10632(a)(7)(C)	Provide a statement that the supplier will coordinate with any city or county within which it provides water for the possible proclamation of a local emergency.	Water Shortage Contingency Planning	Part 4 Appendix J-9 Section 7.2
Section 8.8	10632(a)(8)(A)	Describe the potential revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Part 4 Appendix J-9 Section 8.0
Section 8.8	10632(a)(8)(B)	Provide a description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Part 4 Appendix J-9 Section 8.0
Section 8.8	10632(a)(8)(C)	Retail suppliers must describe the cost of compliance with Water Code Chapter 3.3: Excessive Residential Water Use During Drought	Water Shortage Contingency Planning	Part 4 Appendix J-9 Section 8.0

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
Section 8.9	10632(a)(9)	Retail suppliers must describe the monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance.	Water Shortage Contingency Planning	Part 4 Appendix J-9 Section 9.0
Section 8.11	10632(b)	Analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.	Water Shortage Contingency Planning	Part 4 Appendix J-9 Section 4.0
Sections 8.12 and 10.4	10635(c)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 30 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Part 4 Appendix J-9 Section 11.0
Section 8.14	10632(c)	Make available the Water Shortage Contingency Plan to customers and any city or county where it provides water within 30 after adopted the plan.	Water Shortage Contingency Planning	Part 4 Appendix J-9 Section 11.0
Sections 9.1 and 9.3	10631(e)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	N/A
Sections 9.2 and 9.3	10631(e)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Part 2 Chapter 10 Section 8
Chapter 10	10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets (recommended to discuss compliance).	Plan Adoption, Submittal, and Implementation	Part 2 Chapter 10 Section 9
Section 10.2.1	10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or	Plan Adoption, Submittal, and Implementation	Part 2 Chapter 10 Section 9 Part 4 Appendix J-6 DWR Tables

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
		changes to the plan. Reported in Table 10-1.		
Section 10.4	10621(f)	Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021.	Plan Adoption, Submittal, and Implementation	Part 2 Chapter 10 Section 9
Sections 10.2.2, 10.3, and 10.5	10642	Provide supporting documentation that the urban water supplier made the plan and contingency plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan and contingency plan.	Plan Adoption, Submittal, and Implementation	Part 2 Chapter 10 Section 9 Part 4 Appendix J-2 Public Outreach
Section 10.2.2	10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Part 2 Chapter 10 Section 9
Section 10.3.2	10642	Provide supporting documentation that the plan and contingency plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Part 2 Chapter 10 Section 9
Section 10.4	10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Part 2 Chapter 10 Section 9
Section 10.4	10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Part 2 Chapter 10 Section 9
Sections 10.4.1 and 10.4.2	10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Part 2 Chapter 10 Section 9
Section 10.5	10645(a)	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Part 2 Chapter 10 Section 9
Section 10.5	10645(b)	Provide supporting documentation that, not later than 30 days after filing a copy of its water shortage contingency plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Part 2 Chapter 10 Section 9

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
Section 10.6	10621(c)	If supplier is regulated by the Public Utilities Commission, include its plan and contingency plan as part of its general rate case filings.	Plan Adoption, Submittal, and Implementation	Part 2 Chapter 10 Section 9
Section 10.7.2	10644(b)	If revised, submit a copy of the water shortage contingency plan to DWR within 30 days of adoption.	Plan Adoption, Submittal, and Implementation	Part 2 Chapter 10 Section 9

J-2: Public Outreach

SAN BERNARDINO Valley MUNICIPAL WATER DISTRICT

380 East Vanderbilt Way
San Bernardino, CA 92408
phone: 909.387.9200
fax: 909.387.9247
www.sbvmwd.com

March 23, 2021

Delivered via Email

Subject: 2020 Integrated Regional Urban Water Management Plan for the Upper Santa Ana River Watershed

Dear Regional Stakeholder:

Notice is hereby given that the San Bernardino Valley Municipal Water District (Valley District) and its partners (Participating Agencies) are in the process of preparing the 2020 Upper Santa Ana River Watershed Integrated Regional Urban Water Management Plan (2020 IRUWMP). The 2020 IRUWMP updates and merges the 2015 Upper Santa Ana River Watershed Integrated Regional Water Management Plan (2015 IRWMP) and the 2015 San Bernardino Valley Regional Urban Water Management Plan (2015 RUWMP) into a single comprehensive document for guiding water resource management for the Upper Santa Ana River Watershed, the first of its kind in California.

The 2020 IRUWMP is being developed in compliance with the Urban Water Management Planning Act, the Integrated Regional Water Management Planning Act, and other applicable laws and regulations. All of the agencies participating in the development of the 2020 IRUWMP are listed in the table on the following page, along with an indication of whether the 2020 IRUWMP serves as that agency's 2020 UWMP.

Water Code section 10621(b) requires an urban water supplier updating its UWMP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing. This letter serves as notice that the Participating Agencies that are using the 2020 IRUWMP as their 2020 Urban Water Management Plan (referred to hereafter as Participating UWMP Agencies), plan to adopt and submit the 2020 IRUWMP to the California Department of Water Resources by the July 1, 2021 deadline. The Participating UWMP Agencies will also be adopting their respective updated Water Shortage Contingency Plans (WSCPs) as part of the 2020 IRUWMP.

A draft of the 2020 IRUWMP, which will include the WSCPs for each of the Participating UWMP Agencies, will be available for public review on the Participating UWMP Agencies websites starting in May 2021 and each one will hold an individual public hearing on their respective chapters of the 2020 IRUWMP and WSCP, in advance of their adoption in May or June 2021. The public hearings will be noticed and announced by each Participating UWMP Agency's public meeting agenda; each agency's web site address is shown in the table on the following page.

Board of Directors and Officers

JUNE HAYES	GIL J. BOTELLO	SUSAN LONGVILLE	T. MILFORD HARRISON	PAUL R. KIELHOLD	HEATHER P. DYER
Division 1	Division 2	Division 3	Division 4	Division 5	General Manager

Participating Agency	2020 IRUWMP serves as Agency 2020 UWMP?	Agency Website
Big Bear City Community Services District	No	www.bbccsd.org
City of Big Bear Lake Department of Water	No	www.bbldwp.com
City of Colton	**Yes**	www.ci.colton.ca.us
City of Loma Linda	**Yes**	www.lomalinda-ca.gov
City of Redlands	**Yes**	www.cityofredlands.org
City of Rialto	**Yes**	www.rialtoca.gov
City of San Bernardino Municipal Water Department	**Yes**	www.sbmwd.org
East Valley Water District	**Yes**	www.eastvalley.org
Elsinore Valley Municipal Water District	No	www.evmwd.com
Fontana Water Company	No	www.fontanawater.com
Riverside Highland Water Company	**Yes**	www.rhwco.com
Riverside Public Utilities	No	www.riversideca.gov/utilities
San Bernardino County Flood Control District	UWMP not required	cms.sbcounty.gov/dpw
San Bernardino Valley Municipal Water District	**Yes**	www.sbvmwd.com
San Bernardino Valley Water Conservation District	UWMP not required	www.sbvwcd.org
San Gorgonio Pass Water Agency	No	www.sgpwa.com
South Mesa Water Company	**Yes**	southmesawater.com
West Valley Water District	**Yes**	www.wvwd.org
Western Municipal Water District	No	www.wmwd.com
Yucaipa Valley Water District	**Yes;** separate notice also provided	www.yvwd.dst.ca.us

Valley District and our regional partners invite you to submit comments and consult with Valley District or any of the agencies regarding the preparation of the 2020 IRUWMP. If you have any input for the 2020 IRUWMP or require additional information, please contact me directly at (909) 387-9230 or by email at matth@sbvmwd.com.

Sincerely,

Matthew Howard

Matthew Howard
Water Resources Senior Project Manager
San Bernardino Valley Municipal Water District

J-3: Resolutions

J-4: Agreements

Not used. West Valley Water District does not have any relevant Agreements referenced in their UWMP.

J-5: DWR Population Tool Output

WUEdata - West Valley Water District

Please print this page to a PDF and include as part of your UWMP submittal.

Confirmation Information

Generated By	Water Supplier Name	Confirmation #	Generated On
Aaron Morland	West Valley Water District	1045697867	3/19/2021 2:49:51 PM

Boundary Information

Census Year	Boundary Filename	Internal Boundary ID
1990	ServiceArea_WVWD.kml	1087
2000	ServiceArea_WVWD.kml	1087
2010	ServiceArea_WVWD.kml	1087
1990	ServiceArea_WVWD.kml	1087
2000	ServiceArea_WVWD.kml	1087
2010	ServiceArea_WVWD.kml	1087
1990	ServiceArea_WVWD.kml	1087
2000	ServiceArea_WVWD.kml	1087
2010	ServiceArea_WVWD.kml	1087
1990	ServiceArea_WVWD.kml	1087
2000	ServiceArea_WVWD.kml	1087
2010	ServiceArea_WVWD.kml	1087
1990	ServiceArea_WVWD.kml	1087
2000	ServiceArea_WVWD.kml	1087
2010	ServiceArea_WVWD.kml	1087

Baseline Period Ranges

10 to 15-year baseline period

Number of years in baseline period:	10
Year beginning baseline period range:	2000
Year ending baseline period range[1]:	2009

5-year baseline period

Year beginning baseline period range:	2004
Year ending baseline period range[2]:	2008

[1] The ending year must be between December 31, 2004 and December 31, 2010.

[2] The ending year must be between December 31, 2007 and December 31, 2010.

Persons-Per-SF Connection and Persons-Per-MF/GQ Connection

	Census Block Group Level	Census Block Level						
Year	% Population in SF Housing	Service Area Population	Population in SF Housing (calculated)	Population in MF/GQ Housing (calculated)	# SF Connections	# MF/GQ Connections	Persons per SF Connection	Persons per MF/GQ Connection
1990	89.06%	45,284	40,332	4,952			3.82	42.16
1991	-	-	-	-	-	-	3.82	42.16
1992	-	-	-	-	-	-	3.82	42.16
1993	-	-	-	-	-	-	3.82	42.16
1994	-	-	-	-	-	-	3.82	42.16
1995	-	-	-	-	-	-	3.82	42.16
1996	-	-	-	-	-	-	3.82	42.16
1997	-	-	-	-	-	-	3.82	42.16
1998	-	-	-	-	-	-	3.82	42.16
1999	-	-	-	-	-	-	3.82	42.16
2000	89.12%	59,957	53,432	6,525			3.82	42.16
2001	-	-	-	-	-	-	3.82	42.16
2002	-	-	-	-	-	-	3.82	42.16
2003	-	-	-	-	-	-	3.82	42.16
2004	-	-	-	-	-	-	3.82	42.16
2005	-	-	-	-	-	-	3.82	42.16
2006	-	-	-	-	-	-	3.82	42.16
2007	-	-	-	-	-	-	3.82	42.16
2008	-	-	-	-	-	-	3.82	42.16
2009	-	-	-	-	-	-	3.82	42.16
2010	91.01%	73,628	67,009	6,619	17552	157	3.82	42.16
2011	-	-	-	-	-	-	3.82	42.16
2012	-	-	-	-	-	-	3.82	42.16
2013	-	-	-	-	-	-	3.82	42.16

2014	-	-	-	-	-	-	3.82	42.16
2015	-	-	-	-	-	-	3.82	42.16
2020	**-**	**-**	**-**	**-**	**-**	**-**	**3.82 ***	**42.16 ***

Population Using Persons-Per-SF Connection and Persons-Per-MF/GQ Connection

Year		# SF Connections	# MF/GQ Connections	Persons per SF Connection	Persons per MF/GQ Connection	SF Population	MF/GQ Population	Total Population
10 to 15 Year Baseline Population Calculations								
Year 1	2000			3.82	42.16			
Year 2	2001			3.82	42.16			
Year 3	2002			3.82	42.16			
Year 4	2003			3.82	42.16			
Year 5	2004			3.82	42.16			
Year 6	2005			3.82	42.16			
Year 7	2006			3.82	42.16			
Year 8	2007			3.82	42.16			
Year 9	2008			3.82	42.16			
Year 10	2009			3.82	42.16			
5 Year Baseline Population Calculations								
Year 1	2004			3.82	42.16			
Year 2	2005			3.82	42.16			
Year 3	2006			3.82	42.16			
Year 4	2007			3.82	42.16			
Year 5	2008			3.82	42.16			
2020 Compliance Year Population Calculations								
2020		21362	179	3.82 *	42.16 *	81,555	7,547	89,101

Hide Print Confirmation

QUESTIONS / ISSUES? CONTACT THE WUEDATA HELP DESK
MWELO QUESTIONS / ISSUES? CONTACT THE MWELO HELP DESK

J-6: DWR Tables

2-1R | Public Water Systems

STATUS: Published

NOTES: The volume of 2020 water supplied does not include exports to Rialto and Marygold. This is because Rialto's Lytle surface water nad Marygold's State water are taken directly off of West Valley's supplies from each of those sources.

Public Water System Number	Public Water System Name	Number of Municipal Connections 2020	Volume of Water Supplied 2020
CA3610004	West Valley Water District	23,063	20,098
	Total:	**23,063**	**20,098**

2-2 | Public Water Systems

STATUS: Published

NOTES: -

Type of Plan	Member of RUWMP	Member of Regional Alliance	Name of RUWMP or Regional Alliance
Regional UWMP (RUWMP)			Upper Santa Ana River Integrated Regional Urban Water Management Plan

2-3 | Agency Identification

STATUS: Published

NOTES: -

Type of Supplier	Year Type	First Day of Year		Unit Type
		DD	MM	
Retailer	Calendar Years			Acre Feet (AF)

Conversion to Gallons: *325851*
Conversion to Gallons per Day: *892.7425*

2-4R | Water Supplier Information Exchange

STATUS: Published

NOTES: -

Wholesale Water Supplier Name
San Bernardino Valley Municipal Water District

3-1R | Current & Projected Population

STATUS: Published

NOTES: -

Population Served	2020	2025	2030	2035	2040	2045
Total	89,101	102,490	110,410	118,943	128,136	138,039
Total	**89,101**	**102,490**	**110,410**	**118,943**	**128,136**	**138,039**

4-1R | Actual Demands for Water

STATUS: Published

NOTES: -

Use Type	Additional Description	Level of Treatment When Delivered	2020 Volume
Single Family	Single-Family	Drinking Water	12,049
Multi-Family	Multi-Family	Drinking Water	481
Commercial	Commercial	Drinking Water	1,689
Industrial	Industrial	Drinking Water	623
Institutional/Governmental	Institutional	Drinking Water	860
Landscape	Landscape Irrigation	Drinking Water	2,161
Other	Hydrant	Drinking Water	272
Landscape	Golf Course	Drinking Water	-
Other	Fire Service	Drinking Water	5
Agricultural irrigation	Agricultural Irrigation	Drinking Water	70
Losses	Nonrevenue	Drinking Water	1,889
		Total:	**20,098**

4-2R | Projected Demands for Water

STATUS: Published

NOTES: -

Use Type	Additional Description	Projected Water Use				
		2025	2030	2035	2040	2045
Single Family	Single-Family	13,859	14,791	15,722	16,653	17,584
Multi-Family	Multi-Family	553	591	628	665	702
Commercial	Commercial	1,943	2,073	2,204	2,334	2,465
Industrial	Industrial	717	765	813	861	909
Institutional/Governmental	Institutional	989	1,056	1,122	1,189	1,255
Landscape	Landscape Irrigation	2,485	2,652	2,819	2,986	3,153
Other	Hydrant	313	334	355	376	397
Landscape	Golf Course	-	-	-	-	-
Other	Fire Service	5	6	6	7	7
Agricultural irrigation	Agricultural Irrigation	81	86	92	97	103
Losses	Nonrevenue	2,513	2,682	2,851	3,020	3,189
	Total:	**23,459**	**25,035**	**26,611**	**28,188**	**29,764**

4-3R | Total Gross Water Use

STATUS: Published

NOTES: -

	2020	2020	2030	2035	2040	2045
Potable and Raw Water From Table 4-1R and 4-2R	20,098	23,459	25,035	26,611	28,188	29,764
Recycled Water Demand* From Table 6-4R	-	-	-	-	-	-
Total Water Use:	**20,098**	**23,459**	**25,035**	**26,611**	**28,188**	**29,764**

4-4R | 12 Month Water Loss Audit Reporting

STATUS: Published

NOTES: -

Report Period Start Date		Volume of Water Loss*
MM	**YYYY**	
1	2016	1,906
1	2017	2,176
1	2018	1,664
1	2019	1,802
1	2020	1,889 (estimated)

4-5R | Inclusion in Water Use Projections

STATUS: Published

NOTES: -

Are Future Water Savings Included in Projections? Refer to Appendix K of UWMP Guidebook.	No
Are Lower Income Residential Demands Included in Projections?	No

5-1R | Baselines & Targets Summary

STATUS: Published

NOTES: -

Baseline Period	Start Year	End Year	Average Baseline GPCD*	Confirmed 2020 Target *
10-15 Year	2000	2009	285	232
5 Year	2004	2008	284	

*All values are in Gallons per Capita per Day (GPCD)

5-2R | 2020 Compliance

STATUS: Published

NOTES: -

Actual 2020 GPCD*	Optional Adjustments to 2020 GPCD					2020 GPCD* (Adjusted if applicable)	Supplier Achieved Targeted Reduction in 2020
	Extraordinary Events*	Economic Adjustment*	Weather Normalization*	Total Adjustments*	Adjusted 2020 GPCD*		
201	0	0	0	0	0	0	Yes

*All values are in Gallons per Capita per Day (GPCD)

6-1R | Groundwater Volume Pumped

STATUS: Published

NOTES: Added 0 production in Chino basin on May 10 per Linda's draft comments

Select One						
Groundwater Type	**Location or Basin Name**	**2016**	**2017**	**2018**	**2019**	**2020**
Alluvial Basin	Bunker Hill	1,351	2,300	2,002	892	1,933
Alluvial Basin	Bunker Hill (via Baseline Feeder)	4,101	3,340	3,774	3,616	3,616
Alluvial Basin	Chino	-	-	-	-	-
Alluvial Basin	Lytle	1,850	2,365	2,416	2,572	3,078
Alluvial Basin	Rialto-Colton	2,123	3,923	3,353	2,779	1,420
Alluvial Basin	Riverside-Arlington	2,745	1,089	1,542	1,301	1,354
	Total:	**12,170**	**13,017**	**13,088**	**11,159**	**11,401**

6-2R | Wastewater Collected within Service Area in 2020

STATUS: Published

NOTES: -

The supplier will complete the table.

Percentage of 2020 service area covered by wastewater collection system (optional):	
Percentage of 2020 service area population covered by wastewater collection system (optional):	

Wastewater Collection			Recipient of Collected Wastewater			
Name of Wastewater Collection Agency	**Wastewater Volume Metered or Estimated**	**Wastewater Volume Collected from UWMP Service Area in 2020**	**Name of Wastewater Agency Receiving Collected Wastewater**	**Wastewater Treatment Plant Name**	**Wastewater Treatment Plant Located within UWMP Area**	**WWTP Operation Contracted to a Third Party**
City of Rialto	Estimated	4,336	**City of Rialto**	Rialto Wastewater Treatment Plant	Yes	Yes
City of Colton	Estimated	532	**City of Colton**	Colton WWTP	No	No
San Bernardino County	Estimated	329	**San Bernardino County**	Lytle Creek North Water Reclamation Plant	No	No
Inland Empire Utilities Agency	Estimated	871	**Inland Empire Utilities Agency**	Recycled Plant No. 4	No	No
Total:		**6,068**				

6-3R | Wastewater Treatment & Discharge Within Service Area in 2020

STATUS: Published

NOTES: -

No wastewater is treated or disposed of within the UWMP service area. The supplier will not complete the table.

Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number	Method of Disposal	Plant Treats Wastewater Generated Outside the Service Area	Treatment Level	2020 Volumes				
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area	Instream Flow Permit Requirement
						Total:	-	-	-	-	-

6-4R | Recycled Water Direct Beneficial Uses Within Service Area

STATUS: Not Started

NOTES: -

Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table.

Name of Supplier Producing (Treating) the Recycled Water:	
Name of Supplier Operating the Recycled Water Distribution System:	
Supplemental Volume of Water Added in 2020:	
Source of 2020 Supplemental Water:	

Beneficial Use Type	Potential Beneficial Uses of Recycled Water	Amount of Potential Uses of Recycled Water	General Description of 2020 Uses	Level of Treatment	2020	2025	2030	2035	2040	2045
Landscape Irrigation (excludes golf courses)										
Golf Course Irrigation										
Commercial Use										
Industrial Use										
Geothermal and Other Energy Production										
Seawater Intrusion Barrier										
Recreational Impoundment										
Wetlands or Wildlife Habitat										
Groundwater Recharge (IPR)*										
Surface Water Augmentation (IPR)*										
Direct Potable Reuse										
Total:					-	-	-	-	-	-
Internal Reuse (Not included in Statewide Recycled Water Volume).										

*IPR - Indirect Potable Reuse

6-5R | 2015 Recycled Water Use Projection Compared to 2020 Actual

STATUS: Published

NOTES: -

Recycled water was not used in 2015 nor projected for use in 2020. The supplier will not complete the table.

Use Type	2015 Projection for 2020	2020 Actual Use
Agricultural Irrigation		
Landscape Irrigation (excludes golf courses)		
Golf Course Irrigation		
Commercial Use		
Industrial Use		
Geothermal and Other Energy Production		
Seawater Intrusion Barrier		
Recreational Impoundment		
Wetlands or Wildlife Habitat		
Groundwater Recharge (IPR)*		
Surface Water Augmentation (IPR)*		
Direct Potable Reuse		
Total:	-	-

6-6R | Methods to Expand Future Recycled Water Use

STATUS: Published

NOTES: -

The supplier does not plan to expand recycled water use in the future. The supplier will not complete the table below but will provide narrative explanation.

Name of Action	Description	Planned Implementation Year	Expected Increase of Recycled Water Use

6-7R | Expected Future Water Supply Projects or Programs

STATUS: Published

NOTES: -

Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.

Page Location for Narrative in UWMP:	Part 1 Chapter 10 Section 4.6.2

Name of Future Projects or Programs	Joint Project with Other Suppliers	Agency Name	Description	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Supplier

6-8R | Actual Water Supplies

STATUS: Published

NOTES: -

Water Supply	Additional Detail on Water Supply	2020		
		Actual Volume	Water Quality	Total Right or Safe Yield
Groundwater (not desalinated)	Bunker Hill	1,933	Drinking Water	
Groundwater (not desalinated)	Bunker Hill (via Baseline Feeder)	3,616	Drinking Water	
Groundwater (not desalinated)	Lytle	3,078	Drinking Water	
Groundwater (not desalinated)	Rialto-Colton	1,420	Drinking Water	
Groundwater (not desalinated)	Riverside-Arlington	1,354	Drinking Water	
Surface water (not desalinated)	Lytle Creek	5,356	Drinking Water	
Purchased or Imported Water	State Water Project - Direct Delivery	3,342	Drinking Water	
	Total:	**20,098**		**-**

6-8DS | Source Water Desalination

STATUS: Published

NOTES: -

Neither groundwater nor surface water are reduced in salinity prior to distribution. The supplier will not complete the table.

6-9R | Projected Water Supplies

STATUS: Published

NOTES: -

Water Supply	Additional Detail on Water Supply	Projected Water Supply									
		2025		2030		2035		2040		2045	
		Reasonably Available Volume	Total Right or Safe Yield	Reasonably Available Volume	Total Right or Safe Yield	Reasonably Available Volume	Total Right or Safe Yield	Reasonably Available Volume	Total Right or Safe Yield	Reasonably Available Volume	Total Right or Safe Yield
Groundwater (not desalinated)	Bunker Hill	2,052		2,353		3,554		4,754		6,455	
Groundwater (not desalinated)	Bunker Hill (via Baseline Feeder)	5,000		5,000		5,000		5,000		5,000	
Groundwater (not desalinated)	Lytle	2,900		2,900		2,900		2,900		2,900	
Groundwater (not desalinated)	Rialto-Colton	4,426		4,538		4,650		4,761		4,873	
Groundwater (not desalinated)	Riverside-Arlington	2,500		3,000		3,500		4,000		4,000	
Groundwater (not desalinated)	Chino	-		900		900		900		900	
Surface water (not desalinated)	Lytle Creek	3,100		3,100		3,100		3,100		3,100	
Purchased or Imported Water	State Water Project - Direct Delivery	7,000		7,000		7,000		7,000		7,000	
	Total:	**26,978**	**-**	**28,791**	**-**	**30,604**	**-**	**32,415**	**-**	**34,228**	**-**

7-1R | Basis of Water Year Data (Reliability Assessment)

STATUS: Published

NOTES: -

Quantification of available supplies is provided in this table as either volume only, percent only, or both.

Year Type	Base Year	Available Supply if Year Type Repeats	
		Volume Available	Percent of Average Supply
Average Year	2020		100%
Single-Dry Year	2020		110%
Consecutive Dry Years 1st Year	2020		110%
Consecutive Dry Years 2nd Year	2020		110%
Consecutive Dry Years 3rd Year	2020		110%
Consecutive Dry Years 4th Year	2020		110%
Consecutive Dry Years 5th Year	2020		110%

7-2R | Normal Year Supply and Demand Comparison

STATUS: Ready for Review

NOTES: -

	2025	2030	2035	2040	2045
Supply Totals From Table 6-9R	26,978	28,791	30,603	32,415	34,229
Demand Totals From Table 4-3R	23,459	25,035	26,611	28,188	29,764
Difference:	**3,519**	**3,755**	**3,992**	**4,228**	**4,465**

7-3R | Single Dry Year Supply & Demand Comparison

STATUS: Published

NOTES: -

	2025	2030	2035	2040	2045
Supply Totals	29,676	31,670	33,663	35,657	37,651
Demand Totals	25,805	27,539	29,273	31,006	32,740
Difference:	**3,871**	**4,131**	**4,391**	**4,651**	**4,911**

7-4R | Multiple Dry Years Supply & Demand Comparison

STATUS: Published

NOTES: -

		2025	2030	2035	2040	2045
First Year	**Supply Totals**	29,676	31,670	33,663	35,657	37,651
	Demand Totals	25,805	27,539	29,273	31,006	32,740
	Difference:	**3,871**	**4,131**	**4,391**	**4,651**	**4,911**
Second Year	**Supply Totals**	29,676	31,670	33,663	35,657	37,651
	Demand Totals	25,805	27,539	29,273	31,006	32,740
	Difference:	**3,871**	**4,131**	**4,391**	**4,651**	**4,911**
Third Year	**Supply Totals**	29,676	31,670	33,663	35,657	37,651
	Demand Totals	25,805	27,539	29,273	31,006	32,740
	Difference:	**3,871**	**4,131**	**4,391**	**4,651**	**4,911**
Fourth Year	**Supply Totals**	29,676	31,670	33,663	35,657	37,651
	Demand Totals	25,805	27,539	29,273	31,006	32,740
	Difference:	**3,871**	**4,131**	**4,391**	**4,651**	**4,911**
Fifth Year	**Supply Totals**	29,676	31,670	33,663	35,657	37,651
	Demand Totals	25,805	27,539	29,273	31,006	32,740
	Difference:	**3,871**	**4,131**	**4,391**	**4,651**	**4,911**
Sixth Year	**Supply Totals**	29,676	31,670	33,663	35,657	37,651
	Demand Totals	25,805	27,539	29,273	31,006	32,740
	Difference:	**3,871**	**4,131**	**4,391**	**4,651**	**4,911**

7-5 | Five-Year Drought Risk Assessment Tables to Address Water Code Section 10635(b)

STATUS: Published

NOTES: -

2021	**Gross Water Use**	22,848
	Total Supplies	26,275
	Surplus/Shortfall without WSCP Action	**3,427**
	Planned WSCP Actions (Use Reduction and Supply Augmentation)	
	WSCP (Supply Augmentation Benefit)	
	WSCP (Use Reduction Savings Benefit)	
	Revised Surplus/Shortfall	**3,427**
	Resulting Percent Use Reduction from WSCP Action	**0%**
2022	**Gross Water Use**	23,587
	Total Supplies	27,125
	Surplus/Shortfall without WSCP Action	**3,538**
	Planned WSCP Actions (Use Reduction and Supply Augmentation)	
	WSCP (Supply Augmentation Benefit)	
	WSCP (Use Reduction Savings Benefit)	
	Revised Surplus/Shortfall	**3,538**
	Resulting Percent Use Reduction from WSCP Action	**0%**
2023	**Gross Water Use**	24,326
	Total Supplies	27,975
	Surplus/Shortfall without WSCP Action	**3,649**
	Planned WSCP Actions (Use Reduction and Supply Augmentation)	
	WSCP (Supply Augmentation Benefit)	
	WSCP (Use Reduction Savings Benefit)	
	Revised Surplus/Shortfall	**3,649**
	Resulting Percent Use Reduction from WSCP Action	**0%**
2024	**Gross Water Use**	25,066
	Total Supplies	28,825
	Surplus/Shortfall without WSCP Action	**3,760**
	Planned WSCP Actions (Use Reduction and Supply Augmentation)	
	WSCP (Supply Augmentation Benefit)	
	WSCP (Use Reduction Savings Benefit)	
	Revised Surplus/Shortfall	**3,760**
	Resulting Percent Use Reduction from WSCP Action	**0%**
2025	**Gross Water Use**	25,066
	Total Supplies	28,825
	Surplus/Shortfall without WSCP Action	**3,760**
	Planned WSCP Actions (Use Reduction and Supply Augmentation)	
	WSCP (Supply Augmentation Benefit)	
	WSCP (Use Reduction Savings Benefit)	
	Revised Surplus/Shortfall	**3,760**
	Resulting Percent Use Reduction from WSCP Action	**0%**

8-1 | Water Shortage Contingency Plan Levels

STATUS: Published

NOTES: -

Shortage Level	Percent Shortage Range[1] (Numerical Value as a Percent)	Water Shortage Condition
1	Up to 10%	Normal Conditions (WVWD Stage 1)
2	Up to 20%	Water Alert Condition (WVWD Stage 2)
3	Up to 30%	Water Warning Condition (WVWD Stage 3, 3A, 3B, and 3C)
4	Up to 40%	Water Emergency Condition (WVWD Stage 4)
5	Up to 50%	Water Emergency Condition (WVWD Stage 4)
6	>50%	Water Emergency Condition (WVWD Stage 4)

[1] One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.

8-2 | Demand Reduction Actions

STATUS: Published

NOTES: -

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement
All	Expand Public Information Campaign	0-20%	Provide reminder notices regarding noted water waste and offer community outreach programs	No
1	Landscape - Other landscape restriction or prohibition	0-5%	The use of sprinklers for any type of irrigation during high winds is prohibited.	Yes
1	Landscape - Limit landscape irrigation to specific times	0-5%	Limit all landscape irrigation to between the hours of 8:00 p.m. and 6:00 a.m. Hand watering should be done between 6:00 p.m. and 8:00 a.m. Drip irrigation and hand watering while gardening is exempt from this recommendation. Water being used during repair or maintenance of watering system is exempt from this section.	Yes
1	Landscape - Restrict or prohibit runoff from landscape irrigation	0-5%	Use of water for outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures is prohibited.	Yes

1	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	0-1%	No person shall permit water to leak from any facility, improvement or plumbing fixture on his/her/its premises; said leak shall be repaired in a timely manner.	Yes
1	Other - Require automatic shut of hoses	0-1%	Washing of automobiles, trucks, trailer, boats, and other mobile equipment is prohibited unless done with a hand held device equipped with an automatic shut off trigger nozzle. This does not apply to commercial car washes utilizing a recycling system or when the health and safety of the public would necessitate.	Yes
1	Water Features - Restrict water use for decorative water features, such as fountains	0-1%	No water shall be used to clean, fill, operate or maintain levels in decorative fountains unless the water is part of a recycling system.	Yes
1	Other - Prohibit use of potable water for washing hard surfaces	0-1%	There shall be no application of water to sidewalks, walkways, driveways, parking areas, patios, porches, verandas, tennis courts, or other paved, concrete, or other hard surface areas, except that flammable or other similarly dangerous or unhealthy substances may be washed from said areas by direct hose flushing for the benefit of public health or safety.	Yes
1	Landscape - Prohibit certain types of landscape irrigation	0-5%	The irrigation of potable water of ornamental turf on public street medians is prohibited. The term “median” shall mean the strip of land between street lanes.	Yes
2	Decrease Line Flushing	0-1%		No

2	Other	0-1%	Use historical data instead of performing fire flow tests for new developments	No
2	Other	0-1%	Screen all new applications for water service installations and limit water use before occupancy	No
2	Reduce System Water Loss	0-1%	Repair all leaks within 72 hours	No
2	CII - Restaurants may only serve water upon request	0-1%	All restaurants prohibited from serving water to their customers except when requested by customer.	Yes
2	CII - Lodging establishment must offer opt out of linen service	0-1%	Operators of hotels and motels must provide guests with the option of choosing not to have towels and linens laundered daily. The hotels and motels shall prominently display notice of this option in each guestroom using clear and easily understood language.	Yes
2	Landscape - Limit landscape irrigation to specific days	0-5%	Limit all landscape irrigation to four (4) days per week for no more than ten (10) minutes per station per day. This provision does not apply to any landscape that has water efficient devices that are operated properly. Water efficient devices are drip irrigation systems and operational weather-based irrigation controllers. The term “week” is defined as Sunday through Saturday.	Yes

2	Other - Prohibit use of potable water for construction and dust control	0-1%	District will screen all new applications for water service installations and will limit water use before occupancy to that essential use for construction and testing of landscape plumbing. Limited landscaping for new development shall be allowed as approved by the District. Water use for compaction, dust control, and other types of construction shall be by permit only and will be limited to conditions of the permit or may be prohibited as determined by the General Manager or his/her designee.	Yes
2	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	0-1%	Repair all leaks within seventy-two (72) hours of notification by the District unless other arrangements are made with the general manager of the District (“General Manager”).	Yes
2	Landscape - Other landscape restriction or prohibition	0-5%	Irrigating landscaping, including, but not limited to, turf and ornamental landscapes during and within forty-eight (48) hours following measurable precipitation is prohibited.	Yes
2	Other water feature or swimming pool restriction	0-1%	Swimming pools, hot tubs, and spas shall not be filled or refilled after being drained.	Yes
2	Other water feature or swimming pool restriction	0-1%	Ornamental pools, fountains, water displays, and artificial lakes shall not be filled or refilled after being drained.	Yes

2	Other - Prohibit use of potable water for construction and dust control	0-1%	Water used for compaction, dust control, and other types of construction shall be by permit only and will be limited to conditions of the permit or may be prohibited as determined by the General Manager, or his/her designee.	Yes
3	Reduce System Water Loss	0-1%	Repair all leaks within 48 hours	No
3A	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	0-1%	Washing of automobiles, trucks, trailers, boats, airplanes, and other types of mobile equipment are prohibited. Washing of the above-listed vehicles or mobile equipment shall be allowed only at a commercial car wash where recirculating water is being utilized.	Yes
3A	Landscape - Limit landscape irrigation to specific times	0-5%	All agricultural water users shall irrigate only at times approved by the District.	Yes
3A	Water Features - Restrict water use for decorative water features, such as fountains	0-1%	Swimming pools, hot tubs, and spas shall not be refilled or filled after being drained.	Yes
3A	Water Features - Restrict water use for decorative water features, such as fountains	0-1%	Ornamental pools, fountains, water displays, and artificial lakes shall not be refilled or filled after being drained.	Yes
3A	Landscape - Limit landscape irrigation to specific days	0-5%	Limit all landscape irrigation to three (3) days per week for no more than ten (10) minutes per station per day. Drip systems that are operated efficiently are exempt from these regulations.	Yes

3A	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	0-1%	Repair all leaks within forty-eight (48) hours of notification by the District unless other arrangements are made with the General Manager.	Yes
3B	Landscape - Limit landscape irrigation to specific days	5-20%	Limit all landscape irrigation to two (2) days per week for no more than ten (10) minutes per station per day.	Yes
3C	Landscape - Limit landscape irrigation to specific days	10-30%	Limit all landscape irrigation to one (1) day per week for no more than ten (10) minutes per station per day.	Yes
4	Landscape - Prohibit all landscape irrigation	10-30%	No lawn or landscape water will be allowed	Yes
4	Other - Prohibit use of potable water for construction and dust control	0-5%	No construction water use to be allowed, construction meters to be locked off or removed.	Yes
4	CII - Other CII restriction or prohibition	0-5%	Commercial nurseries shall water only between the hours of 11:00 p.m. and 6:00 a.m. and only with hand-held devices or with drip irrigation systems.	Yes
4	Landscape - Prohibit all landscape irrigation	10-30%	The use of water shall be limited to essential household, commercial, manufacturing, or processing uses only, except where other uses may be allowed by permit	Yes
4	Landscape - Limit landscape irrigation to specific times	0-5%	All agricultural water users shall irrigate only at times approved by the District.	Yes

8-3R | Supply Augmentation & Other Actions

STATUS: Published

NOTES: -

Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier	How much is this going to reduce the shortage gap?	Additional Explanation or Reference
4	Other purchases	0-100%	WVWD currently has interconnections with the Cities of Rialto, Colton and San Bernardino, the Fontana Water Company, Marygold Mutual Water Company, and Valley District

10-1R | Notification to Cities & Counties

STATUS: Published

NOTES: -

City	60 Day Notice	Notice of Public Hearing	Other
City of Colton	Yes	Yes	
City of Rialto	Yes	Yes	
City of Fontana	Yes	Yes	
City of Jurupa Valley	Yes	Yes	
County	**60 Day Notice**	**Notice of Public Hearing**	**Other**
San Bernardino County	Yes	Yes	
Riverside County	Yes	Yes	
Other	**60 Day Notice**	**Notice of Public Hearing**	**Other**

O-1B | Recommended Energy Intensity - Total Utility Approach

Urban Water Supplier	West Valley Water District		**Reporting Period Start Date**	1/1/2020	
Water Delievery Product	Retail Non-Potable Deliveries		**Reporting Period End Date**	12/30/2020	
	Urban Water Supplier Operational Control				
	Sum of all Water Management Process		**Non-Consequential Hydropower**		
	Total Utility		**Hydropower**	**Net Utility**	
Volume of Water Entering Process (AF)	20098			**20098**	
Energy Consumed (kWh)	17,802,783			**17802783**	
Energy Intensity (kWh/AF)	**885.8**		**0.0**	**885.8**	
Data Quality	Metered Data	**Quantity of Self-Generated Renewable Energy**			**kWh**
Data Quality Narrative	**Total energy consumed in 2020 was quantified through meters for well production and watertreatment. WVWD has a Hydroelectric plant that generates power from S**				
Water Supply Narrative	**WVWD utilizes three primary sources for drinking water supply: local surface water from flows on the east side of the San Gabriel Mountains, including North Fork Lytle Creek, Middle Fork Lytle Creek, and South Fork Lytle Creek; groundwater; and imported water from the State Water Project (SWP).**				

J-7: SBX7-7 Forms

SB X7-1 | Baseline Period Ranges

STATUS: Published

NOTES: -

Baseline	Parameter	Value	Units
10- to 15-year baseline period	2008 total water deliveries	22,777	Acre Feet (AF)
	2008 total volume of delivered recycled water	0	Acre Feet (AF)
	2008 recycled water as a percent of total deliveries	0	Percent
	Number of years in baseline period[1, 2]	10	Years
	Year beginning baseline period range	2000	
	Year ending baseline period range[3]	2009	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2004	
	Year ending baseline period range[4]	2008	

[1]If the 2008 recycled water percent is less than 10 percent, then the first baseline period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first baseline period is a continuous 10- to 15-year period.

[2]The Water Code requires that the baseline period is between 10 and 15 years. However, DWR recognizes that some water suppliers may not have the minimum 10 years of baseline data.

[3]The ending year must be between December 31, 2004 and December 31, 2010.

[4]The ending year must be between December 31, 2007 and December 31, 2010.

SB X7-2 | Method for Population Estimates

STATUS:	Published
NOTES:	-

Method for Population Estimates	
No	**1. Department of Finance (DOF)** DOF Table E-8 (1990 - 2000) and (2000-2010) and DOF Table E-5 (2010 - 2020) when available
No	**2. Persons-per-Connection Method**
Yes	**3. DWR Population Tool**
No	**4. Other** DWR recommends pre-review

SB X7-3 | Service Area Population

STATUS: Published

NOTES: -

Year		Population
10 to 15 Year Baseline Population		
Year 1	2000	59,957
Year 2	2001	61,201
Year 3	2002	62,471
Year 4	2003	63,768
Year 5	2004	65,091
Year 6	2005	66,442
Year 7	2006	67,821
Year 8	2007	69,228
Year 9	2008	70,665
Year 10	2009	72,131
Year 11		
Year 12		
Year 13		
Year 14		
Year 15		
5 Year Baseline Population		
Year 1	2004	65,091
Year 2	2005	66,442
Year 3	2006	67,821
Year 4	2007	69,228
Year 5	2008	70,665
2020 Compliance Year Population		
2020		89,101

SB X7-4 | Annual Gross Water Use

STATUS: Published

NOTES: -

Baseline Year *From SB X7-3*		Volume Into Distribution System *From SB X7-4A*	Deductions					Annual Gross Water Use
			Exported Water	Change in Distribution System Storage (+/-)	Indirect Recycled Water *From SB X7-4B*	Water Delivered for Agricultural Use	Process Water *From SB X7-4D*	
10 to 15 Year Baseline - Gross Water Use								
Year 1	2,000	20,268			0		-	20,268
Year 2	2,001	19,682			0		-	19,682
Year 3	2,002	20,655			0		-	20,655
Year 4	2,003	21,318			0		-	21,318
Year 5	2,004	21,313			0		-	21,313
Year 6	2,005	19,747			0		-	19,747
Year 7	2,006	21,753			0		-	21,753
Year 8	2,007	22,223			0		-	22,223
Year 9	2,008	22,777			0		-	22,777
Year 10	2,009	20,418			0		-	20,418
Year 11	0	0			0		-	0
Year 12	0	0			0		-	0
Year 13	0	0			0		-	0
Year 14	0	0			0		-	0
Year 15	0	0			0		-	0
							10 - 15 year baseline average gross water use:	21,015
5 Year Baseline - Gross Water Use								
Year 1	2,004	21,313			0		-	21,313
Year 2	2,005	19,747			0		-	19,747
Year 3	2,006	21,753			0		-	21,753
Year 4	2,007	22,223			0		-	22,223
Year 5	2,008	22,777			0		-	22,777
							5 year baseline average gross water use:	21,563
2020 Compliance Year - Gross Water Use								
2020		20,098			0		-	20,098

SB X7-4A | Volume Entering the Distribution System(s)

STATUS: Published

NOTES: -

The supplier's own water source				
Name of Source:		**Rialto-Colton, Riverside North, Bunker Hill, Lytle Creek**		
Baseline Year *From SB X7-3*		**Volume Entering Distribution System**	**Meter Error Adjustment (+/-)**	**Corrected Volume Entering Distribution System**
10 to 15 Year Baseline - Water into Distribution System				
Year 1	**2,000**	20,268		**20,268**
Year 2	**2,001**	19,682		**19,682**
Year 3	**2,002**	20,655		**20,655**
Year 4	**2,003**	21,318		**21,318**
Year 5	**2,004**	21,313		**21,313**
Year 6	**2,005**	19,747		**19,747**
Year 7	**2,006**	21,753		**21,753**
Year 8	**2,007**	22,223		**22,223**
Year 9	**2,008**	22,777		**22,777**
Year 10	**2,009**	20,418		**20,418**
Year 11	**0**			**0**
Year 12	**0**			**0**
Year 13	**0**			**0**
Year 14	**0**			**0**
Year 15	**0**			**0**
5 Year Baseline - Water into Distribution System				
Year 1	**2,004**	21,313		**21,313**
Year 2	**2,005**	19,747		**19,747**
Year 3	**2,006**	21,753		**21,753**
Year 4	**2,007**	22,223		**22,223**
Year 5	**2,008**	22,777		**22,777**
2020 Compliance Year - Water into Distribution System				
2020		20,098		**20,098**

SB X7-5 | Gallons Per Capita Per Day (GPCD)

STATUS: Published

NOTES: -

Baseline Year From SB X7-3		**Service Area Population** From SB X7-3	**Annual Gross Water Use** From SB X7-4	**Daily Per Capita Water Use (GPCD)**
10 to 15 Year Baseline GPCD				
Year 1	**2000**	**59,957**	**20,268**	**302**
Year 2	**2001**	**61,201**	**19,682**	**287**
Year 3	**2002**	**62,471**	**20,655**	**295**
Year 4	**2003**	**63,768**	**21,318**	**299**
Year 5	**2004**	**65,091**	**21,313**	**292**
Year 6	**2005**	**66,442**	**19,747**	**265**
Year 7	**2006**	**67,821**	**21,753**	**286**
Year 8	**2007**	**69,228**	**22,223**	**287**
Year 9	**2008**	**70,665**	**22,777**	**288**
Year 10	**2009**	**72,131**	**20,418**	**253**
Year 11	**0**	**0**	**0**	**-**
Year 12	**0**	**0**	**0**	**-**
Year 13	**0**	**0**	**0**	**-**
Year 14	**0**	**0**	**0**	**-**
Year 15	**0**	**0**	**0**	**-**
			10-15 Year Average Baseline GPCD:	**285**
5 Year Baseline GPCD				
Year 1	**2004**	**65,091**	**21,313**	**292**
Year 2	**2005**	**66,442**	**19,747**	**265**
Year 3	**2006**	**67,821**	**21,753**	**286**
Year 4	**2007**	**69,228**	**22,223**	**287**
Year 5	**2008**	**70,665**	**22,777**	**288**
			5 Year Average Baseline GPCD:	**284**
2020 Compliance Year GPCD				
2020		**89,101**	**20,098**	**201**

SB X7-6 | Gallons per Capita per Day

STATUS:	Published
NOTES:	-

Summary from Table SB X7-7 Table 5	
10-15 Year Baseline GPCD	285
5 Year Baseline GPCD	284
2020 Compliance Year GPCD	201

SB X7-7 | 2020 Target Method

STATUS: Published

NOTES: -

Select Only One	
No	**Method 1.** Complete SB X7-7A below.
No	**Method 2.** Complete SB X7-7B,SB X7-7C, and SB X7-7D below.
No	**Method 3.** Complete SB X7-E below.
Yes	**Method 4.** Complete Method 4 Calculator below.

SB X7-7A | 2020 Target Method 1

20% Reduction	
10-15 Year Baseline GPCD	**2020 Target GPCD**
285	**228**

SB X7-7E | 2020 Target Method 3

Select All that Apply	Percentage of Service Area in This Hydrological Region	Hydrologic Region	"2020 Plan" Regional Targets
		North Coast	137
		North Lahontan	173
		Sacramento River	176
		San Francisco Bay	131
		San Joaquin River	174
		Central Coast	123
		Tulare Lake	188
		South Lahontan	170
		South Coast	149
		Colorado River	211
Target (If more than one region is selected, this value is calculated.)			

SB X7-7F | Confirm Minimum Reduction for 2020 Target

5 Year Baseline GPCD From SB X7-5	**Maximum 2020 Target**[1]	**Calculated 2020 Target**[2]	**Confirmed 2020 Target**
284	**270**	232	**232**

[1]Maximum 2020 Target is 95% of the 5 Year Baseline GPCD except for suppliers at or below 100 GPCD.
[2]2020 Target is calculated based on the selected Target Method, see SB X7-7 Table 7 and corresponding tables for agency's calculated target.

SB X7-8 | 2015 Interim Target GPCD

STATUS: Published

NOTES: -

Confirmed 2020 Target From SB X7-7-F	**10-15 year Baseline GPCD** From SB X7-5	**2015 Interim Target GPCD**
232	**285**	**259**

SB X7-9 | 2020 Compliance

STATUS: Published

NOTES: -

Actual 2020 GPCD	2020 Interim Target GPCD	Optional Adjustments (in GPCD)					2020 GPCD (Adjusted if applicable)	Did Supplier Achieve Targeted Reduction for 2020?
		Extraordinary Events	Weather Normalization	Economic Adjustment	Total Adjustments	Adjusted 2020 GPCD		
201	232				0	201	201	YES

J-8: AWWA Water Audits

AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0
American Water Works Association.

? Click to access definition
+ Click to add a comment

Water Audit Report for: West Valley Water District (CA3610004)
Reporting Year: 2016 1/2016 - 12/2016

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

<---------- Enter grading in column 'E' and 'J' ---------->

Master Meter and Supply Error Adjustments

WATER SUPPLIED

					Pcnt:	Value:	
Volume from own sources:	3	10,576.070	acre-ft/yr	2			acre-ft/yr
Water imported:	3	8,028.710	acre-ft/yr	2			acre-ft/yr
Water exported:	3	2,069.850	acre-ft/yr	2			acre-ft/yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 16,534.930 acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

				Pcnt:	Value:	
Billed metered:	7	14,587.520	acre-ft/yr			
Billed unmetered:	n/a	0.000	acre-ft/yr			
Unbilled metered:	n/a	0.000	acre-ft/yr			
Unbilled unmetered:	5	41.337	acre-ft/yr		41.337	acre-ft/yr

Use buttons to select percentage of water supplied **OR** value

AUTHORIZED CONSUMPTION: ? 14,628.857 acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption) 1,906.073 acre-ft/yr

Apparent Losses

				Pcnt:	Value:	
Unauthorized consumption:		41.337	acre-ft/yr			acre-ft/yr

Enter a positive value, otherwise a default percentage of 0.25% is applied and a grading of 5 is applied but not displayed

Customer metering inaccuracies:	3	297.704	acre-ft/yr	2.00%		acre-ft/yr
Systematic data handling errors:		36.469	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: ? 375.511 acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: ? 1,530.562 acre-ft/yr

WATER LOSSES: 1,906.073 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: ? 1,947.410 acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	7	374.5	miles
Number of active AND inactive service connections:	7	20,954	
Service connection density:		56	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line: (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: 3 70.0 psi

COST DATA

Total annual cost of operating water system:	10	$31,335,356	$/Year
Customer retail unit cost (applied to Apparent Losses):	8	$2.26	$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	7	$299.95	$/acre-ft

☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 53 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources
2: Water imported
3: Customer metering inaccuracies

AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0

American Water Works Association.

? Click to access definition

+ Click to add a comment

Water Audit Report for: West Valley Water District (CA3610004)

Reporting Year: 2017 1/2017 - 12/2017

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

<---------- Enter grading in column 'E' and 'J' ---------->

Master Meter and Supply Error Adjustments

WATER SUPPLIED

					Pcnt:	Value:	
Volume from own sources:	3	14,217.630	acre-ft/yr	2			acre-ft/yr
Water imported:	3	5,803.550	acre-ft/yr	2			acre-ft/yr
Water exported:	3	1,477.000	acre-ft/yr	2			acre-ft/yr

Enter negative % or value for under-registration

Enter positive % or value for over-registration

WATER SUPPLIED: 18,544.180 acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

				Pcnt:	Value:	
Billed metered:	7	16,320.980	acre-ft/yr			
Billed unmetered:	n/a	0.000	acre-ft/yr			
Unbilled metered:	n/a	0.000	acre-ft/yr			
Unbilled unmetered:	5	46.950	acre-ft/yr		46.950	acre-ft/yr

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: 16,367.930 acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption) 2,176.250 acre-ft/yr

Apparent Losses

				Pcnt:	Value:	
Unauthorized consumption:		46.360	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	3	333.081	acre-ft/yr	2.00%	acre-ft/yr
Systematic data handling errors:		40.802	acre-ft/yr	0.25%	acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 420.244 acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 1,756.006 acre-ft/yr

WATER LOSSES: 2,176.250 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: 2,223.200 acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	7	375.4	miles
Number of active AND inactive service connections:	7	21,424	
Service connection density:		57	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line: (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: 3 70.0 psi

COST DATA

Total annual cost of operating water system:	10	$30,669,773	$/Year	
Customer retail unit cost (applied to Apparent Losses):	8	$2.31	$/100 cubic feet (ccf)	
Variable production cost (applied to Real Losses):	7	$293.91	$/acre-ft	☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 53 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources

2: Water imported

3: Customer metering inaccuracies

AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0

American Water Works Association.

? Click to access definition

+ Click to add a comment

Water Audit Report for: West Valley Water District (CA3610004)

Reporting Year: 2018 1/2018 - 12/2018

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where

WATER SUPPLIED

<---------- Enter grading in column 'E' and 'J' ---------->

Master Meter and Supply Error Adjustments

						Pcnt:	Value:	
Volume from own sources:	5	13,061.140	acre-ft/yr	2				acre-ft/yr
Water imported:	9	7,334.970	acre-ft/yr	3				acre-ft/yr
Water exported:	7	1,197.430	acre-ft/yr	2				acre-ft/yr

Enter negative % or value for under-registration

Enter positive % or value for over-registration

WATER SUPPLIED: 19,198.680 acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

				Pcnt:	Value:	
Billed metered:	7	17,295.000	acre-ft/yr			
Billed unmetered:	n/a	0.000	acre-ft/yr			
Unbilled metered:	n/a	0.000	acre-ft/yr			
Unbilled unmetered:		239.984	acre-ft/yr	1.25%		acre-ft/yr

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

AUTHORIZED CONSUMPTION: 17,534.984 acre-ft/yr

Use buttons to select percentage of water supplied **OR** value

WATER LOSSES (Water Supplied - Authorized Consumption) 1,663.697 acre-ft/yr

Apparent Losses

				Pcnt:	Value:	
Unauthorized consumption:		47.997	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	3	352.959	acre-ft/yr	2.00%		acre-ft/yr
Systematic data handling errors:		43.238	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 444.193 acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 1,219.503 acre-ft/yr

WATER LOSSES: 1,663.697 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: 1,903.680 acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	7	375.4	miles
Number of active AND inactive service connections:	7	21,946	
Service connection density:		58	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line: (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: 3 70.0 psi

COST DATA

Total annual cost of operating water system:	10	$29,630,530	$/Year	
Customer retail unit cost (applied to Apparent Losses):	9	$2.34	$/100 cubic feet (ccf)	
Variable production cost (applied to Real Losses):	5	$281.72	$/acre-ft	☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 65 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources

2: Customer metering inaccuracies

3: Variable production cost (applied to Real Losses)

AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0

American Water Works Association.

? Click to access definition

+ Click to add a comment

Water Audit Report for: West Valley Water District (CA3610004)

Reporting Year: 2019 1/2019 - 12/2019

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where

<---------- Enter grading in column 'E' and 'J' ---------->

Master Meter and Supply Error Adjustments

WATER SUPPLIED

					Pcnt:	Value:	
Volume from own sources:	5	12,924.702	acre-ft/yr	2			acre-ft/yr
Water imported:	9	7,160.780	acre-ft/yr	3			acre-ft/yr
Water exported:	7	1,359.335	acre-ft/yr	2			acre-ft/yr

Enter negative % or value for under-registration

Enter positive % or value for over-registration

WATER SUPPLIED: 18,726.147 acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

				Pcnt:	Value:	
Billed metered:	8	16,136.158	acre-ft/yr			
Billed unmetered:	n/a	0.000	acre-ft/yr			
Unbilled metered:	9	554.000	acre-ft/yr			
Unbilled unmetered:		234.077	acre-ft/yr	1.25%		acre-ft/yr

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

AUTHORIZED CONSUMPTION: 16,924.235 acre-ft/yr

Use buttons to select percentage of water supplied **OR** value

WATER LOSSES (Water Supplied - Authorized Consumption) 1,801.912 acre-ft/yr

Apparent Losses

				Pcnt:	Value:	
Unauthorized consumption:		46.815	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	5	340.615	acre-ft/yr	2.00%		acre-ft/yr
Systematic data handling errors:		40.340	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 427.771 acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 1,374.141 acre-ft/yr

WATER LOSSES: 1,801.912 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: 2,589.989 acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	7	397.3	miles
Number of active AND inactive service connections:	9	22,481	
Service connection density:		57	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line: (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: 3 70.0 psi

COST DATA

Total annual cost of operating water system:	10	$31,584,583	$/Year	
Customer retail unit cost (applied to Apparent Losses):	9	$2.34	$/100 cubic feet (ccf)	
Variable production cost (applied to Real Losses):	5	$277.55	$/acre-ft	☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 69 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources

2: Customer metering inaccuracies

3: Variable production cost (applied to Real Losses)

J-9: Water Shortage Contingency Plan

West Valley Water District Draft Water Shortage Contingency Plan

JUNE 2021 | West Valley Water District

WEST VALLEY WATER DISTRICT

Draft Water Shortage Contingency Plan

West Valley Water District

JUNE 2021

Prepared by Water Systems Consulting, Inc.

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ACRONYMS & ABBREVIATIONS

AWIA	American Water Infrastructure Association
BTAC	Basin Technical Advisory Committee
CWC	California Water Code
CII	Commercial, Industrial, and Institutional
DWR	California Department of Water Resources
DRA	Drought Risk Assessment
ERP	Emergency Response Plan
GW	Groundwater
IRUWMP	Integrated Regional Urban Water Management Plan
RRA	Risk and Resilience Assessment
SBMWD	San Bernardino Municipal Water Department
SWP	State Water Project
UWWP	Urban Water Management Plan
WSCP	Water Shortage Contingency Plan

WATER SHORTAGE CONTINGENCY PLAN

West Valley Water District

This Water Shortage Contingency Plan is a strategic plan that the West Valley Water District uses to prepare for and respond to water shortages.

The Water Shortage Contingency Plan (WSCP) is a strategic plan that West Valley Water District (WVWD) uses to prepare for and respond to foreseeable and unforeseeable water shortages. A water shortage occurs when water supply available is insufficient to meet the normally expected customer water use at a given point in time. A shortage may occur due to a number of reasons, such as water supply quality changes, climate change, drought, regional power outage, and catastrophic events (e.g., earthquake). Additionally, the State may declare a statewide drought emergency and mandate that water suppliers reduce demands, as occurred in 2014. The WSCP serves as the operating manual that WVWD will use to prevent catastrophic service disruptions through proactive, rather than reactive, mitigation of water shortages. This WSCP provides a process for an annual water supply and demand assessment and structured steps designed to respond to actual conditions. This level of detailed planning and preparation provide accountability and predictability and will help WVWD maintain reliable supplies and reduce the impacts of any supply shortages and/or interruptions.

This WSCP was prepared in conjunction with WVWD's 2020 UWMP, which is included in the 2020 Upper Santa Ana River Watershed Integrated Urban Water Management Plan (2020 IRUWMP) and is a standalone document that can be modified as needed. This document is compliant with the California Water Code (CWC) Section 10632 and incorporated guidance from the State of California Department of Water Resources (DWR) UWMP Guidebook.

IN THIS SECTION

- Water Service Reliability
- Annual Water Supply and Demand Assessment
- Supply Shortage Stages and Response Actions

The WSCP describes the following:

1. **Water Service Reliability Analysis:** Summarizes WVWD's water supply analysis and reliability and identifies any key issues that may trigger a shortage condition.
2. **Annual Water Supply and Demand Assessment Procedures:** Describes the key data inputs, evaluation criteria, and methodology for assessing the system's reliability for the coming year and the steps to formally declare any water shortage stages and response actions.
3. **Water Shortage Stages:** Establishes water shortage stages to clearly identify and prepare for shortages.
4. **Shortage Response Actions:** Describes the response actions that may be implemented or considered for each stage to reduce gaps between supply and demand.
5. **Communication Protocols:** Describes communication protocols under each stage to ensure customers, the public, and government agencies are informed of shortage conditions and requirements.
6. **Compliance and Enforcement:** Defines compliance and enforcement actions available to administer demand reductions.
7. **Legal Authority:** Lists the legal documents that grant WVWD the authority to declare a water shortage and implement and enforce response actions.
8. **Financial Consequences of WSCP Implementation:** Describes the anticipated financial impact of implementing water shortage stages and identifies mitigation strategies to offset financial burdens.
9. **Monitoring and Reporting:** Summarizes the monitoring and reporting techniques to evaluate the effectiveness of shortage response actions and overall WSCP implementation. Results are used to determine if additional shortage response actions should be adjusted.
10. **WSCP Refinement Procedures:** Describes the factors that may trigger updates to the WSCP and outlines how to complete an update.
11. **Plan Adoption, Submittal, and Availability:** Describes the process for the WSCP adoption, submittal, and availability after each revision.

1.0 Water Service Reliability Analysis

As part of the 2020 IRUWMP, WVWD completed a water supply reliability analysis for normal, single-dry, and five-year consecutive dry year periods from 2025-2045. A Drought Risk Assessment (DRA) was also performed to analyze supply reliability under five consecutive years of drought from 2021-2025. As described in **Chapter 3** of the 2020 IRUWMP, the effects of a local drought are not immediately recognized since the region uses the local groundwater basins to simulate a large reservoir for long term storage. WVWD is able to pump additional groundwater to meet increased demands in dry years and participates in efforts to replenish the basins with imported and local water through regional recharge programs. Additionally, WVWD implements several ongoing water conservation measures. Regional recharge programs and conservation help to optimize and enhance the use of regional water resources. **Based on the 2020 IRUWMP analysis, WVWD's water supply is reliable and not expected to see impactful change under drought conditions.**

Even though localized drought conditions should not affect supply, other shortages may occur due to a number of reasons, such as water supply quality changes, regional power outage, State mandates for water use efficiency standards, and catastrophic events (e.g., earthquake). Therefore, WVWD will use this WSCP as appropriate to address shortages and other supply emergencies.

2.0 Annual Water Supply and Demand Assessment

As an urban water supplier, WVWD must prepare and submit an Annual Water Supply and Demand Assessment (Annual Assessment). Starting in 2022, the Annual Assessment will be due by July 1 of every year, as indicated by CWC Section 10632.1. The Annual Assessment is an evaluation of the near-term outlook for supplies and demands to determine whether the potential for a supply shortage exists and whether there is a need to trigger a WSCP shortage stage and response actions in the current calendar year to maintain supply reliability. This process will take place at the same time each year based on known circumstances and information available to WVWD at the time of analysis and can be update or revised at any time if circumstances change.

WVWD will establish and convene an internal WSCP Team to conduct the Annual Assessment each year. The WSCP may include the following staff:

- **Assistant General Manager**
- **Engineering Services Manager**
- **Operations Manager**
- **Production Supervisor**
- **Chief Water Treatment Plant Operator**
- **Director of Finance**

The Annual Assessment procedure, including key data inputs and evaluation criteria, is summarized in **Table 1.** The Annual Assessment procedure and timeline, along with how it integrates with the annual assessment that will be conducted on a regional basis in parallel, is shown graphically in **Figure 1.**

Table 1. Annual Assessment Procedure

TIMING	ASSESSMENT ACTIVITIES	PROCEDURE, KEY DATA INPUTS, EVALUATION CRITERIA AND OTHER CONSIDERATIONS	STAFF RESPONSIBLE
JAN - FEB	Estimate unconstrained demands for coming year	Demands will be estimated based on water sales forecasts from annual budget or prior year demands plus any anticipated changes	Engineering Services Manager, Director of Finance
JAN - FEB	Estimate available supplies for the year, considering the following year will be dry	Each December, WVWD submits an order to Valley District for the volume of SWP water that is planned for use the following year. If the requested volume is not available due to reduced SWP supplies, WVWD will meet with Valley District and other SWP users to discuss reducing SWP orders and may update the Annual Assessment to reflect a shift from SWP to groundwater production, if needed. Estimates of available surface water supplies from the Lytle Creek will be based on annual precipitation and local mountain snowpack. The remainder of supply needs not met from SWP and surface water will be pumped from groundwater basins. The groundwater basins are sustainably managed to provide long term supply reliability and is not anticipated to be impacted in dry years. In the unlikely event that local supplies are reduced, WVWD will coordinate with the BTAC to identify available supplies for the coming year.	Operations Manager, Chief Water Treatment Plant Operator
JAN - FEB	Consider potential constraints that may impact supply delivery	Identify any known regional or WVWD infrastructure issues that may pertain to near-term water supply reliability, including repairs, construction, and environmental mitigation measures that may temporarily constrain capabilities, as well as any new projects that may add to system capacity. Identify any facilities out of service due to water quality problems, equipment failure, etc. that may impact normal water deliveries. Identify any potential or emerging impacts to groundwater quality, such as emerging regulatory constraints that may limit use of available supplies for potable needs.	Operations Manager, Chief Water Treatment Plant Operator, Production Supervisor, Engineering Services Manager

TIMING	ASSESSMENT ACTIVITIES	PROCEDURE, KEY DATA INPUTS, EVALUATION CRITERIA AND OTHER CONSIDERATIONS	STAFF RESPONSIBLE
FEB	Convene WSCP Team to conduct Annual Assessment	Compare supplies and demands and discuss any constraints that may impact supply delivery. If the potential for a shortage exists, determine which shortage response stage and actions are recommended to reduce/eliminate the shortage. Additionally, if the State declares a drought state of emergency and requires demand reductions, the WSCP Team will determine which water shortage stage and response actions are needed to comply with the State mandate.	WSCP Team
JUNE	Board of Directors	If the potential for a shortage exists or the State has mandated demand reductions, the results of the Annual Assessment will be presented to the WVWD Board of Directors, including the recommended shortage stage and response actions. The Board of Directors may order the implementation of a shortage stage and will adopt a resolution declaring the applicable water shortage stage.	General Manager Board of Directors
ON-GOING	Implement WSCP actions, if needed	Relevant members of WVWD staff will implement shortage response actions associated with the declared water shortage stage	WSCP Team
BY JULY 1	Submit Retail Annual Assessment	Send Final Retail Annual Assessment to DWR	Engineering Services Manager

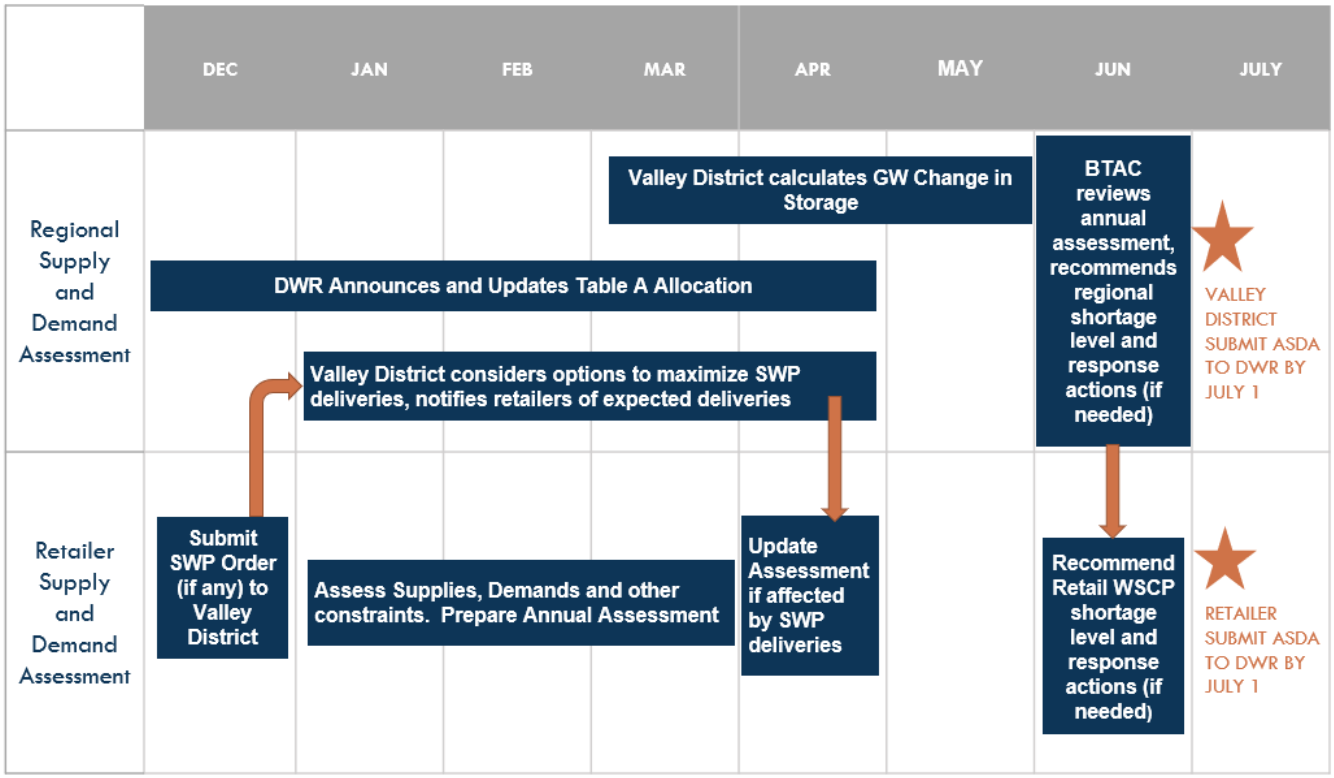

Figure 1. Regional and Retail Agency Annual Assessment Process and Timeline

3.0 Water Shortage Stages

With the exception of a catastrophic failure of infrastructure, WVWD does not foresee imposing a water shortage stage except under the State's direction, as occurred in 2014 or in the event of catastrophic infrastructure failure. If a potential water supply shortage is identified in the Annual Assessment, this section provides information on the water shortage stages and response actions that WVWD may implement.

WVWD uses four (4) shortage stages to identify and respond to water shortage emergencies. At a minimum, WVWD encourages baseline conservation efforts year-round, regardless of a shortage emergency.

Stage I – Normal Conditions:

Normal supply and distribution capacity is available. All policies shown in Section 2403 and the following water conservation measures shall apply.

Stage II – Water Alert:

The District may not be able to meet all water demands of all customers, unless the following water conservation measures are applied.

Stage III – Water Warning (includes sub-stages A, B, and C):

District is not able to meet all water demands of all customers; therefore, the following water conservation measures listed in Table 4 shall apply.

Stage IV: Water Emergency

District is not able to meet all water demands of all customers; therefore, the following water conservation measures listed in Table 4 shall apply.

The CWC outlines six standard water shortage stages that correspond to a gap in supply compared to normal year availability. The six standard water shortage stages correspond to progressively increasing estimated shortage conditions (up to 10-, 20-, 30-, 40-, 50-percent, and greater than 50-percent shortage compared to the normal reliability condition) and align with the response actions that a water supplier would implement to meet the severity of the impending shortages.

The CWC allows suppliers with an existing WSCP that uses different water shortage stages to comply with the six standard stages by developing and including a cross-reference relating its existing shortage categories to the six standard water shortage stages. WVWD is maintaining the current four shortage stages for this WSCP. A crosswalk defines how WVWD's current water shortage stages will align with the DWR's standardized 6 stages of shortage. A visual representation of this alignment is shown in Figure 2.

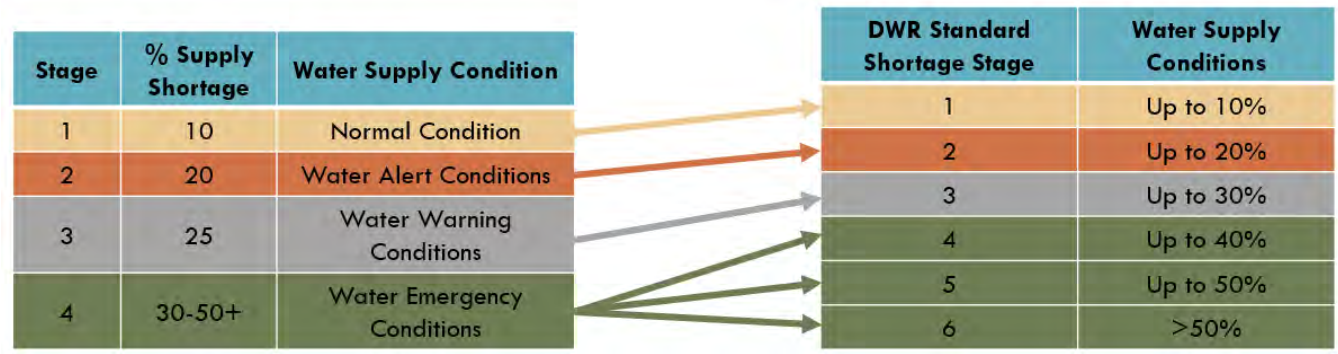

Figure 2. Crosswalk to DWR Six Standard Stages

Table 2: DWR 8-1 Water Shortage Contingency Plan Stages

SHORTAGE STAGE	PERCENT SHORTAGE RANGE[1] (NUMERICAL VALUE AS A PERCENT)	WATER SHORTAGE CONDITION
1	Up to 10%	Normal Conditions (WVWD Stage 1)
2	Up to 20%	Water Alert Condition (WVWD Stage 2)
3	Up to 30%	Water Warning Condition (WVWD Stage 3, 3A, 3B, and 3C)
4	Up to 40%	Water Emergency Condition (WVWD Stage 4)
5	Up to 50%	Water Emergency Condition (WVWD Stage 4)
6	>50%	Water Emergency Condition (WVWD Stage 4)

[1] One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.

4.0 Shortage Response Actions

This section was completed pursuant to CWC Section 10632(a)(4) and 10632.5(a) and describes the response actions that must be implemented or considered for each stage to minimize social and economic impacts to the community.

In accordance with CWC 10632(b) WVWD analyzes and defines water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.

4.1 Supply Augmentation

Table 3 identifies the supply augmentation actions WVWD can take in the event of a water shortage condition. WVWD currently maintains interconnections with the Cities of Rialto, Colton and San Bernardino, the Fontana Water Company, Marygold Mutual Water Company. During water shortage emergencies, WVWD may be able to obtain supplemental water supply through these connections, if available.

Table 3: DWR 8-3R Supply Augmentation & Other Actions

SHORTAGE STAGE	SUPPLY AUGMENTATION METHODS AND OTHER ACTIONS BY WATER SUPPLIER	HOW MUCH IS THIS GOING TO REDUCE THE SHORTAGE GAP?	ADDITIONAL EXPLANATION OR REFERENCE
4	Other purchases	0-100%	WVWD currently has interconnections with the Cities of Rialto, Colton and San Bernardino, the Fontana Water Company, Marygold Mutual Water Company, and Valley District

4.2 Demand Reduction

In addition to prohibitions on end uses, WVWD offers various rebates to encourage conservation (i.e. ultra-low flush toilet replacements, high efficiency washing machines, etc.). WVWD has a water rate structure that promotes water efficiency. The reduction goal is to balance supply and demand. Table 4 summarizes these efforts and end use prohibitions.

Table 4: DWR 8-2 Demand Reduction Actions

SHORTAGE STAGE	DEMAND REDUCTION ACTIONS	HOW MUCH IS THIS GOING TO REDUCE THE SHORTAGE GAP?	ADDITIONAL EXPLANATION OR REFERENCE	PENALTY, CHARGE, OR OTHER ENFORCEMENT
All	Expand Public Information Campaign	0-20%	Provide reminder notices regarding noted water waste and offer community outreach programs	No
1	Landscape - Other landscape restriction or prohibition	0-5%	The use of sprinklers for any type of irrigation during high winds is prohibited.	Yes

SHORTAGE STAGE	DEMAND REDUCTION ACTIONS	HOW MUCH IS THIS GOING TO REDUCE THE SHORTAGE GAP?	ADDITIONAL EXPLANATION OR REFERENCE	PENALTY, CHARGE, OR OTHER ENFORCEMENT
1	Landscape - Limit landscape irrigation to specific times	0-5%	Limit all landscape irrigation to between the hours of 8:00 p.m. and 6:00 a.m. Hand watering should be done between 6:00 p.m. and 8:00 a.m. Drip irrigation and hand watering while gardening is exempt from this recommendation. Water being used during repair or maintenance of watering system is exempt from this section.	Yes
1	Landscape - Restrict or prohibit runoff from landscape irrigation	0-5%	Use of water for outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures is prohibited.	Yes
1	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	0-1%	No person shall permit water to leak from any facility, improvement or plumbing fixture on his/her/its premises; said leak shall be repaired in a timely manner.	Yes
1	Other - Require automatic shut of hoses	0-1%	Washing of automobiles, trucks, trailer, boats, and other mobile equipment is prohibited unless done with a hand held device equipped with an automatic shut off trigger nozzle. This does not apply to commercial car washes utilizing a recycling system or when the health and safety of the public would necessitate.	Yes
1	Water Features - Restrict water use for decorative water features, such as fountains	0-1%	No water shall be used to clean, fill, operate or maintain levels in decorative fountains unless the water is part of a recycling system.	Yes
1	Other - Prohibit use of potable water for washing hard surfaces	0-1%	There shall be no application of water to sidewalks, walkways, driveways, parking areas, patios, porches, verandas, tennis courts, or other paved, concrete, or other hard surface areas, except that flammable or other similarly dangerous or unhealthy substances may be washed from said areas by direct hose flushing for the benefit of public health or safety.	Yes
1	Landscape - Prohibit certain types of	0-5%	The irrigation of potable water of ornamental turf on public street medians is prohibited. The	Yes

SHORTAGE STAGE	DEMAND REDUCTION ACTIONS	HOW MUCH IS THIS GOING TO REDUCE THE SHORTAGE GAP?	ADDITIONAL EXPLANATION OR REFERENCE	PENALTY, CHARGE, OR OTHER ENFORCEMENT
	landscape irrigation		term "median" shall mean the strip of land between street lanes.	
2	Decrease Line Flushing	0-1%		No
2	Other	0-1%	Use historical data instead of performing fire flow tests for new developments	No
2	Other	0-1%	Screen all new applications for water service installations and limit water use before occupancy	No
2	Reduce System Water Loss	0-1%	Repair all leaks within 72 hours	No
2	CII - Restaurants may only serve water upon request	0-1%	All restaurants prohibited from serving water to their customers except when requested by customer.	Yes
2	CII - Lodging establishment must offer opt out of linen service	0-1%	Operators of hotels and motels must provide guests with the option of choosing not to have towels and linens laundered daily. The hotels and motels shall prominently display notice of this option in each guestroom using clear and easily understood language.	Yes
2	Landscape - Limit landscape irrigation to specific days	0-5%	Limit all landscape irrigation to four (4) days per week for no more than ten (10) minutes per station per day. This provision does not apply to any landscape that has waterefficient devices that are operated properly. Waterefficient devices are drip irrigation systems and operational weather-based irrigation controllers. The term "week" is defined as Sunday through Saturday.	Yes
2	Other - Prohibit use of potable water for construction and dust control	0-1%	District will screen all new applications for water service installations and will limit water use before occupancy to that essential use for construction and testing of landscape plumbing. Limited landscaping for new development shall be allowed as approved by the District. Water use for compaction, dust control, and other types of construction shall be by permit only and will be limited to conditions of the permit or may be prohibited as determined by the General Manager or his/her designee.	Yes
2	Other - Customers must	0-1%	Repair all leaks within seventy-two (72) hours of notification by the District unless other	Yes

SHORTAGE STAGE	DEMAND REDUCTION ACTIONS	HOW MUCH IS THIS GOING TO REDUCE THE SHORTAGE GAP?	ADDITIONAL EXPLANATION OR REFERENCE	PENALTY, CHARGE, OR OTHER ENFORCEMENT
	repair leaks, breaks, and malfunctions in a timely manner		arrangements are made with the general manager of the District ("General Manager").	
2	Landscape - Other landscape restriction or prohibition	0-5%	Irrigating landscaping, including, but not limited to, turf and ornamental landscapes during and within forty-eight (48) hours following measurable precipitation is prohibited.	Yes
2	Other water feature or swimming pool restriction	0-1%	Swimming pools, hot tubs, and spas shall not be filled or refilled after being drained.	Yes
2	Other water feature or swimming pool restriction	0-1%	Ornamental pools, fountains, water displays, and artificial lakes shall not be filled or refilled after being drained.	Yes
2	Other - Prohibit use of potable water for construction and dust control	0-1%	Water used for compaction, dust control, and other types of construction shall be by permit only and will be limited to conditions of the permit or may be prohibited as determined by the General Manager, or his/her designee.	Yes
3	Reduce System Water Loss	0-1%	Repair all leaks within 48 hours	No
3A	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	0-1%	Washing of automobiles, trucks, trailers, boats, airplanes, and other types of mobile equipment are prohibited. Washing of the above-listed vehicles or mobile equipment shall be allowed only at a commercial car wash where recirculating water is being utilized.	Yes
3A	Landscape - Limit landscape irrigation to specific times	0-5%	All agricultural water users shall irrigate only at times approved by the District.	Yes
3A	Water Features - Restrict water use for decorative water features, such as fountains	0-1%	Swimming pools, hot tubs, and spas shall not be refilled or filled after being drained.	Yes

SHORTAGE STAGE	DEMAND REDUCTION ACTIONS	HOW MUCH IS THIS GOING TO REDUCE THE SHORTAGE GAP?	ADDITIONAL EXPLANATION OR REFERENCE	PENALTY, CHARGE, OR OTHER ENFORCEMENT
3A	Water Features - Restrict water use for decorative water features, such as fountains	0-1%	Ornamental pools, fountains, water displays, and artificial lakes shall not be refilled or filled after being drained.	Yes
3A	Landscape - Limit landscape irrigation to specific days	0-5%	Limit all landscape irrigation to three (3) days per week for no more than ten (10) minutes per station per day. Drip systems that are operated efficiently are exempt from these regulations.	Yes
3A	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	0-1%	Repair all leaks within forty-eight (48) hours of notification by the District unless other arrangements are made with the General Manager.	Yes
3B	Landscape - Limit landscape irrigation to specific days	5-20%	Limit all landscape irrigation to two (2) days per week for no more than ten (10) minutes per station per day.	Yes
3C	Landscape - Limit landscape irrigation to specific days	10-30%	Limit all landscape irrigation to one (1) day per week for no more than ten (10) minutes per station per day.	Yes
4	Landscape - Prohibit all landscape irrigation	10-30%	No lawn or landscape water will be allowed	Yes
4	Other - Prohibit use of potable water for construction and dust control	0-5%	No construction water use to be allowed, construction meters to be locked off or removed.	Yes
4	CII - Other CII restriction or prohibition	0-5%	Commercial nurseries shall water only between the hours of 11:00 p.m. and 6:00 a.m. and only with hand-held devices or with drip irrigation systems.	Yes
4	Landscape - Prohibit all landscape irrigation	10-30%	The use of water shall be limited to essential household, commercial, manufacturing, or processing uses only, except where other uses may be allowed by permit	Yes

SHORTAGE STAGE	DEMAND REDUCTION ACTIONS	HOW MUCH IS THIS GOING TO REDUCE THE SHORTAGE GAP?	ADDITIONAL EXPLANATION OR REFERENCE	PENALTY, CHARGE, OR OTHER ENFORCEMENT
4	Landscape - Limit landscape irrigation to specific times	0-5%	All agricultural water users shall irrigate only at times approved by the District.	Yes

4.3 Operational Changes and Additional Mandatory Restrictions

During shortage conditions, operations may be affected by supply augmentation or demand reduction responses. WVWD will consider their operational procedures when it completes its Annual Assessment. Any additional mandatory restrictions implemented in response to the declaration of a shortage response stage, beyond the actions listed in **Table 3** and **Table 4** are listed in WVWD's Ordinance Number 80 Article No. 24 provided as **Attachment 1.**

4.4 Emergency Response Plan

In 2021, WVWD completed a Risk and Resilience Assessment (RRA) and Emergency Response Plan (ERP) in accordance with America's Water Infrastructure Act (AWIA) of 2018. The purpose of the RRA and ERP is to meet the AWIA compliance requirements and plan for long-term resilience of WVWD's infrastructure. The RRA assessed WVWD's water system to identify critical assets and processes that may be vulnerable to human and natural hazards, and to identify measures that can be taken to reduce risk and enhance resilience from service disruption for the benefit of customers. The RRA identifies and characterizes both infrastructure-specific and system-wide vulnerabilities and threats and quantifies the consequences of disruption. The RRA also identifies various options (and constraints) in addressing and mitigating risk. The RRA, in conjunction with the Emergency Response Plan (ERP), charts a course for water system resilience. The RRA also provided various recommendations to increase reliability of WVWD's system. Since critical pieces of infrastructure and specific vulnerabilities are detailed in the RRA and ERP, the contents of the document are confidential and for use by WVWD's staff only. However, WVWD can confirm that these plans meet the requirements set forth by AWIA and evaluate seismic risks and mitigation actions to WVWD's infrastructure.

In the event of a water shortage emergency resulting from equipment failure, power outage, or other catastrophe, WVWD is prepared to purchase emergency water supplies from nearby agencies while repairs or other remedial actions are underway. WVWD may also implement its four-stage plan for conservation, as described above, with either voluntary or mandatory reductions depending on the severity of the shortage. For severe disasters (Stage 4), mandatory water use reductions are specified.

4.5 Seismic Risk Assessment and Mitigation Plan

Disasters, such as earthquakes, can and will occur without notice. In order to respond to disasters WVWD has assessed the seismic risk and reliance of WVWD's water facilities in the RRA mentioned in the section above.

In the event of an extended multi-week supply shortages due to natural disasters or accidents which damage all water source, WVWD's 25 storage reservoirs have a combined capacity of over 72 million gallons, which is sufficient water to meet the health and safety requirements of 50 gallons per day per capita for approximately

80,000 residents for 18 days. This assumes zero non-residential use. Under emergency power outages or catastrophic earthquake conditions, the existing storage is expected to provide a supply of four days of average day demand or 2.5 days under maximum summer demand. WVWD also has interconnections with other agencies for emergency supplies.

WVWD has portable back-up generators that can be used in the event of an area-wide power outage. These generators can be located on both wells and booster stations to continue water production. These generators will be located in the northern part of the distribution system. Water can then be boosted to higher zones or gravity fed to the lower zones. In addition to the portable generators, WVWD will be installing back-up generators at the Zone 5 and 6 booster stations.

4.6 Shortage Response Action Effectiveness

WVWD has estimated the effectiveness of shortage response actions in Table 3 and Table 4 when data pertaining to such actions is available. It is expected that response actions effectiveness is also a result of successful communication and outreach efforts.

5.0 Communication Protocols

The West Valley Water District prioritizes effective communication, especially in times of a water shortage emergency. WVWD routinely communicates to customers about details on when a stage is announced. Communication actions may include bill inserts, handouts, informative flyers, and direct mail pieces to newspaper and bus shelter advertisements, news releases, social media outreach, and website content. WVWD continues to provide reminders about shortage stages and encourages conservation at all times.

6.0 Compliance and Enforcement

Consumption limits in the progressively restrictive stages are imposed on different uses. These are based on percentage reductions in water allotments, and restrictions on specific uses. The specific percentage reductions at each stage and for each user class are detailed in the ordinance. The individual customer allotments will be based on the previous year's use. This provides WVWD a basis for reviewing appeals.

Mandatory provisions to reduce water use during the different stages of water shortage are also summarized in the ordinance. Provisions of Article 24 - Water Conservation, adopted August 6, 2015, were adopted pursuant to Sections 375 and 376 of the CWC. Any second or subsequent violation of this policy after notice as specified in Section 2411 1(a) is a misdemeanor (CWC Section 377).

In addition to the remedy of criminal prosecution available to the District, violation of the Ordinance may result in the imposition of surcharges and restriction and/or termination of water service as set forth below:

1. **First Violation –** Notice of Non-Compliance – a written warning accompanied by a copy of this Ordinance, delivered by U.S. Mail and/or hung on customer's door.
2. **Second Violation – Warning of Penalties –** a written warning notice of future imposition of penalties that could be placed on the customer's water bill.

3. **Third Violation (within one (1) year) -** a surcharge of $100.00.
4. **Fourth Violation (within one (1) year of the first violation) –** a surcharge of $300.00, and installation of flow restricting device in the meter for a minimum of ninety-six (96) hours. Said restricted flow shall meet minimum County Health Department's standards, if any have been established. If said ninety-six (96) hour period ends on a weekend or holiday, full service will be restored during the next business day.
5. **Fifth Violation (within one (1) year of the first violation) –** a surcharge of $500.00, and termination of service for such period as the Board determines to be appropriate under the circumstances, following a hearing regarding said issue. Written notice of the hearing shall be mailed to the customer at least ten (10) days before the hearing.

Any surcharge hereunder shall be in addition to the basic water rates and other charges of the District for the account and shall appear on and be payable with the billing statement for the period during which the violation occurred; non-payment shall be subject to the same remedies available to the District as for non-payment of basic water rates.

In addition to any surcharge, a customer violating this Ordinance shall be responsible for payment of the District's charges for installing and/or removing any flow restricting device and for disconnecting and/or reconnecting service per the District's Schedule of Charges then in effect. Such charges shall be paid prior to the removal of the flow restrictor or reconnection of service, whichever the case may be.

7.0 Legal Authorities

To offset the prolonged effects of the drought periods, the Board of Directors adopted a Water Conservation Plan with Ordinance No. 68 on July 5, 1990 by adding Article No. 24 entitled "Water Conservation" to its water service regulations and a WSCP with Ordinance No. 69 on February 6, 1992 which amended portions of the Water Conservation Plan. On August 6, 2015, the Board of Directors amended Resolution No. 387 through Ordinance Number 80, included as **Attachment 1**, which established water service regulations, schedules of rates, and charges. Article No. 24 describes Water Conservation objectives and outlines four stages of action to be implemented during a water shortage. WVWD's Plan includes voluntary and mandatory stages.

The purpose of Article 24 is to provide water conservation measures in order to minimize the effect of a water shortage on the citizens of, and the economic well-being of, the communities WVWD serves. This Article adopts provisions that will significantly reduce the wasteful and inefficient consumption of water, thereby extending the available water resources required for the domestic, sanitation, and fire protection needs of the citizens of the communities they serve while reducing the hardship on WVWD and the general public to the greatest extent possible.

7.1 Water Shortage Emergency Declaration

In accordance with CWC Section Division 1, Section 350 – WVWD shall declare a water shortage emergency condition to prevail within the area served by such distributor whenever it finds and determines that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the distributor to the extent that there would be insufficient water for human consumption, sanitation, and fire protection.

7.2 Local/Regional Emergency Declaration

If a water shortage is approaching, WVWD shall coordinate with any the cities and counties in its service area for the possible proclamation of a local emergency.

8.0 Financial Consequences of WSCP

To ensure WVWD's customers comply with Article 24 and CWC Chapter 3.3 (Excessive Residential Water Use During Drought), additional costs may be incurred to monitor and enforce response actions. The financial consequences a water shortage can have on WVWD and the local community will depend on the duration and level of severity. During Stages 2 through 4 of the District's WSCP, water consumption will decrease based upon each individual stage and the amount of reduction goal achieved. The impacts of these reductions will result in a reduction in water sales revenues and a reduction of water production expenditures. To mitigate the financial impacts of a water shortage, WVWD maintains sufficient funds within a Rate Stabilization Account. These funds could be used to stabilize water rates during periods of water shortage or disasters affecting the water supply.

9.0 Monitoring and Reporting

The water savings from implementation of the WSCP will be determined based on monthly production reports which are reviewed and compared to production reports and pumping statistics from prior months and the same period of the prior year. Under shortage conditions, these production reports could be prepared as often as daily. At first, the cumulative consumption for the various sectors (e.g., residential, commercial, etc.) will be evaluated for reaching the target level. Then if needed, individual accounts will be monitored. Weather and other possible influences may be accounted for in the evaluation.

10.0 WSCP Refinement Procedures

The WSCP is best prepared and implemented as an adaptive management plan. WVWD will use results obtained from their monitoring and reporting program to evaluate any needs for revisions. Potential changes to the WSCP that would warrant an update include, but are not limited to, any changes to trigger conditions, changes to the shortage stage structure, and/or changes to customer reduction actions.

Any prospective changes to the WSCP would need to be presented to WVWD's Board for discretionary approval. Once discretionary approval has been granted, WVWD will hold a public hearing, obtain any comments and adopt the updated WSCP. Notices for refinement and the public hearing date will be published in the local newspaper in advance of any public meetings.

11.0 Plan Adoption, Submittal and Availability

WVWD adopted this WSCP with the 2020 IRUWMP. The 2020 IRUWMP and WSCP were made available for public review in June 2021 and a public hearing was held on **June 17, 2021** to receive public input on the draft 2020 IRUWMP and the WSCP.

The WVWD Board of Directors adopted the 2020 IRUWMP and the WSCP at a public meeting on **June 17, 2021.** The resolution of adoption is included as an attachment.

This WSCP was submitted to DWR through the WUEData portal before the deadline of **July 1, 2021.**

This WSCP will be available to the public on West Valley Water District web site.

If WVWD identifies the need to amend this WSCP, it will follow the same procedures for notification to cities, counties and the public as used for the 2020 IRUWMP and for initial adoption of the WSCP.

References

California Department of Water Resources. (2021). *Urban Water Management Plan Guidebook 2020.* Sacramento: California Department of Water Resources.

Texas Living Waters Project. (2018). *Water Conservation by the Yard: A Statewide Analysis of Outdoor Water Savings Potential.* Austin: Texas Living Waters Project, Sierra Club, National Wildlife Federation. Retrieved from Texas Living Waters Project.

United States Environmental Protection Agency, Office of Water. (2002). *Cases in Water Conservation: How Efficiency Programs Help Water Utilities Save Water and Avoid Costs.* United States Environmental Protection Agency.

Attachment 1: WVWD'S Article No. 24 - Water Conservation

ORDINANCE NO. 80
AN ORDINANCE OF THE BOARD OF DIRECTORS OF THE WEST VALLEY WATER DISTRICT RESCINDING ORDINANCE 79 AND AMENDING RESOLUTION NO. 387, WATER SERVICE REGULATIONS, BY AMENDING ARTICLE NO. 24 - WATER CONSERVATION

WHEREAS, Article 10, Section 2 of the California Constitution declares that waters of the State are to be put to beneficial use, that waste, unreasonable use, or unreasonable method of use of water be prevented, and that water be conserved for the public welfare; and

WHEREAS, the water resources of West Valley Water District ("District") are limited and finite; and

WHEREAS, conservation of certain water supplies and minimization of the effects of water supply shortages that are the result of drought are essential to the public health, safety and welfare; and

WHEREAS, regulation of the time of certain water use and manner of use provide an effective and immediately available means of conserving water; and

WHEREAS, California Water Code Sections 375 et seq. authorize water suppliers to adopt and enforce a comprehensive water conservation program; and

WHEREAS, pursuant to such authority the Board of Directors ("Board") of District adopted Ordinance No. 68 amending Resolution No. 387, to add Article 24 to the District's Service Regulations ("Article 24"); and

WHEREAS, the Board adopted Ordinance No. 78, rescinding Ordinance No. 68, and amending Resolution No. 387, by amending Article 24; and

WHEREAS, the Board adopted Ordinance No. 79, rescinding Ordinance No. 78, and amending Resolution No. 387, by amending Article 24; and

WHEREAS, the adoption of this Ordinance will allow the District to delay or avoid the implementation of more restrictive water use regulations provided that nothing in this Ordinance will prevent the District from implementing more restrictive regulations as authorized by California Water Code Section 350 et. seq; and

WHEREAS, the District has adopted an Urban Water Management Plan ("Plan") that includes water conservation as a necessary and effective component to provide a reliable source of water to meet the needs of the District's customers. The Plan also includes an analysis of actions to be taken in response to water supply shortages. This Ordinance is consistent with the District's

Plan; and

WHEREAS, the State Water Resources Control Board adopted Resolution No. 2014-0038, No. 2014-0718-01E and 2015-0032 to adopt an emergency regulation for statewide urban water conservation ("State Board Regulations"). The State Board Regulations set forth certain prohibited activities and certain actions to be taken by water suppliers, such as the District; and

WHEREAS, the water conservation measures and progressive restrictions on water use identified by this Ordinance provide certainty to water users and enable District to control water use and plan and implement water measures in a fair and orderly manner for the benefit of the public. This Ordinance is further intended to comply with the mandates of the State Board Regulations as such applies to the District.

NOW, THEREFORE, THE BOARD OF DIRECTORS OF WEST VALLEY WATER DISTRICT does ordain that Resolution 387 is hereby amended to amend Article 24 to read as follows:

ARTICLE 24
WATER CONSERVATION

1. Purpose. The purpose of this Article is to provide water conservation measures in order to minimize the effect(s) of a water shortage on the citizens of, visitors to, and the economic well-being of the communities we serve and, by means of this Article, to adopt provisions that will significantly reduce the wasteful and inefficient consumption of water, thereby extending the available water resources required for the domestic, sanitation, and fire protection needs of the citizens of, and visitors to, the communities we serve while reducing the hardship on the District and the general public to the greatest extent possible.

2. Application. The provisions of this Article shall apply to all customers and property within the service area of the District and shall also apply to all property and facilities owned, maintained, operated, or otherwise under the jurisdiction of the District.

a) Exception. The prohibited uses of water provided for by this Ordinance are not applicable to that use of water necessary for public health and safety or for essential government services such as police, fire, and similar emergency services.

3. Policy. Due to the fact that we are located in a semi-arid region and our groundwater is of limited supply and in an overdraft condition and because of these conditions prevailing in the District and areas elsewhere from which the District obtains its water supplies, the general welfare requires that the water resources available to the District be put to the maximum beneficial use to the extent to which they are capable and that the wasteful, inefficient, or unreasonable use, or method of use of our previous, limited, and finite water resources be prevented.

As such, the conservation of such waters is to be exercised with a view to the reasonable and

beneficial and efficient use thereof in the interests of the people of the District and for the public welfare.

Therefore, the District establishes the following goals, objectives, policies, and four-stage water conservation plan pertaining to the conservation and use of water:

2401. GOALS

< The conservation of water.

< The efficient use and distribution of available water supplies.

< Adequate and sufficient potable water supply and availability for the greatest public benefit, with particular regard to human consumption, sanitation, and fire protection.

< Maintain high quality customer service.

< Ensure fiscal soundness.

< Protect environmental quality.

< Meet growing water quality regulations.

< To reduce water consumption in accordance with State law, including, but not limited to the State Board Regulations.

2402. OBJECTIVES

< To conserve all available water supplies.

< To achieve an overall water use reduction.

< To reduce the volume of wastewater.

< To continuously increase consumer awareness about the need for and benefits of water conservation.

< To reduce or eliminate wasteful and inefficient uses of water.

< To assure an adequate supply of potable water sufficient to meet the essential private and public needs of the District's growing population and economy of those communities in which we serve.

< To assure that all new developments and existing dwellings which are remodeled or

added to are equipped with water-conserving devices, fixtures, and appliances.

< To increase the use of native or water-conserving plant species for landscaping purposes.

< The term "base year" shall have the following meaning:

a) The year 2013, if the customer occupied the subject real property for the entire year.

b) If the customer did not occupy the subject real property for the entire year of 2013, the base year for that customer would be the first twelve (12) months the customer occupied the subject real property in or after 2013.

c) If the customer has not occupied the subject real property for a twelve (12) month period on the adoption of this Ordinance, then the District will use the consumption history for the period of time the customer has occupied the subject real property. If the customer has no consumption history for the subject real property then the District will determine goals for that customer based on the averaging of other real properties with similar service types and meter sizes within the same meter reading route (as determined by the District) for the months without consumption history. The customer shall have a ten (10) day period after the customer receives the goals to appeal that determination to the General Manager (as defined herein), in writing. If the customer fails to appeal the determination within the ten (10) day period the goals shall be final. Upon receipt of a timely appeal, the General Manager shall schedule a hearing at which the General Manager or his/her designated representative shall act as the hearing officer. The hearing shall be at least ten (10) days following receipt of the appeal, and the District shall mail written notice of the hearing to the customer at least ten (10) days before the date of said hearing. The determination of the hearing officer with respect to the goals shall be final.

2403. <u>POLICIES</u>

< As a condition of water service, all new structures shall be equipped with high efficiency toilets (1.28 gallons per flush max) as per Section 17921.3 of the California Health and Safety Code, and with low-flow showers and faucets as per Title 24, Part 6, Article 1, T20-1406F of the California Administrative Code, in addition to the insulating of all hot water lines according to California Energy Commission Rules. "New Structures" shall mean buildings obtaining occupancy permits after the effective date of this Ordinance.

As a condition of continued water service, existing structures not so equipped, which require building permits to remodel or expand, shall be retrofitted with toilet tank dams

resulting in 1.28 gallon flushes unless the toilets are to be replaced, in which case the new toilets shall be ultra low-flush (1.28gpf), as stated above, and low-flow showers and faucets. Certification of compliance with this Ordinance shall be forwarded to the District.

< The use of lawns shall be minimized in new commercial, hotel, condominium, and high-density housing and shall be subject to District review and conditioning of projects. The use of native or water-conserving trees, shrubs, lawns, grass, ground cover, vines, and other plant species for landscape planting or replanting purposes is required and shall be approved by the District. (A list of such plants can be obtained at the District office.)

< Large water users, as determined by the District, shall submit a water conservation plan to the District and promote implementation of same as a condition to continued service.

< Water demand, use, and mitigation shall be address in every Environmental Impact Report.

< The District shall:

a) Cooperate with other local water purveyors, appropriate state and other responsible agencies in facilitating a continuous program to increase consumer awareness about the need for and benefits of water conservation.

b) Encourage large water users to implement water recycling and reuse processes.

c) Make water conservation as reliable a method of reducing water demands as water supply projects are in meeting such demands.

2404. STAGE I - NORMAL CONDITION

Normal supply and distribution capacity is available. All policies shown in Section 2403 and the following water conservation measures shall apply.

1. Recommendations for use of water.

a) Limit all landscape irrigation to between the hours of 8:00 p.m. and 6:00 a.m. Hand watering should be done between 6:00 p.m. and 8:00 a.m. Drip irrigation and hand watering while gardening is exempt from this recommendation. Water being used during repair or maintenance of watering system is exempt from this section.

b) Water conservation should be practiced within the home or business.

c) All restaurants and food establishments are requested not to serve water to their customers unless specifically requested by the customer.

2. The following uses of water are hereafter considered non-essential to the public health, safety and welfare and, if allowed, would constitute the wasting of water and is hereby prohibited, pursuant to Water Code Section 350 et seq., Water Code Section 71640 et. Seq. and the common law:

a) There shall be no application of water to sidewalks, walkways, driveways, parking areas, patios, porches, verandas, tennis courts, or other paved, concrete, or other hard surface areas, except that flammable or other similarly dangerous or unhealthy substances may be washed from said areas by direct hose flushing for the benefit of public health or safety.

b) No water shall be used to clean, fill, operate, or maintain levels in decorative fountains unless such water is part of a recirculating system.

c) No person shall permit water to leak from any facility, improvement or plumbing fixture on his/her/its premises; said leak shall be repaired in a timely manner.

d) Washing of automobiles, trucks, trailers, boats, airplanes, and other types of mobile equipment are prohibited unless done with a hand-held bucket or hand-held hose equipped with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use. This section does not apply to the washing of the above-listed vehicles or mobile equipment when conducted at a commercial car wash utilizing recirculating systems.

1. Such washings are exempted from these regulations when the health, safety, and welfare of the public is contingent upon frequent vehicle cleaning such as garbage trucks and vehicles used to transport food and perishables.

e) Use of water for outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures is prohibited .

f) The use of sprinklers for any type of irrigation during high winds, which divert a significant amount of water from the intended landscaping, is prohibited.

g) The irrigation of potable water of ornamental turf on public street medians is prohibited. The term “median” shall mean the strip of land between street lanes.

h) The irrigation with potable water of landscape outside of newly constructed homes and buildings shall be consistent with regulations or other requirements establishments by the California Buildings Standards Commission, as those regulations may be modified from time to time.

2405. <u>STAGE II - WATER ALERT</u>

The District may not be able to meet all water demands of all customers, unless the following water conservation measures are applied:

a) All policies and prohibitions listed in Sections 2403 and 2404.

b) All customers are asked for a minimum twenty percent (20%) reduction of their water consumption over the base year consumption, unless otherwise stated.

c) Operators of hotels and motels must provide guests with the option of choosing not to have towels and linens laundered daily. The hotels and motels shall prominently display notice of this option in each guestroom using clear and easily understood language.

d) All eating establishments, including, but not limited to, restaurants, hotels, cafes, cafeterias, bars or other public places where food or drink are served and/or purchased are prohibited from serving water to their customers except when specifically requested by the customer.

e) District will screen all new applications for water service installations and will limit water use before occupancy to that essential use for construction and testing of landscape plumbing. Limited landscaping for new development shall be allowed as approved by the District.

f) Limit all landscape irrigation to four (4) days per week for no more than ten (10) minutes per station per day. This provision does not apply to any landscape that has water-efficient devices that are operated properly. Water-efficient devices are drip irrigation systems and operational weather-based irrigation controllers. The term "week" is defined as Sunday through Saturday.

g) Repair all leaks within seventy-two (72) hours of notification by the District unless other arrangements are made with the general manager of the District ("General Manager").

h) Water use for compaction, dust control, and other types of construction shall be by permit only and will be limited to conditions of the permit or may be prohibited as determined by the General Manager or his/her designee.

i) Irrigating landscaping, including, but not limited to, turf and ornamental landscapes during and within forty-eight (48) hours following measurable precipitation is prohibited.

2406. <u>STAGE III A - WATER WARNING</u>

District is not able to meet all water demands of all customers; therefore, the following water conservation measures shall apply.

a) All policies and prohibitions listed in Sections 2403, 2404 and 2405.

b) All customers are required to reduce potable water consumption by a minimum of twenty-five (25%) reduction in their water consumption over the base year consumption.

c) Washing of automobiles, trucks, trailers, boats, airplanes, and other types of mobile equipment are prohibited. Washing of the above-listed vehicles or mobile equipment shall be allowed only at a commercial car wash where recirculating water is being utilized.

1. Such washings are exempt from these regulations when the health, safety, and welfare of the public is contingent upon frequent vehicle cleaning such as garbage trucks and vehicles used to transport food and perishables.

d) New water services shall be installed but water shall be used before occupancy for essential construction only and for testing of landscape irrigation systems. The installation of new landscaping for all new development/projects must be approved by the District.

e) Limit all landscape irrigation to three (3) days per week for no more than ten (10) minutes per station per day. Drip systems that are operated efficiently are exempt from these regulations.

f) Repair all leaks within forty-eight (48) hours of notification by the District unless other arrangements are made with the General Manager.

g) All agricultural water users shall irrigate only at times approved by the District.

h) Swimming pools, ornamental pools, fountains, water displays, hot tubs, spas and artificial lakes shall not be filled or refilled after being drained.

i) Water used for compaction, dust control, and other types of construction shall be by permit only and will be limited to conditions of the permit or may be prohibited as determined by the General Manager, or his/her designee.

2407. STAGE III B- WATER WARNING

District is not able to meet all water demands of all customers; therefore, the following water conservation measures shall apply.

a) All policies and prohibitions listed in Sections 2403, 2404, 2405 and 2406 (except 2406 (e)).

b) Limit all landscape irrigation to two (2) days per week for no more than ten (10) minutes per station per day.

2408. STAGE III C- WATER WARNING

District is not able to meet all water demands of all customers; therefore, the following water conservation measures shall apply.

a) All policies and prohibitions listed in Sections 2403, 2404, 2405 and 2406 (except 2406 (e)).

b) Limit all landscape irrigation to one (1) day per week for no more than ten (10) minutes per station per day.

2409. STAGE IV - WATER EMERGENCY

District is experiencing a major failure of supply or distribution; therefore, the following water conservation measures shall apply:

a) All policies and prohibitions shown in Sections 2403, 2404, 2405 and 2406.

b) All customers are required to reduce potable water consumption by a minimum of thirty percent (30%) reduction in their water consumption over the base year consumption.

c) No water shall be used for construction purposes. All construction meters shall be locked off or removed.

d) Commercial nurseries shall water only between the hours of 11:00 p.m. and 6:00 a.m. and only with hand-held devices or with drip irrigation systems.

e) There shall be no watering of any lawn or landscaped area.

f) The use of water shall be limited to essential household, commercial, manufacturing, or processing uses only, except where other uses may be allowed by permit.

g) All agricultural water users shall irrigate only at times approved by the District.

2410. DETERMINATION AND DECLARATION OF WATER CONDITIONS

The General Manager, or his/her designee, shall access all available water supply data and shall make a report of his/her findings to the Board at the next Regular meeting or at a Special meeting called for that purpose. The Board may at that time determine and declare which of the four (4) previously discussed conditions the District's water supply is in and the extent of water conservation required to prudently plan for and supply water to the District's customers.

Thereafter, the Board may order that the appropriate stage of water conservation be implemented or terminated in accordance with the applicable provision of this Ordinance. The declaration of any stage shall be made by public announcement and notice shall be published once in a local

newspaper of general circulation. The stage designated shall become effective immediately upon announcement.

2411. DURATION OF DECLARATION

The declaration of any stage of water supply conditions shall remain in effect until such time as another stage is declared.

2412. AUTHORITY - MISDEMEANOR

This Article is adopted pursuant to Sections 375 and 376 of the California Water Code. Any second or subsequent violation of this policy after notice as specified in Section 2411 1(a) is a misdemeanor. (California Water Code Section 377).

2413. ENFORCEMENT

1. **Violations**. In addition to the remedy of criminal prosecution available to the District as described above, violation of this Ordinance may result in the imposition of surcharges and restriction and/or termination of water service as set forth below:

a) First Violation – Notice of Non-Compliance – a written warning accompanied by a copy of this Ordinance, delivered by U.S. Mail and/or hung on customer's door.

b) Second Violation – Warning of Penalties – a written warning notice of future imposition of penalties that could be placed on the customer's water bill.

c) Third Violation (within one (1) year) - a surcharge of $100.00.

d) Fourth Violation (within one (1) year of the first violation) – a surcharge of $300.00, and installation of flow restricting device in the meter for a minimum of ninety-six (96) hours. Said restricted flow shall meet minimum County Health Department's standards, if any have been established. If said ninety-six (96) hour period ends on a weekend or holiday, full service will be restored during the next business day.

e) Fifth Violation (within one (1) year of the first violation) – a surcharge of $500.00, and termination of service for such period as the Board determines to be appropriate under the circumstances, following a hearing regarding said issue. Written notice of the hearing shall be mailed to the customer at least ten (10) days before the hearing.

2. **Surcharges, Additional Charges**. Any surcharge hereunder shall be in addition to the basic water rates and other charges of the District for the account and shall appear on and be payable with the billing statement for the period during which the violation occurred; non-payment shall be subject to the same remedies available to the District as for non-payment of basic water rates.

In addition to any surcharge, a customer violating this Ordinance shall be responsible for payment of the District's charges for installing and/or removing any flow restricting device and for disconnecting and/or reconnecting service per the District's Schedule of Charges then in effect. Such charges shall be paid prior to the removal of the flow restrictor or reconnection of service, whichever the case may be.

3. **Non-liability for Damage**. The customer or resident who violates this Ordinance thereby assumes responsibility for injury to the customer and/or other residents/occupants receiving service, including emotional distress and/or damage to the customer's private water system and/or to other real or personal property owned by the customer or by a third party resulting from the installation and operation of a flow restricting device or from termination of service; said customer shall thereby be deemed to have: (a) waived any claim for injury or for damage to the customer's property which the customer may otherwise have against the District; and (b) agreed to indemnify, defend, and hold the District harmless from claims by third parties for injury or property damage arising or claimed to arise out of the District's installation and/or operation of a flow restricting device or termination of water service.

4. **Exemptions**. No exemption shall be granted to any person for any reason in the absence of a showing by said person that he/she/it has achieved the maximum practical reduction in water consumption in his/her residential, commercial, industrial, or governmental water consumption as the case may be.

The General Manager, or his/her designee, may grant exemptions ("exceptions" to this Ordinance) for uses of water otherwise prohibited by the regulations. Water customers who feel that they need an adjustment in the prohibitions as they relate to him/her will fill out a simple application form for an exemption stating the justification and circumstances. If the exemption is not granted, customer may appeal in writing as stated in Section 2414.1.

a) Inconvenience or the potential for damage to landscaping shall not be considered for exemption from any section of this Ordinance.

2414. APPEALS

1. **Procedures.** The General Manager, or his/her designated enforcement officer, shall determine when violations have occurred and shall issue to the customer a notice of violation ("Notice of Violation") by mailing same and/or hanging same on the customer's door at least ten (10) days before taking enforcement action. Said notice shall describe the action to be taken (notice of first violation shall simply be accompanied by a copy of this Ordinance) and shall be mailed or delivered at least ten (10) days before the proposed action is scheduled to be taken.

A customer may appeal the Notice of Violation by filing a written notice of appeal with the District no later than the close of business on the day before the date scheduled for enforcement action. Any Notice of Violation not timely appealed shall be final. Upon receipt of a timely appeal, a hearing on the appeal by the Board shall be scheduled at the Board's next Regular meeting or at a Special meeting scheduled for that hearing; in either, the hearing shall be at least

ten (10) days following receipt of the appeal, and the District shall mail written notice of the hearing to the customer at least ten (10) days before the date of said hearing.

2. **Interim Measures**. Pending receipt of a written appeal or pending a hearing pursuant to an appeal, the General Manager or the enforcement officer, if one has been designated, may take appropriate steps to prevent the unauthorized use of water as appropriate to the nature and extent of the violation and the current declared water condition.

2415. IMPLEMENTATION BY GENERAL MANAGER

The General Manager or designated representative is hereby authorized and directed to implement the provisions of this Ordinance. Guidelines regarding implementation procedures may be approved and/or modified from time to time by resolution by the Board.

2416. CEQA EXEMPTION

The adoption of this Ordinance, and the actions taken hereunder, are exempt from the provisions of the California Environmental Quality Act of 1970 in that they constitute a project undertaken as immediate action necessary to prevent or mitigate an emergency pursuant to Section 15071 of the State EIR Guidelines.

2417. DURATION OF ORDINANCE

This Ordinance shall remain in effect until the Board finds that the threatened emergency and threatened water shortage no longer exists. The provisions of this Ordinance shall prevail and control in the event of any inconsistency with any other rules and regulations of the District.

2418. SEVERABILITY

If any section, subsection, sentence, clause, or phrase of this Ordinance is for any reason held to be unconstitutional or invalid, such decision shall not affect the validity of the remaining portions of this Ordinance. The Board hereby declares that it would have passed this Ordinance and each section, subsection, sentence, clause, or phrase thereof irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases may be unconstitutional or invalid.

2419. EFFECTIVE DATE, PUBLISHING, AND POSTING

This Ordinance shall be effective immediately upon adoption. Within ten (10) days of adoption, a copy of this Ordinance shall be published one time in a local newspaper and posted in the lobby of the District Office.

ADOPTED, SIGNED AND APPROVED THIS 6th DAY OF AUGUST, 2015.

Betty Gosney, President of
the Board of Directors

ATTEST:

Peggy Asche, Secretary of the Board of
Directors

Attachment 2: Adoption Resolution

EXHIBIT B

West Valley Water District Draft Water Shortage Contingency Plan

JUNE 2021

West Valley Water District

WEST VALLEY WATER DISTRICT

Draft Water Shortage Contingency Plan

West Valley Water District

JUNE 2021

Prepared by Water Systems Consulting, Inc.

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ACRONYMS & ABBREVIATIONS

AWIA	American Water Infrastructure Association
BTAC	Basin Technical Advisory Committee
CWC	California Water Code
CII	Commercial, Industrial, and Institutional
DWR	California Department of Water Resources
DRA	Drought Risk Assessment
ERP	Emergency Response Plan
GW	Groundwater
IRUWMP	Integrated Regional Urban Water Management Plan
RRA	Risk and Resilience Assessment
SBMWD	San Bernardino Municipal Water Department
SWP	State Water Project
UWWP	Urban Water Management Plan
WSCP	Water Shortage Contingency Plan

WATER SHORTAGE CONTINGENCY PLAN

West Valley Water District

This Water Shortage Contingency Plan is a strategic plan that the West Valley Water District uses to prepare for and respond to water shortages.

The Water Shortage Contingency Plan (WSCP) is a strategic plan that West Valley Water District (WVWD) uses to prepare for and respond to foreseeable and unforeseeable water shortages. A water shortage occurs when water supply available is insufficient to meet the normally expected customer water use at a given point in time. A shortage may occur due to a number of reasons, such as water supply quality changes, climate change, drought, regional power outage, and catastrophic events (e.g., earthquake). Additionally, the State may declare a statewide drought emergency and mandate that water suppliers reduce demands, as occurred in 2014. The WSCP serves as the operating manual that WVWD will use to prevent catastrophic service disruptions through proactive, rather than reactive, mitigation of water shortages. This WSCP provides a process for an annual water supply and demand assessment and structured steps designed to respond to actual conditions. This level of detailed planning and preparation provide accountability and predictability and will help WVWD maintain reliable supplies and reduce the impacts of any supply shortages and/or interruptions.

This WSCP was prepared in conjunction with WVWD's 2020 UWMP, which is included in the 2020 Upper Santa Ana River Watershed Integrated Urban Water Management Plan (2020 IRUWMP) and is a standalone document that can be modified as needed. This document is compliant with the California Water Code (CWC) Section 10632 and incorporated guidance from the State of California Department of Water Resources (DWR) UWMP Guidebook.

IN THIS SECTION

- Water Service Reliability
- Annual Water Supply and Demand Assessment
- Supply Shortage Stages and Response Actions

The WSCP describes the following:

1. **Water Service Reliability Analysis:** Summarizes WVWD's water supply analysis and reliability and identifies any key issues that may trigger a shortage condition.
2. **Annual Water Supply and Demand Assessment Procedures:** Describes the key data inputs, evaluation criteria, and methodology for assessing the system's reliability for the coming year and the steps to formally declare any water shortage stages and response actions.
3. **Water Shortage Stages:** Establishes water shortage stages to clearly identify and prepare for shortages.
4. **Shortage Response Actions:** Describes the response actions that may be implemented or considered for each stage to reduce gaps between supply and demand.
5. **Communication Protocols:** Describes communication protocols under each stage to ensure customers, the public, and government agencies are informed of shortage conditions and requirements.
6. **Compliance and Enforcement:** Defines compliance and enforcement actions available to administer demand reductions.
7. **Legal Authority:** Lists the legal documents that grant WVWD the authority to declare a water shortage and implement and enforce response actions.
8. **Financial Consequences of WSCP Implementation:** Describes the anticipated financial impact of implementing water shortage stages and identifies mitigation strategies to offset financial burdens.
9. **Monitoring and Reporting:** Summarizes the monitoring and reporting techniques to evaluate the effectiveness of shortage response actions and overall WSCP implementation. Results are used to determine if additional shortage response actions should be adjusted.
10. **WSCP Refinement Procedures:** Describes the factors that may trigger updates to the WSCP and outlines how to complete an update.
11. **Plan Adoption, Submittal, and Availability:** Describes the process for the WSCP adoption, submittal, and availability after each revision.

1.0 Water Service Reliability Analysis

As part of the 2020 IRUWMP, WVWD completed a water supply reliability analysis for normal, single-dry, and five-year consecutive dry year periods from 2025-2045. A Drought Risk Assessment (DRA) was also performed to analyze supply reliability under five consecutive years of drought from 2021-2025. As described in **Chapter 3** of the 2020 IRUWMP, the effects of a local drought are not immediately recognized since the region uses the local groundwater basins to simulate a large reservoir for long term storage. WVWD is able to pump additional groundwater to meet increased demands in dry years and participates in efforts to replenish the basins with imported and local water through regional recharge programs. Additionally, WVWD implements several ongoing water conservation measures. Regional recharge programs and conservation help to optimize and enhance the use of regional water resources. **Based on the 2020 IRUWMP analysis, WVWD's water supply is reliable and not expected to see impactful change under drought conditions.**

Even though localized drought conditions should not affect supply, other shortages may occur due to a number of reasons, such as water supply quality changes, regional power outage, State mandates for water use efficiency standards, and catastrophic events (e.g., earthquake). Therefore, WVWD will use this WSCP as appropriate to address shortages and other supply emergencies.

2.0 Annual Water Supply and Demand Assessment

As an urban water supplier, WVWD must prepare and submit an Annual Water Supply and Demand Assessment (Annual Assessment). Starting in 2022, the Annual Assessment will be due by July 1 of every year, as indicated by CWC Section 10632.1. The Annual Assessment is an evaluation of the near-term outlook for supplies and demands to determine whether the potential for a supply shortage exists and whether there is a need to trigger a WSCP shortage stage and response actions in the current calendar year to maintain supply reliability. This process will take place at the same time each year based on known circumstances and information available to WVWD at the time of analysis and can be update or revised at any time if circumstances change.

WVWD will establish and convene an internal WSCP Team to conduct the Annual Assessment each year. The WSCP may include the following staff:

- **Assistant General Manager**
- **Engineering Services Manager**
- **Operations Manager**
- **Production Supervisor**
- **Chief Water Treatment Plant Operator**
- **Director of Finance**

The Annual Assessment procedure, including key data inputs and evaluation criteria, is summarized in **Table 1.** The Annual Assessment procedure and timeline, along with how it integrates with the annual assessment that will be conducted on a regional basis in parallel, is shown graphically in **Figure 1.**

Table 1. Annual Assessment Procedure

TIMING	ASSESSMENT ACTIVITIES	PROCEDURE, KEY DATA INPUTS, EVALUATION CRITERIA AND OTHER CONSIDERATIONS	STAFF RESPONSIBLE
JAN - FEB	Estimate unconstrained demands for coming year	Demands will be estimated based on water sales forecasts from annual budget or prior year demands plus any anticipated changes	Engineering Services Manager, Director of Finance
JAN - FEB	Estimate available supplies for the year, considering the following year will be dry	Each December, WVWD submits an order to Valley District for the volume of SWP water that is planned for use the following year. If the requested volume is not available due to reduced SWP supplies, WVWD will meet with Valley District and other SWP users to discuss reducing SWP orders and may update the Annual Assessment to reflect a shift from SWP to groundwater production, if needed. Estimates of available surface water supplies from the Lytle Creek will be based on annual precipitation and local mountain snowpack. The remainder of supply needs not met from SWP and surface water will be pumped from groundwater basins. The groundwater basins are sustainably managed to provide long term supply reliability and is not anticipated to be impacted in dry years. In the unlikely event that local supplies are reduced, WVWD will coordinate with the BTAC to identify available supplies for the coming year.	Operations Manager, Chief Water Treatment Plant Operator
JAN - FEB	Consider potential constraints that may impact supply delivery	Identify any known regional or WVWD infrastructure issues that may pertain to near-term water supply reliability, including repairs, construction, and environmental mitigation measures that may temporarily constrain capabilities, as well as any new projects that may add to system capacity. Identify any facilities out of service due to water quality problems, equipment failure, etc. that may impact normal water deliveries. Identify any potential or emerging impacts to groundwater quality, such as emerging regulatory constraints that may limit use of available supplies for potable needs.	Operations Manager, Chief Water Treatment Plant Operator, Production Supervisor, Engineering Services Manager

TIMING	ASSESSMENT ACTIVITIES	PROCEDURE, KEY DATA INPUTS, EVALUATION CRITERIA AND OTHER CONSIDERATIONS	STAFF RESPONSIBLE
FEB	Convene WSCP Team to conduct Annual Assessment	Compare supplies and demands and discuss any constraints that may impact supply delivery. If the potential for a shortage exists, determine which shortage response stage and actions are recommended to reduce/eliminate the shortage. Additionally, if the State declares a drought state of emergency and requires demand reductions, the WSCP Team will determine which water shortage stage and response actions are needed to comply with the State mandate.	WSCP Team
JUNE	Board of Directors	If the potential for a shortage exists or the State has mandated demand reductions, the results of the Annual Assessment will be presented to the WVWD Board of Directors, including the recommended shortage stage and response actions. The Board of Directors may order the implementation of a shortage stage and will adopt a resolution declaring the applicable water shortage stage.	General Manager Board of Directors
ON-GOING	Implement WSCP actions, if needed	Relevant members of WVWD staff will implement shortage response actions associated with the declared water shortage stage	WSCP Team
BY JULY 1	Submit Retail Annual Assessment	Send Final Retail Annual Assessment to DWR	Engineering Services Manager

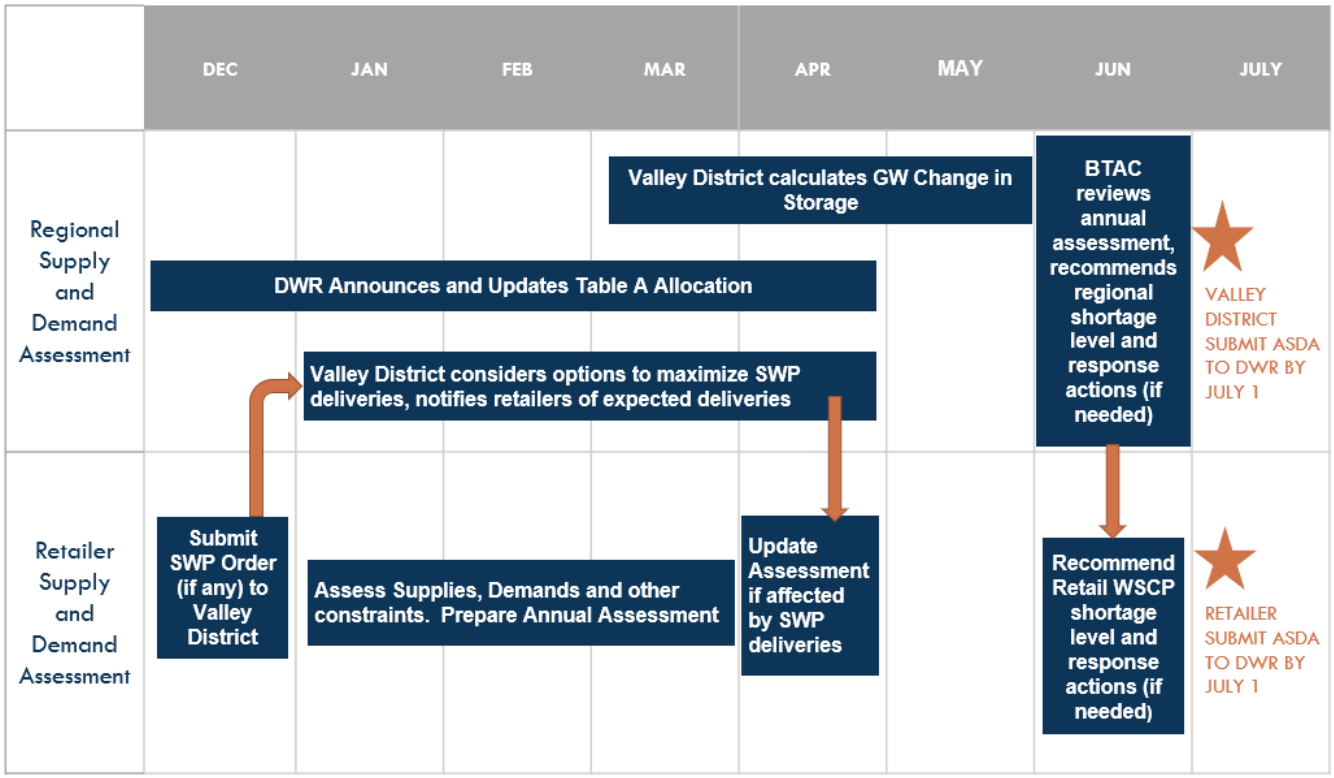

Figure 1. Regional and Retail Agency Annual Assessment Process and Timeline

3.0 Water Shortage Stages

With the exception of a catastrophic failure of infrastructure, WVWD does not foresee imposing a water shortage stage except under the State's direction, as occurred in 2014 or in the event of catastrophic infrastructure failure. If a potential water supply shortage is identified in the Annual Assessment, this section provides information on the water shortage stages and response actions that WVWD may implement.

WVWD uses four (4) shortage stages to identify and respond to water shortage emergencies. At a minimum, WVWD encourages baseline conservation efforts year-round, regardless of a shortage emergency.

Stage I – Normal Conditions:

Normal supply and distribution capacity is available. All policies shown in Section 2403 and the following water conservation measures shall apply.

Stage II – Water Alert:

The District may not be able to meet all water demands of all customers, unless the following water conservation measures are applied.

Stage III – Water Warning (includes sub-stages A, B, and C):

District is not able to meet all water demands of all customers; therefore, the following water conservation measures listed in Table 4 shall apply.

Stage IV: Water Emergency

District is not able to meet all water demands of all customers; therefore, the following water conservation measures listed in Table 4 shall apply.

The CWC outlines six standard water shortage stages that correspond to a gap in supply compared to normal year availability. The six standard water shortage stages correspond to progressively increasing estimated shortage conditions (up to 10-, 20-, 30-, 40-, 50-percent, and greater than 50-percent shortage compared to the normal reliability condition) and align with the response actions that a water supplier would implement to meet the severity of the impending shortages.

The CWC allows suppliers with an existing WSCP that uses different water shortage stages to comply with the six standard stages by developing and including a cross-reference relating its existing shortage categories to the six standard water shortage stages. WVWD is maintaining the current four shortage stages for this WSCP. A crosswalk defines how WVWD's current water shortage stages will align with the DWR's standardized 6 stages of shortage. A visual representation of this alignment is shown in Figure 2.

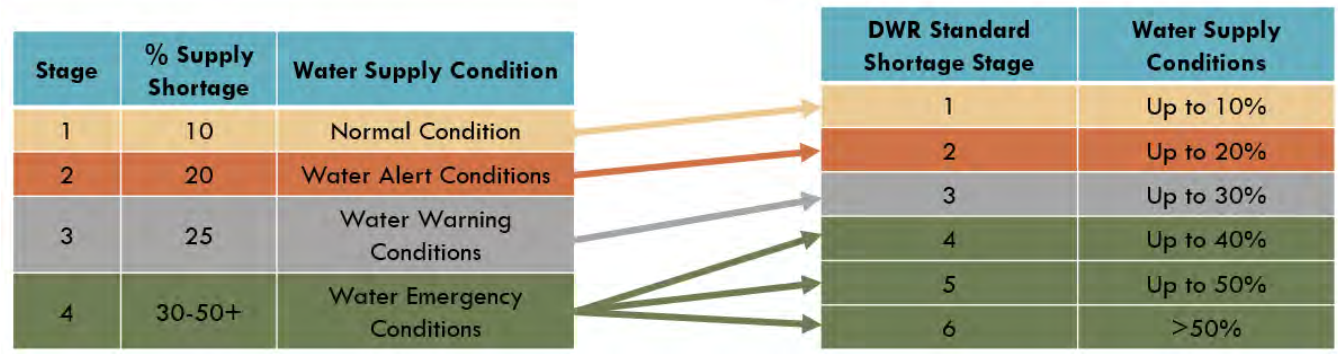

Figure 2. Crosswalk to DWR Six Standard Stages

Table 2: DWR 8-1 Water Shortage Contingency Plan Stages

SHORTAGE STAGE	PERCENT SHORTAGE RANGE[1] (NUMERICAL VALUE AS A PERCENT)	WATER SHORTAGE CONDITION
1	Up to 10%	Normal Conditions (WVWD Stage 1)
2	Up to 20%	Water Alert Condition (WVWD Stage 2)
3	Up to 30%	Water Warning Condition (WVWD Stage 3, 3A, 3B, and 3C)
4	Up to 40%	Water Emergency Condition (WVWD Stage 4)
5	Up to 50%	Water Emergency Condition (WVWD Stage 4)
6	>50%	Water Emergency Condition (WVWD Stage 4)

[1] One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.

4.0 Shortage Response Actions

This section was completed pursuant to CWC Section 10632(a)(4) and 10632.5(a) and describes the response actions that must be implemented or considered for each stage to minimize social and economic impacts to the community.

In accordance with CWC 10632(b) WVWD analyzes and defines water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.

4.1 Supply Augmentation

Table 3 identifies the supply augmentation actions WVWD can take in the event of a water shortage condition. WVWD currently maintains interconnections with the Cities of Rialto, Colton and San Bernardino, the Fontana Water Company, Marygold Mutual Water Company. During water shortage emergencies, WVWD may be able to obtain supplemental water supply through these connections, if available.

Table 3: DWR 8-3R Supply Augmentation & Other Actions

SHORTAGE STAGE	SUPPLY AUGMENTATION METHODS AND OTHER ACTIONS BY WATER SUPPLIER	HOW MUCH IS THIS GOING TO REDUCE THE SHORTAGE GAP?	ADDITIONAL EXPLANATION OR REFERENCE
4	Other purchases	0-100%	WVWD currently has interconnections with the Cities of Rialto, Colton and San Bernardino, the Fontana Water Company, Marygold Mutual Water Company, and Valley District

4.2 Demand Reduction

In addition to prohibitions on end uses, WVWD offers various rebates to encourage conservation (i.e. ultra-low flush toilet replacements, high efficiency washing machines, etc.). WVWD has a water rate structure that promotes water efficiency. The reduction goal is to balance supply and demand. Table 4 summarizes these efforts and end use prohibitions.

Table 4: DWR 8-2 Demand Reduction Actions

SHORTAGE STAGE	DEMAND REDUCTION ACTIONS	HOW MUCH IS THIS GOING TO REDUCE THE SHORTAGE GAP?	ADDITIONAL EXPLANATION OR REFERENCE	PENALTY, CHARGE, OR OTHER ENFORCEMENT
All	Expand Public Information Campaign	0-20%	Provide reminder notices regarding noted water waste and offer community outreach programs	No
1	Landscape - Other landscape restriction or prohibition	0-5%	The use of sprinklers for any type of irrigation during high winds is prohibited.	Yes

SHORTAGE STAGE	DEMAND REDUCTION ACTIONS	HOW MUCH IS THIS GOING TO REDUCE THE SHORTAGE GAP?	ADDITIONAL EXPLANATION OR REFERENCE	PENALTY, CHARGE, OR OTHER ENFORCEMENT
1	Landscape - Limit landscape irrigation to specific times	0-5%	Limit all landscape irrigation to between the hours of 8:00 p.m. and 6:00 a.m. Hand watering should be done between 6:00 p.m. and 8:00 a.m. Drip irrigation and hand watering while gardening is exempt from this recommendation. Water being used during repair or maintenance of watering system is exempt from this section.	Yes
1	Landscape - Restrict or prohibit runoff from landscape irrigation	0-5%	Use of water for outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures is prohibited.	Yes
1	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	0-1%	No person shall permit water to leak from any facility, improvement or plumbing fixture on his/her/its premises; said leak shall be repaired in a timely manner.	Yes
1	Other - Require automatic shut of hoses	0-1%	Washing of automobiles, trucks, trailer, boats, and other mobile equipment is prohibited unless done with a hand held device equipped with an automatic shut off trigger nozzle. This does not apply to commercial car washes utilizing a recycling system or when the health and safety of the public would necessitate.	Yes
1	Water Features - Restrict water use for decorative water features, such as fountains	0-1%	No water shall be used to clean, fill, operate or maintain levels in decorative fountains unless the water is part of a recycling system.	Yes
1	Other - Prohibit use of potable water for washing hard surfaces	0-1%	There shall be no application of water to sidewalks, walkways, driveways, parking areas, patios, porches, verandas, tennis courts, or other paved, concrete, or other hard surface areas, except that flammable or other similarly dangerous or unhealthy substances may be washed from said areas by direct hose flushing for the benefit of public health or safety.	Yes
1	Landscape - Prohibit certain types of	0-5%	The irrigation of potable water of ornamental turf on public street medians is prohibited. The	Yes

SHORTAGE STAGE	DEMAND REDUCTION ACTIONS	HOW MUCH IS THIS GOING TO REDUCE THE SHORTAGE GAP?	ADDITIONAL EXPLANATION OR REFERENCE	PENALTY, CHARGE, OR OTHER ENFORCEMENT
	landscape irrigation		term "median" shall mean the strip of land between street lanes.	
2	Decrease Line Flushing	0-1%		No
2	Other	0-1%	Use historical data instead of performing fire flow tests for new developments	No
2	Other	0-1%	Screen all new applications for water service installations and limit water use before occupancy	No
2	Reduce System Water Loss	0-1%	Repair all leaks within 72 hours	No
2	CII - Restaurants may only serve water upon request	0-1%	All restaurants prohibited from serving water to their customers except when requested by customer.	Yes
2	CII - Lodging establishment must offer opt out of linen service	0-1%	Operators of hotels and motels must provide guests with the option of choosing not to have towels and linens laundered daily. The hotels and motels shall prominently display notice of this option in each guestroom using clear and easily understood language.	Yes
2	Landscape - Limit landscape irrigation to specific days	0-5%	Limit all landscape irrigation to four (4) days per week for no more than ten (10) minutes per station per day. This provision does not apply to any landscape that has waterefficient devices that are operated properly. Waterefficient devices are drip irrigation systems and operational weather-based irrigation controllers. The term "week" is defined as Sunday through Saturday.	Yes
2	Other - Prohibit use of potable water for construction and dust control	0-1%	District will screen all new applications for water service installations and will limit water use before occupancy to that essential use for construction and testing of landscape plumbing. Limited landscaping for new development shall be allowed as approved by the District. Water use for compaction, dust control, and other types of construction shall be by permit only and will be limited to conditions of the permit or may be prohibited as determined by the General Manager or his/her designee.	Yes
2	Other - Customers must	0-1%	Repair all leaks within seventy-two (72) hours of notification by the District unless other	Yes

SHORTAGE STAGE	DEMAND REDUCTION ACTIONS	HOW MUCH IS THIS GOING TO REDUCE THE SHORTAGE GAP?	ADDITIONAL EXPLANATION OR REFERENCE	PENALTY, CHARGE, OR OTHER ENFORCEMENT
	repair leaks, breaks, and malfunctions in a timely manner		arrangements are made with the general manager of the District ("General Manager").	
2	Landscape - Other landscape restriction or prohibition	0-5%	Irrigating landscaping, including, but not limited to, turf and ornamental landscapes during and within forty-eight (48) hours following measurable precipitation is prohibited.	Yes
2	Other water feature or swimming pool restriction	0-1%	Swimming pools, hot tubs, and spas shall not be filled or refilled after being drained.	Yes
2	Other water feature or swimming pool restriction	0-1%	Ornamental pools, fountains, water displays, and artificial lakes shall not be filled or refilled after being drained.	Yes
2	Other - Prohibit use of potable water for construction and dust control	0-1%	Water used for compaction, dust control, and other types of construction shall be by permit only and will be limited to conditions of the permit or may be prohibited as determined by the General Manager, or his/her designee.	Yes
3	Reduce System Water Loss	0-1%	Repair all leaks within 48 hours	No
3A	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	0-1%	Washing of automobiles, trucks, trailers, boats, airplanes, and other types of mobile equipment are prohibited. Washing of the above-listed vehicles or mobile equipment shall be allowed only at a commercial car wash where recirculating water is being utilized.	Yes
3A	Landscape - Limit landscape irrigation to specific times	0-5%	All agricultural water users shall irrigate only at times approved by the District.	Yes
3A	Water Features - Restrict water use for decorative water features, such as fountains	0-1%	Swimming pools, hot tubs, and spas shall not be refilled or filled after being drained.	Yes

SHORTAGE STAGE	DEMAND REDUCTION ACTIONS	HOW MUCH IS THIS GOING TO REDUCE THE SHORTAGE GAP?	ADDITIONAL EXPLANATION OR REFERENCE	PENALTY, CHARGE, OR OTHER ENFORCEMENT
3A	Water Features - Restrict water use for decorative water features, such as fountains	0-1%	Ornamental pools, fountains, water displays, and artificial lakes shall not be refilled or filled after being drained.	Yes
3A	Landscape - Limit landscape irrigation to specific days	0-5%	Limit all landscape irrigation to three (3) days per week for no more than ten (10) minutes per station per day. Drip systems that are operated efficiently are exempt from these regulations.	Yes
3A	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	0-1%	Repair all leaks within forty-eight (48) hours of notification by the District unless other arrangements are made with the General Manager.	Yes
3B	Landscape - Limit landscape irrigation to specific days	5-20%	Limit all landscape irrigation to two (2) days per week for no more than ten (10) minutes per station per day.	Yes
3C	Landscape - Limit landscape irrigation to specific days	10-30%	Limit all landscape irrigation to one (1) day per week for no more than ten (10) minutes per station per day.	Yes
4	Landscape - Prohibit all landscape irrigation	10-30%	No lawn or landscape water will be allowed	Yes
4	Other - Prohibit use of potable water for construction and dust control	0-5%	No construction water use to be allowed, construction meters to be locked off or removed.	Yes
4	CII - Other CII restriction or prohibition	0-5%	Commercial nurseries shall water only between the hours of 11:00 p.m. and 6:00 a.m. and only with hand-held devices or with drip irrigation systems.	Yes
4	Landscape - Prohibit all landscape irrigation	10-30%	The use of water shall be limited to essential household, commercial, manufacturing, or processing uses only, except where other uses may be allowed by permit	Yes

SHORTAGE STAGE	DEMAND REDUCTION ACTIONS	HOW MUCH IS THIS GOING TO REDUCE THE SHORTAGE GAP?	ADDITIONAL EXPLANATION OR REFERENCE	PENALTY, CHARGE, OR OTHER ENFORCEMENT
4	Landscape - Limit landscape irrigation to specific times	0-5%	All agricultural water users shall irrigate only at times approved by the District.	Yes

4.3 Operational Changes and Additional Mandatory Restrictions

During shortage conditions, operations may be affected by supply augmentation or demand reduction responses. WVWD will consider their operational procedures when it completes its Annual Assessment. Any additional mandatory restrictions implemented in response to the declaration of a shortage response stage, beyond the actions listed in **Table 3** and **Table 4** are listed in WVWD's Ordinance Number 80 Article No. 24 provided as **Attachment 1.**

4.4 Emergency Response Plan

In 2021, WVWD completed a Risk and Resilience Assessment (RRA) and Emergency Response Plan (ERP) in accordance with America's Water Infrastructure Act (AWIA) of 2018. The purpose of the RRA and ERP is to meet the AWIA compliance requirements and plan for long-term resilience of WVWD's infrastructure. The RRA assessed WVWD's water system to identify critical assets and processes that may be vulnerable to human and natural hazards, and to identify measures that can be taken to reduce risk and enhance resilience from service disruption for the benefit of customers. The RRA identifies and characterizes both infrastructure-specific and system-wide vulnerabilities and threats and quantifies the consequences of disruption. The RRA also identifies various options (and constraints) in addressing and mitigating risk. The RRA, in conjunction with the Emergency Response Plan (ERP), charts a course for water system resilience. The RRA also provided various recommendations to increase reliability of WVWD's system. Since critical pieces of infrastructure and specific vulnerabilities are detailed in the RRA and ERP, the contents of the document are confidential and for use by WVWD's staff only. However, WVWD can confirm that these plans meet the requirements set forth by AWIA and evaluate seismic risks and mitigation actions to WVWD's infrastructure.

In the event of a water shortage emergency resulting from equipment failure, power outage, or other catastrophe, WVWD is prepared to purchase emergency water supplies from nearby agencies while repairs or other remedial actions are underway. WVWD may also implement its four-stage plan for conservation, as described above, with either voluntary or mandatory reductions depending on the severity of the shortage. For severe disasters (Stage 4), mandatory water use reductions are specified.

4.5 Seismic Risk Assessment and Mitigation Plan

Disasters, such as earthquakes, can and will occur without notice. In order to respond to disasters WVWD has assessed the seismic risk and reliance of WVWD's water facilities in the RRA mentioned in the section above.

In the event of an extended multi-week supply shortages due to natural disasters or accidents which damage all water source, WVWD's 25 storage reservoirs have a combined capacity of over 72 million gallons, which is sufficient water to meet the health and safety requirements of 50 gallons per day per capita for approximately

80,000 residents for 18 days. This assumes zero non-residential use. Under emergency power outages or catastrophic earthquake conditions, the existing storage is expected to provide a supply of four days of average day demand or 2.5 days under maximum summer demand. WVWD also has interconnections with other agencies for emergency supplies.

WVWD has portable back-up generators that can be used in the event of an area-wide power outage. These generators can be located on both wells and booster stations to continue water production. These generators will be located in the northern part of the distribution system. Water can then be boosted to higher zones or gravity fed to the lower zones. In addition to the portable generators, WVWD will be installing back-up generators at the Zone 5 and 6 booster stations.

4.6 Shortage Response Action Effectiveness

WVWD has estimated the effectiveness of shortage response actions in Table 3 and Table 4 when data pertaining to such actions is available. It is expected that response actions effectiveness is also a result of successful communication and outreach efforts.

5.0 Communication Protocols

The West Valley Water District prioritizes effective communication, especially in times of a water shortage emergency. WVWD routinely communicates to customers about details on when a stage is announced. Communication actions may include bill inserts, handouts, informative flyers, and direct mail pieces to newspaper and bus shelter advertisements, news releases, social media outreach, and website content. WVWD continues to provide reminders about shortage stages and encourages conservation at all times.

6.0 Compliance and Enforcement

Consumption limits in the progressively restrictive stages are imposed on different uses. These are based on percentage reductions in water allotments, and restrictions on specific uses. The specific percentage reductions at each stage and for each user class are detailed in the ordinance. The individual customer allotments will be based on the previous year's use. This provides WVWD a basis for reviewing appeals.

Mandatory provisions to reduce water use during the different stages of water shortage are also summarized in the ordinance. Provisions of Article 24 - Water Conservation, adopted August 6, 2015, were adopted pursuant to Sections 375 and 376 of the CWC. Any second or subsequent violation of this policy after notice as specified in Section 2411 1(a) is a misdemeanor (CWC Section 377).

In addition to the remedy of criminal prosecution available to the District, violation of the Ordinance may result in the imposition of surcharges and restriction and/or termination of water service as set forth below:

1. **First Violation –** Notice of Non-Compliance – a written warning accompanied by a copy of this Ordinance, delivered by U.S. Mail and/or hung on customer's door.
2. **Second Violation – Warning of Penalties –** a written warning notice of future imposition of penalties that could be placed on the customer's water bill.

3. **Third Violation (within one (1) year) -** a surcharge of $100.00.
4. **Fourth Violation (within one (1) year of the first violation) –** a surcharge of $300.00, and installation of flow restricting device in the meter for a minimum of ninety-six (96) hours. Said restricted flow shall meet minimum County Health Department's standards, if any have been established. If said ninety-six (96) hour period ends on a weekend or holiday, full service will be restored during the next business day.
5. **Fifth Violation (within one (1) year of the first violation) –** a surcharge of $500.00, and termination of service for such period as the Board determines to be appropriate under the circumstances, following a hearing regarding said issue. Written notice of the hearing shall be mailed to the customer at least ten (10) days before the hearing.

Any surcharge hereunder shall be in addition to the basic water rates and other charges of the District for the account and shall appear on and be payable with the billing statement for the period during which the violation occurred; non-payment shall be subject to the same remedies available to the District as for non-payment of basic water rates.

In addition to any surcharge, a customer violating this Ordinance shall be responsible for payment of the District's charges for installing and/or removing any flow restricting device and for disconnecting and/or reconnecting service per the District's Schedule of Charges then in effect. Such charges shall be paid prior to the removal of the flow restrictor or reconnection of service, whichever the case may be.

7.0 Legal Authorities

To offset the prolonged effects of the drought periods, the Board of Directors adopted a Water Conservation Plan with Ordinance No. 68 on July 5, 1990 by adding Article No. 24 entitled "Water Conservation" to its water service regulations and a WSCP with Ordinance No. 69 on February 6, 1992 which amended portions of the Water Conservation Plan. On August 6, 2015, the Board of Directors amended Resolution No. 387 through Ordinance Number 80, included as **Attachment 1**, which established water service regulations, schedules of rates, and charges. Article No. 24 describes Water Conservation objectives and outlines four stages of action to be implemented during a water shortage. WVWD's Plan includes voluntary and mandatory stages.

The purpose of Article 24 is to provide water conservation measures in order to minimize the effect of a water shortage on the citizens of, and the economic well-being of, the communities WVWD serves. This Article adopts provisions that will significantly reduce the wasteful and inefficient consumption of water, thereby extending the available water resources required for the domestic, sanitation, and fire protection needs of the citizens of the communities they serve while reducing the hardship on WVWD and the general public to the greatest extent possible.

7.1 Water Shortage Emergency Declaration

In accordance with CWC Section Division 1, Section 350 – WVWD shall declare a water shortage emergency condition to prevail within the area served by such distributor whenever it finds and determines that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the distributor to the extent that there would be insufficient water for human consumption, sanitation, and fire protection.

7.2 Local/Regional Emergency Declaration

If a water shortage is approaching, WVWD shall coordinate with any the cities and counties in its service area for the possible proclamation of a local emergency.

8.0 Financial Consequences of WSCP

To ensure WVWD's customers comply with Article 24 and CWC Chapter 3.3 (Excessive Residential Water Use During Drought), additional costs may be incurred to monitor and enforce response actions. The financial consequences a water shortage can have on WVWD and the local community will depend on the duration and level of severity. During Stages 2 through 4 of the District's WSCP, water consumption will decrease based upon each individual stage and the amount of reduction goal achieved. The impacts of these reductions will result in a reduction in water sales revenues and a reduction of water production expenditures. To mitigate the financial impacts of a water shortage, WVWD maintains sufficient funds within a Rate Stabilization Account. These funds could be used to stabilize water rates during periods of water shortage or disasters affecting the water supply.

9.0 Monitoring and Reporting

The water savings from implementation of the WSCP will be determined based on monthly production reports which are reviewed and compared to production reports and pumping statistics from prior months and the same period of the prior year. Under shortage conditions, these production reports could be prepared as often as daily. At first, the cumulative consumption for the various sectors (e.g., residential, commercial, etc.) will be evaluated for reaching the target level. Then if needed, individual accounts will be monitored. Weather and other possible influences may be accounted for in the evaluation.

10.0 WSCP Refinement Procedures

The WSCP is best prepared and implemented as an adaptive management plan. WVWD will use results obtained from their monitoring and reporting program to evaluate any needs for revisions. Potential changes to the WSCP that would warrant an update include, but are not limited to, any changes to trigger conditions, changes to the shortage stage structure, and/or changes to customer reduction actions.

Any prospective changes to the WSCP would need to be presented to WVWD's Board for discretionary approval. Once discretionary approval has been granted, WVWD will hold a public hearing, obtain any comments and adopt the updated WSCP. Notices for refinement and the public hearing date will be published in the local newspaper in advance of any public meetings.

11.0 Plan Adoption, Submittal and Availability

WVWD adopted this WSCP with the 2020 IRUWMP. The 2020 IRUWMP and WSCP were made available for public review in June 2021 and a public hearing was held on **June 17, 2021** to receive public input on the draft 2020 IRUWMP and the WSCP.

The WVWD Board of Directors adopted the 2020 IRUWMP and the WSCP at a public meeting on **June 17, 2021.** The resolution of adoption is included as an attachment.

This WSCP was submitted to DWR through the WUEData portal before the deadline of **July 1, 2021.**

This WSCP will be available to the public on West Valley Water District web site.

If WVWD identifies the need to amend this WSCP, it will follow the same procedures for notification to cities, counties and the public as used for the 2020 IRUWMP and for initial adoption of the WSCP.

References

California Department of Water Resources. (2021). *Urban Water Management Plan Guidebook 2020.* Sacramento: California Department of Water Resources.

Texas Living Waters Project. (2018). *Water Conservation by the Yard: A Statewide Analysis of Outdoor Water Savings Potential.* Austin: Texas Living Waters Project, Sierra Club, National Wildlife Federation. Retrieved from Texas Living Waters Project.

United States Environmental Protection Agency, Office of Water. (2002). *Cases in Water Conservation: How Efficiency Programs Help Water Utilities Save Water and Avoid Costs.* United States Environmental Protection Agency.

Attachment 1: WVWD'S Article No. 24 - Water Conservation

ORDINANCE NO. 80
AN ORDINANCE OF THE BOARD OF DIRECTORS OF THE WEST VALLEY WATER DISTRICT RESCINDING ORDINANCE 79 AND AMENDING RESOLUTION NO. 387, WATER SERVICE REGULATIONS, BY AMENDING ARTICLE NO. 24 - WATER CONSERVATION

WHEREAS, Article 10, Section 2 of the California Constitution declares that waters of the State are to be put to beneficial use, that waste, unreasonable use, or unreasonable method of use of water be prevented, and that water be conserved for the public welfare; and

WHEREAS, the water resources of West Valley Water District ("District") are limited and finite; and

WHEREAS, conservation of certain water supplies and minimization of the effects of water supply shortages that are the result of drought are essential to the public health, safety and welfare; and

WHEREAS, regulation of the time of certain water use and manner of use provide an effective and immediately available means of conserving water; and

WHEREAS, California Water Code Sections 375 et seq. authorize water suppliers to adopt and enforce a comprehensive water conservation program; and

WHEREAS, pursuant to such authority the Board of Directors ("Board") of District adopted Ordinance No. 68 amending Resolution No. 387, to add Article 24 to the District's Service Regulations ("Article 24"); and

WHEREAS, the Board adopted Ordinance No. 78, rescinding Ordinance No. 68, and amending Resolution No. 387, by amending Article 24; and

WHEREAS, the Board adopted Ordinance No. 79, rescinding Ordinance No. 78, and amending Resolution No. 387, by amending Article 24; and

WHEREAS, the adoption of this Ordinance will allow the District to delay or avoid the implementation of more restrictive water use regulations provided that nothing in this Ordinance will prevent the District from implementing more restrictive regulations as authorized by California Water Code Section 350 et. seq; and

WHEREAS, the District has adopted an Urban Water Management Plan ("Plan") that includes water conservation as a necessary and effective component to provide a reliable source of water to meet the needs of the District's customers. The Plan also includes an analysis of actions to be taken in response to water supply shortages. This Ordinance is consistent with the District's

Plan; and

WHEREAS, the State Water Resources Control Board adopted Resolution No. 2014-0038, No. 2014-0718-01E and 2015-0032 to adopt an emergency regulation for statewide urban water conservation ("State Board Regulations"). The State Board Regulations set forth certain prohibited activities and certain actions to be taken by water suppliers, such as the District; and

WHEREAS, the water conservation measures and progressive restrictions on water use identified by this Ordinance provide certainty to water users and enable District to control water use and plan and implement water measures in a fair and orderly manner for the benefit of the public. This Ordinance is further intended to comply with the mandates of the State Board Regulations as such applies to the District.

NOW, THEREFORE, THE BOARD OF DIRECTORS OF WEST VALLEY WATER DISTRICT does ordain that Resolution 387 is hereby amended to amend Article 24 to read as follows:

ARTICLE 24
WATER CONSERVATION

1. Purpose. The purpose of this Article is to provide water conservation measures in order to minimize the effect(s) of a water shortage on the citizens of, visitors to, and the economic well-being of the communities we serve and, by means of this Article, to adopt provisions that will significantly reduce the wasteful and inefficient consumption of water, thereby extending the available water resources required for the domestic, sanitation, and fire protection needs of the citizens of, and visitors to, the communities we serve while reducing the hardship on the District and the general public to the greatest extent possible.

2. Application. The provisions of this Article shall apply to all customers and property within the service area of the District and shall also apply to all property and facilities owned, maintained, operated, or otherwise under the jurisdiction of the District.

a) Exception. The prohibited uses of water provided for by this Ordinance are not applicable to that use of water necessary for public health and safety or for essential government services such as police, fire, and similar emergency services.

3. Policy. Due to the fact that we are located in a semi-arid region and our groundwater is of limited supply and in an overdraft condition and because of these conditions prevailing in the District and areas elsewhere from which the District obtains its water supplies, the general welfare requires that the water resources available to the District be put to the maximum beneficial use to the extent to which they are capable and that the wasteful, inefficient, or unreasonable use, or method of use of our previous, limited, and finite water resources be prevented.

As such, the conservation of such waters is to be exercised with a view to the reasonable and

beneficial and efficient use thereof in the interests of the people of the District and for the public welfare.

Therefore, the District establishes the following goals, objectives, policies, and four-stage water conservation plan pertaining to the conservation and use of water:

2401. GOALS

< The conservation of water.

< The efficient use and distribution of available water supplies.

< Adequate and sufficient potable water supply and availability for the greatest public benefit, with particular regard to human consumption, sanitation, and fire protection.

< Maintain high quality customer service.

< Ensure fiscal soundness.

< Protect environmental quality.

< Meet growing water quality regulations.

< To reduce water consumption in accordance with State law, including, but not limited to the State Board Regulations.

2402. OBJECTIVES

< To conserve all available water supplies.

< To achieve an overall water use reduction.

< To reduce the volume of wastewater.

< To continuously increase consumer awareness about the need for and benefits of water conservation.

< To reduce or eliminate wasteful and inefficient uses of water.

< To assure an adequate supply of potable water sufficient to meet the essential private and public needs of the District's growing population and economy of those communities in which we serve.

< To assure that all new developments and existing dwellings which are remodeled or

added to are equipped with water-conserving devices, fixtures, and appliances.

< To increase the use of native or water-conserving plant species for landscaping purposes.

< The term "base year" shall have the following meaning:

a) The year 2013, if the customer occupied the subject real property for the entire year.

b) If the customer did not occupy the subject real property for the entire year of 2013, the base year for that customer would be the first twelve (12) months the customer occupied the subject real property in or after 2013.

c) If the customer has not occupied the subject real property for a twelve (12) month period on the adoption of this Ordinance, then the District will use the consumption history for the period of time the customer has occupied the subject real property. If the customer has no consumption history for the subject real property then the District will determine goals for that customer based on the averaging of other real properties with similar service types and meter sizes within the same meter reading route (as determined by the District) for the months without consumption history. The customer shall have a ten (10) day period after the customer receives the goals to appeal that determination to the General Manager (as defined herein), in writing. If the customer fails to appeal the determination within the ten (10) day period the goals shall be final. Upon receipt of a timely appeal, the General Manager shall schedule a hearing at which the General Manager or his/her designated representative shall act as the hearing officer. The hearing shall be at least ten (10) days following receipt of the appeal, and the District shall mail written notice of the hearing to the customer at least ten (10) days before the date of said hearing. The determination of the hearing officer with respect to the goals shall be final.

2403. <u>POLICIES</u>

< As a condition of water service, all new structures shall be equipped with high efficiency toilets (1.28 gallons per flush max) as per Section 17921.3 of the California Health and Safety Code, and with low-flow showers and faucets as per Title 24, Part 6, Article 1, T20-1406F of the California Administrative Code, in addition to the insulating of all hot water lines according to California Energy Commission Rules. "New Structures" shall mean buildings obtaining occupancy permits after the effective date of this Ordinance.

As a condition of continued water service, existing structures not so equipped, which require building permits to remodel or expand, shall be retrofitted with toilet tank dams

resulting in 1.28 gallon flushes unless the toilets are to be replaced, in which case the new toilets shall be ultra low-flush (1.28gpf), as stated above, and low-flow showers and faucets. Certification of compliance with this Ordinance shall be forwarded to the District.

< The use of lawns shall be minimized in new commercial, hotel, condominium, and high-density housing and shall be subject to District review and conditioning of projects. The use of native or water-conserving trees, shrubs, lawns, grass, ground cover, vines, and other plant species for landscape planting or replanting purposes is required and shall be approved by the District. (A list of such plants can be obtained at the District office.)

< Large water users, as determined by the District, shall submit a water conservation plan to the District and promote implementation of same as a condition to continued service.

< Water demand, use, and mitigation shall be address in every Environmental Impact Report.

< The District shall:

a) Cooperate with other local water purveyors, appropriate state and other responsible agencies in facilitating a continuous program to increase consumer awareness about the need for and benefits of water conservation.

b) Encourage large water users to implement water recycling and reuse processes.

c) Make water conservation as reliable a method of reducing water demands as water supply projects are in meeting such demands.

2404. STAGE I - NORMAL CONDITION

Normal supply and distribution capacity is available. All policies shown in Section 2403 and the following water conservation measures shall apply.

1. Recommendations for use of water.

a) Limit all landscape irrigation to between the hours of 8:00 p.m. and 6:00 a.m. Hand watering should be done between 6:00 p.m. and 8:00 a.m. Drip irrigation and hand watering while gardening is exempt from this recommendation. Water being used during repair or maintenance of watering system is exempt from this section.

b) Water conservation should be practiced within the home or business.

c) All restaurants and food establishments are requested not to serve water to their customers unless specifically requested by the customer.

2. The following uses of water are hereafter considered non-essential to the public health, safety and welfare and, if allowed, would constitute the wasting of water and is hereby prohibited, pursuant to Water Code Section 350 et seq., Water Code Section 71640 et. Seq. and the common law:

a) There shall be no application of water to sidewalks, walkways, driveways, parking areas, patios, porches, verandas, tennis courts, or other paved, concrete, or other hard surface areas, except that flammable or other similarly dangerous or unhealthy substances may be washed from said areas by direct hose flushing for the benefit of public health or safety.

b) No water shall be used to clean, fill, operate, or maintain levels in decorative fountains unless such water is part of a recirculating system.

c) No person shall permit water to leak from any facility, improvement or plumbing fixture on his/her/its premises; said leak shall be repaired in a timely manner.

d) Washing of automobiles, trucks, trailers, boats, airplanes, and other types of mobile equipment are prohibited unless done with a hand-held bucket or hand-held hose equipped with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use. This section does not apply to the washing of the above-listed vehicles or mobile equipment when conducted at a commercial car wash utilizing recirculating systems.

1. Such washings are exempted from these regulations when the health, safety, and welfare of the public is contingent upon frequent vehicle cleaning such as garbage trucks and vehicles used to transport food and perishables.

e) Use of water for outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures is prohibited .

f) The use of sprinklers for any type of irrigation during high winds, which divert a significant amount of water from the intended landscaping, is prohibited.

g) The irrigation of potable water of ornamental turf on public street medians is prohibited. The term “median” shall mean the strip of land between street lanes.

h) The irrigation with potable water of landscape outside of newly constructed homes and buildings shall be consistent with regulations or other requirements establishments by the California Buildings Standards Commission, as those regulations may be modified from time to time.

2405. <u>STAGE II - WATER ALERT</u>

The District may not be able to meet all water demands of all customers, unless the following water conservation measures are applied:

a) All policies and prohibitions listed in Sections 2403 and 2404.

b) All customers are asked for a minimum twenty percent (20%) reduction of their water consumption over the base year consumption, unless otherwise stated.

c) Operators of hotels and motels must provide guests with the option of choosing not to have towels and linens laundered daily. The hotels and motels shall prominently display notice of this option in each guestroom using clear and easily understood language.

d) All eating establishments, including, but not limited to, restaurants, hotels, cafes, cafeterias, bars or other public places where food or drink are served and/or purchased are prohibited from serving water to their customers except when specifically requested by the customer.

e) District will screen all new applications for water service installations and will limit water use before occupancy to that essential use for construction and testing of landscape plumbing. Limited landscaping for new development shall be allowed as approved by the District.

f) Limit all landscape irrigation to four (4) days per week for no more than ten (10) minutes per station per day. This provision does not apply to any landscape that has water-efficient devices that are operated properly. Water-efficient devices are drip irrigation systems and operational weather-based irrigation controllers. The term "week" is defined as Sunday through Saturday.

g) Repair all leaks within seventy-two (72) hours of notification by the District unless other arrangements are made with the general manager of the District ("General Manager").

h) Water use for compaction, dust control, and other types of construction shall be by permit only and will be limited to conditions of the permit or may be prohibited as determined by the General Manager or his/her designee.

i) Irrigating landscaping, including, but not limited to, turf and ornamental landscapes during and within forty-eight (48) hours following measurable precipitation is prohibited.

2406. <u>STAGE III A - WATER WARNING</u>

District is not able to meet all water demands of all customers; therefore, the following water conservation measures shall apply.

a) All policies and prohibitions listed in Sections 2403, 2404 and 2405.

b) All customers are required to reduce potable water consumption by a minimum of twenty-five (25%) reduction in their water consumption over the base year consumption.

c) Washing of automobiles, trucks, trailers, boats, airplanes, and other types of mobile equipment are prohibited. Washing of the above-listed vehicles or mobile equipment shall be allowed only at a commercial car wash where recirculating water is being utilized.

1. Such washings are exempt from these regulations when the health, safety, and welfare of the public is contingent upon frequent vehicle cleaning such as garbage trucks and vehicles used to transport food and perishables.

d) New water services shall be installed but water shall be used before occupancy for essential construction only and for testing of landscape irrigation systems. The installation of new landscaping for all new development/projects must be approved by the District.

e) Limit all landscape irrigation to three (3) days per week for no more than ten (10) minutes per station per day. Drip systems that are operated efficiently are exempt from these regulations.

f) Repair all leaks within forty-eight (48) hours of notification by the District unless other arrangements are made with the General Manager.

g) All agricultural water users shall irrigate only at times approved by the District.

h) Swimming pools, ornamental pools, fountains, water displays, hot tubs, spas and artificial lakes shall not be filled or refilled after being drained.

i) Water used for compaction, dust control, and other types of construction shall be by permit only and will be limited to conditions of the permit or may be prohibited as determined by the General Manager, or his/her designee.

2407. STAGE III B- WATER WARNING

District is not able to meet all water demands of all customers; therefore, the following water conservation measures shall apply.

a) All policies and prohibitions listed in Sections 2403, 2404, 2405 and 2406 (except 2406 (e)).

b) Limit all landscape irrigation to two (2) days per week for no more than ten (10) minutes per station per day.

2408. STAGE III C- WATER WARNING

District is not able to meet all water demands of all customers; therefore, the following water conservation measures shall apply.

a) All policies and prohibitions listed in Sections 2403, 2404, 2405 and 2406 (except 2406 (e)).

b) Limit all landscape irrigation to one (1) day per week for no more than ten (10) minutes per station per day.

2409. STAGE IV - WATER EMERGENCY

District is experiencing a major failure of supply or distribution; therefore, the following water conservation measures shall apply:

a) All policies and prohibitions shown in Sections 2403, 2404, 2405 and 2406.

b) All customers are required to reduce potable water consumption by a minimum of thirty percent (30%) reduction in their water consumption over the base year consumption.

c) No water shall be used for construction purposes. All construction meters shall be locked off or removed.

d) Commercial nurseries shall water only between the hours of 11:00 p.m. and 6:00 a.m. and only with hand-held devices or with drip irrigation systems.

e) There shall be no watering of any lawn or landscaped area.

f) The use of water shall be limited to essential household, commercial, manufacturing, or processing uses only, except where other uses may be allowed by permit.

g) All agricultural water users shall irrigate only at times approved by the District.

2410. DETERMINATION AND DECLARATION OF WATER CONDITIONS

The General Manager, or his/her designee, shall access all available water supply data and shall make a report of his/her findings to the Board at the next Regular meeting or at a Special meeting called for that purpose. The Board may at that time determine and declare which of the four (4) previously discussed conditions the District's water supply is in and the extent of water conservation required to prudently plan for and supply water to the District's customers.

Thereafter, the Board may order that the appropriate stage of water conservation be implemented or terminated in accordance with the applicable provision of this Ordinance. The declaration of any stage shall be made by public announcement and notice shall be published once in a local

newspaper of general circulation. The stage designated shall become effective immediately upon announcement.

2411. DURATION OF DECLARATION

The declaration of any stage of water supply conditions shall remain in effect until such time as another stage is declared.

2412. AUTHORITY - MISDEMEANOR

This Article is adopted pursuant to Sections 375 and 376 of the California Water Code. Any second or subsequent violation of this policy after notice as specified in Section 2411 1(a) is a misdemeanor. (California Water Code Section 377).

2413. ENFORCEMENT

1. **Violations**. In addition to the remedy of criminal prosecution available to the District as described above, violation of this Ordinance may result in the imposition of surcharges and restriction and/or termination of water service as set forth below:

a) First Violation – Notice of Non-Compliance – a written warning accompanied by a copy of this Ordinance, delivered by U.S. Mail and/or hung on customer's door.

b) Second Violation – Warning of Penalties – a written warning notice of future imposition of penalties that could be placed on the customer's water bill.

c) Third Violation (within one (1) year) - a surcharge of $100.00.

d) Fourth Violation (within one (1) year of the first violation) – a surcharge of $300.00, and installation of flow restricting device in the meter for a minimum of ninety-six (96) hours. Said restricted flow shall meet minimum County Health Department's standards, if any have been established. If said ninety-six (96) hour period ends on a weekend or holiday, full service will be restored during the next business day.

e) Fifth Violation (within one (1) year of the first violation) – a surcharge of $500.00, and termination of service for such period as the Board determines to be appropriate under the circumstances, following a hearing regarding said issue. Written notice of the hearing shall be mailed to the customer at least ten (10) days before the hearing.

2. **Surcharges, Additional Charges**. Any surcharge hereunder shall be in addition to the basic water rates and other charges of the District for the account and shall appear on and be payable with the billing statement for the period during which the violation occurred; non-payment shall be subject to the same remedies available to the District as for non-payment of basic water rates.

In addition to any surcharge, a customer violating this Ordinance shall be responsible for payment of the District's charges for installing and/or removing any flow restricting device and for disconnecting and/or reconnecting service per the District's Schedule of Charges then in effect. Such charges shall be paid prior to the removal of the flow restrictor or reconnection of service, whichever the case may be.

3. **Non-liability for Damage**. The customer or resident who violates this Ordinance thereby assumes responsibility for injury to the customer and/or other residents/occupants receiving service, including emotional distress and/or damage to the customer's private water system and/or to other real or personal property owned by the customer or by a third party resulting from the installation and operation of a flow restricting device or from termination of service; said customer shall thereby be deemed to have: (a) waived any claim for injury or for damage to the customer's property which the customer may otherwise have against the District; and (b) agreed to indemnify, defend, and hold the District harmless from claims by third parties for injury or property damage arising or claimed to arise out of the District's installation and/or operation of a flow restricting device or termination of water service.

4. **Exemptions**. No exemption shall be granted to any person for any reason in the absence of a showing by said person that he/she/it has achieved the maximum practical reduction in water consumption in his/her residential, commercial, industrial, or governmental water consumption as the case may be.

The General Manager, or his/her designee, may grant exemptions ("exceptions" to this Ordinance) for uses of water otherwise prohibited by the regulations. Water customers who feel that they need an adjustment in the prohibitions as they relate to him/her will fill out a simple application form for an exemption stating the justification and circumstances. If the exemption is not granted, customer may appeal in writing as stated in Section 2414.1.

a) Inconvenience or the potential for damage to landscaping shall not be considered for exemption from any section of this Ordinance.

2414. APPEALS

1. **Procedures.** The General Manager, or his/her designated enforcement officer, shall determine when violations have occurred and shall issue to the customer a notice of violation ("Notice of Violation") by mailing same and/or hanging same on the customer's door at least ten (10) days before taking enforcement action. Said notice shall describe the action to be taken (notice of first violation shall simply be accompanied by a copy of this Ordinance) and shall be mailed or delivered at least ten (10) days before the proposed action is scheduled to be taken.

A customer may appeal the Notice of Violation by filing a written notice of appeal with the District no later than the close of business on the day before the date scheduled for enforcement action. Any Notice of Violation not timely appealed shall be final. Upon receipt of a timely appeal, a hearing on the appeal by the Board shall be scheduled at the Board's next Regular meeting or at a Special meeting scheduled for that hearing; in either, the hearing shall be at least

ten (10) days following receipt of the appeal, and the District shall mail written notice of the hearing to the customer at least ten (10) days before the date of said hearing.

2. **Interim Measures**. Pending receipt of a written appeal or pending a hearing pursuant to an appeal, the General Manager or the enforcement officer, if one has been designated, may take appropriate steps to prevent the unauthorized use of water as appropriate to the nature and extent of the violation and the current declared water condition.

2415. IMPLEMENTATION BY GENERAL MANAGER

The General Manager or designated representative is hereby authorized and directed to implement the provisions of this Ordinance. Guidelines regarding implementation procedures may be approved and/or modified from time to time by resolution by the Board.

2416. CEQA EXEMPTION

The adoption of this Ordinance, and the actions taken hereunder, are exempt from the provisions of the California Environmental Quality Act of 1970 in that they constitute a project undertaken as immediate action necessary to prevent or mitigate an emergency pursuant to Section 15071 of the State EIR Guidelines.

2417. DURATION OF ORDINANCE

This Ordinance shall remain in effect until the Board finds that the threatened emergency and threatened water shortage no longer exists. The provisions of this Ordinance shall prevail and control in the event of any inconsistency with any other rules and regulations of the District.

2418. SEVERABILITY

If any section, subsection, sentence, clause, or phrase of this Ordinance is for any reason held to be unconstitutional or invalid, such decision shall not affect the validity of the remaining portions of this Ordinance. The Board hereby declares that it would have passed this Ordinance and each section, subsection, sentence, clause, or phrase thereof irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases may be unconstitutional or invalid.

2419. EFFECTIVE DATE, PUBLISHING, AND POSTING

This Ordinance shall be effective immediately upon adoption. Within ten (10) days of adoption, a copy of this Ordinance shall be published one time in a local newspaper and posted in the lobby of the District Office.

ADOPTED, SIGNED AND APPROVED THIS 6th DAY OF AUGUST, 2015.

Betty Gosney, President of
the Board of Directors

ATTEST:

Peggy Asche, Secretary of the Board of
Directors

Attachment 2: Adoption Resolution

West Valley Water District

BOARD OF DIRECTORS
ENGINEERING, OPERATIONS AND PLANNING COMMITTEE
STAFF REPORT

DATE: June 15, 2021

TO: Engineering, Operations and Planning Committee

FROM: Shamindra Manbahal, Interim General Manager

SUBJECT: ADOPT RESOLUTION 2021-9, ADOPTING 2020 UPPER SANTA ANA RIVER WATERSHED INTEGRATED REGIONAL URBAN WATER MANAGEMENT PLAN

DISCUSSION:

West Valley Water District and other water managers in the upper Santa Ana River watershed have long recognized the importance of regional collaboration and integration of single purpose efforts and regularly work across jurisdictional boundaries to implement regional multi-benefit projects and programs that address multiple water resource management issues, including local and imported water supplies, recycled water, stormwater management, groundwater management, water use efficiency, habitat and open space management, and many others.

The 2020 Upper Santa Ana River Integrated Regional Urban Water Management Plan (IRUWMP) is one cohesive document that meets all of the requirements of both the Urban Water Management Planning Act and the Integrated Regional Water Management Planning Act and is a regional collaborative effort. The document is organized into four parts: Part 1 – Regional Context, Part 2 – Individual Agency UWMPs, Part 3 – Regional Supporting Information and Part 4 – Individual Agency Supporting Information. As a participant in the 2020 IRUWMP, the District has prepared those portions of the IRUWMP applicable to the District to meet the requirements of the IRWM Act, the UWMP Act and other applicable laws and regulations.

Attached as Exhibit A is Resolution 2021-9, adopting Part 1, Part 2 Chapter 10: West Valley Water District UWMP, Part 3, and Part 4 Appendix J: West Valley Water District Supporting Information of the 2020 IRUWMP. A copy of these sections has been included in the information for the Public Hearing.

FISCAL IMPACT:

No fiscal impact.

STAFF RECOMMENDATION:

That this item be submitted for consideration, and that the Board of Directors adopt this item and authorize the Interim General Manager to execute the necessary documents.

Respectfully Submitted,

Shamindra Manbahal

Shamindra Manbahal, Interim General Manager

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ATTACHMENT(S):

1. Exhibit A - Resolution 2021-9 - 2020 Integrated Regional Urban Water Management Plan

MEETING HISTORY:

06/09/21 Engineering, Operations and Planning Committee TABLED Next: 06/15/21

EXHIBIT A

RESOLUTION NO. 2021-9

RESOLUTION OF THE BOARD OF DIRECTORS OF WEST VALLEY WATER DISTRICT ADOPTING THE 2020 UPPER SANTA ANA RIVER WATERSHED INTEGRATED REGIONAL URBAN WATER MANAGEMENT PLAN

WHEREAS, West Valley Water District ("Water District") and other water managers in the upper Santa Ana River watershed have long recognized the importance of regional collaboration and integration of single purpose efforts and regularly work across jurisdictional boundaries to implement regional multi-benefit projects and programs that address multiple water resource management issues, including local and imported water supplies, recycled water, stormwater management, groundwater management, water use efficiency, habitat and open space management, and many others; and

WHEREAS, the State lawmakers created the Integrated Regional Water Management Planning Act ("IRWM Act") in 2002 to encourage integrated, regional strategies for managing water resources; and

WHEREAS, in 2005, 16 agencies in the upper Santa Ana River watershed decided to develop the region's first Integrated Regional Water Management Plan ("IRWMP") to collaborate on regional water management issues; and

WHEREAS, the Upper Santa Ana River Watershed IRWMP was completed in 2007 and updated in 2015; and

WHERAS, the Water District participated in the development of the 2007 and 2015 IRWMPs and adopted the 2007 and 2015 IRWMPs; and

WHEREAS, the IRWMP established an update schedule of every five years and is due to be updated; and

WHERAS, the California Department of Water Resources ("DWR") has established Program Guidelines for the IRWM Program, which were most recently updated in 2016 ("2016 IRWM Guidelines"); and

WHEREAS, The California Urban Water Management Planning Act, Water Code Section 10610 et seq. ("UWMP Act"), mandates that every urban supplier of water providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare an Urban Water Management Plan ("UWMP"); and

WHEREAS, the Water District meets the definition of an urban water supplier for purposes of the UWMP Act; and

WHEREAS, the UWMP Act requires that said UWMP be updated and adopted at least once every five years on or before July 1, in years ending in six and one; and

WHERAS, the UWMP Act allows for water suppliers to work together to develop a cooperative regional UWMP and in 2010 and 2015, the San Bernardino Valley Regional UWMP (RUWMP) was prepared by ten different water suppliers to collectively meet the requirements of the UMWP Act; and

WHERAS, the Water District participated in the 2010 and 2015 RUWMP; and

WHERAS, both the IRWMP and RUWMP are both due to be updated; and

WHERAS, the Water District and nineteen other water suppliers and water management organizations in the upper Santa Ana River watershed decided to combine the IRWMP and the RUWMP into a single comprehensive planning document known as the 2020 Upper Santa Ana River Watershed Integrated Regional Urban Water Management Plan ("IRUWMP") which is the first of its kind in California; and

WHERAS, valuable synergies are realized by combining these two documents into one, including reduced preparation costs, a single integrated dataset, a consolidated reference document, enhanced collaboration, and more robust integrated planning and decision-making; and

WHERAS, the 2020 IRUWMP document is organized into four parts: Part 1 – Regional Context, Part 2 – Individual Agency UWMPs, Part 3 – Regional Supporting Information and Part 4 – Individual Agency Supporting Information; and

WHEREAS, as a participant in the 2020 IRUWMP, the Water District has prepared those portions of the IRUWMP applicable to the Water District to meet the requirements of the IRWM Act, the UWMP Act and other applicable laws and regulations which include Part 1, Part 2 Chapter 10: West Valley Water District UWMP, Part 3, and Part 4 Appendix J: West Valley Water District Supporting Information; and

WHEREAS, in accordance with applicable legal requirements, the Water District has undertaken certain coordination, notice, public involvement, public comment, and other procedures in relation to the 2020 IRUWMP; and

WHEREAS, in accordance with the UWMP Act, The Water District has prepared the 2020 IRUWMP with staff from its own agency, with the assistance of consulting professionals, and in cooperation with other governmental agencies, and has utilized and relied upon industry standards and the expertise of industry professionals in preparing its 2020 IRUWMP, and has also utilized the DWR Guidebook for Urban Water Suppliers to Prepare 2020 Urban Water Management Plans, including its related appendices and the 2016 IRWM Guidelines; and

WHEREAS, in accordance with applicable law, a Notice of a Public Hearing regarding the Water District's adoption of Part 1, Part 2 Chapter 10, Part 3 and Part 4 Appendix J, of the

2020 IRUWMP was published within the jurisdiction of the Water District on June 3 and June 10; and

WHEREAS, in accordance with applicable law, including but not limited to Water Code sections 10608.26 and 10642, a public hearing was held on June 17th, 2021 at 7:00pm, or soon thereafter, in the boardroom of the offices of the Water District, 855 W. Base Line Road, Rialto, CA, 92377 in order to provide members of the public and other interested entities with the opportunity to be heard in connection with proposed adoption of the 2020 IRUWMP and issues related thereto; and

WHEREAS, pursuant to said public hearing on the 2020 IRUWMP, The Water District, among other things, encouraged the active involvement of diverse social, cultural, and economic members of the community within the Water District's service area with regard to the preparation of the Plan, encouraged community input regarding the 2020 IRUWMP; and

WHEREAS, the Board of Directors ("Board") has reviewed and considered the purposes and requirements of the IRWM Act and the UWMP Act, the contents of the 2020 IRUWMP, and the documentation contained in the administrative record in support of the 2020 IRUWMP, and has determined that the factual analyses and conclusions set forth in the 2020 IRUWMP are legally sufficient; and

WHEREAS, the Board desires to adopt Part 1, Part 2 Chapter 10, Part 3 and Part 4, Appendix J, of the 2020 IRUWMP in order to comply with the IRWM Act and UWMP Act.

NOW THEREFORE BE IT RESOLVED, the Board of West Valley Water District hereby resolve as follows:

1. Part 1, Part 2 Chapter 10, Part 3 and Part 4 Appendix J, of the 2020 IRUWMP is hereby adopted as amended by changes incorporated by the Board as a result of input received (if any) at the public hearing and ordered filed with the Secretary of the Board;

2. The General Manager is hereby authorized and directed to include a copy of this Resolution in the Water District's 2020 IRUWMP;

3. The General Manager is hereby authorized and directed, in accordance with Water Code sections 10621(d) and 10644(a)(1)-(2), to electronically submit a copy of the Water District's portions of the 2020 IRUWMP to DWR no later than July 1, 2021;

4. The General Manager is hereby authorized and directed, in accordance with Water Code section 10644(a), to submit a copy of the 2020 IRUWMP to the California State Library, and any city of county within which the Water District provides water supplies no later than thirty (30) days after this adoption date;

5. The General Manager is hereby authorized and directed, in accordance with Water Code section 10645, to make the 2020 IRUWMP available for public review on the

Water District's website no later than thirty (30) days after filing a copy of the 2020 IRUWMP with DWR;

6. The General Manager is hereby authorized and directed, in accordance with Water Code Section 10635(b), to provide that portion of the 2020 IRUWMP prepared pursuant to Water Code Section 10635(a) to any city or county within which the Water District provides water supplies no later than sixty (60) days after submitting a copy to DWR;

7. The General Manager is hereby authorized and directed to implement the 2020 Plan in accordance with the IRWM Act and UWMP Act and to provide recommendations to the Board regarding the necessary budgets, procedures, rules, regulations, or further actions to carry out the effective and equitable implementation of the 2020 IRUWMP in collaboration with the regional partners.

ADOPTED, SIGNED, AND APPROVED THIS 17th DAY OF JUNE, 2021.

AYES:	**DIRECTORS:**
NOES:	**DIRECTORS:**
ABSENT:	**DIRECTORS:**
ABSTAIN:	**DIRECTORS:**

ATTEST:

Peggy Asche
Board Secretary

Channing Hawkins,
President of the Board of Directors
of West Valley Water District

West Valley Water District

BOARD OF DIRECTORS
ENGINEERING, OPERATIONS AND PLANNING COMMITTEE
STAFF REPORT

DATE: June 15, 2021

TO: Engineering, Operations and Planning Committee

FROM: Shamindra Manbahal, Interim General Manager

SUBJECT: ADOPT RESOLUTION 2021-8, ADOPTING WATER SHORTAGE CONTINGENCY PLAN

DISCUSSION:

The California Urban Water Management Planning Act, Water Code Section 10610 et seq. ("the UWMP Act"), mandates that every urban supplier of water providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare and adopt, in accordance with prescribed requirements, a water shortage contingency plan ("WSCP"). In accordance with the UWMP Act, the Water District has prepared its WSCP with its own staff, with the assistance of consulting professionals, and in cooperation with other governmental agencies, and has utilized and relied upon industry standards and the expertise of industry professionals in preparing its WSCP, and has also utilized the California Department of Water Resources Guidebook for Urban Water Suppliers to Prepare 2020 Urban Water Management Plans, in preparing its WSCP.

Attached as Exhibit A is Resolution 2021-8, adopting the Water Shortage Contingency Plan which is Part 4 Appendix J-9 of the 2020 Integrated Regional Urban Water Management Plan. A copy of this document has been included in the information for the Public Hearing.

FISCAL IMPACT:

No fiscal impact.

STAFF RECOMMENDATION:

That this item be submitted for consideration, and that the Board of Directors adopt this item and authorize the Interim General Manager to execute the necessary documents.

Respectfully Submitted,

Shamindra Manbahal

Shamindra Manbahal, Interim General Manager

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ATTACHMENT(S):

1. Exhibit A - Resolution 2021-8 - Water Shortage Contingency Plan

MEETING HISTORY:

06/09/21 Engineering, Operations and Planning Committee TABLED Next: 06/15/21

EXHIBIT A

RESOLUTION NO. 2021-8

**RESOLUTION OF THE BOARD OF DIRECTORS
OF WEST VALLEY WATER DISTRICT
ADOPTING THE WATER SHORTAGE CONTINGENCY PLAN**

WHEREAS, The California Urban Water Management Planning Act, Water Code Section 10610 et seq. ("the UWMP Act"), mandates that every urban supplier of water providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare and adopt, in accordance with prescribed requirements, a water shortage contingency plan ("WSCP"); and

WHEREAS, West Valley Water District ("Water District") meets the definition of an urban water supplier for purposes of the UWMP Act; and

WHEREAS, the UWMP Act specifies the requirements and procedures for adopting such Water Shortage Contingency Plans; and

WHEREAS, pursuant to recent amendments to the UWMP Act, urban water suppliers are required to adopt and electronically submit their WSCPs to the California Department of Water Resources by July 1, 2021; and

WHEREAS, The Water District has prepared a WSCP in accordance with the UWMP Act and SB X7-7, and in accordance with applicable legal requirements, has undertaken certain coordination, notice, public involvement, public comment, and other procedures in relation to its WSCP; and

WHERAS, the WSCP references and incorporates the provisions of the Water District's Article 24 - Water Conservation Ordinance No. 83 adopted on August 18th, 2016; and

WHEREAS, in accordance with the UWMP Act, the Water District has prepared its WSCP with its own staff, with the assistance of consulting professionals, and in cooperation with other governmental agencies, and has utilized and relied upon industry standards and the expertise of industry professionals in preparing its WSCP, and has also utilized the California Department of Water Resources Guidebook for Urban Water Suppliers to Prepare 2020 Urban Water Management Plans, in preparing its WSCP; and

WHEREAS, in accordance with applicable law, including Water Code sections 10608.26 and 10642, and Government Code section 6066, a Notice of a Public Hearing regarding the Water District's WSCP was published within the jurisdiction of the Water District on June 3 and June 10; and

WHEREAS, in accordance with applicable law, including but not limited to Water Code sections 10608.26 and 10642, a public hearing was held on June 17th, 2021 at 7:00pm, or soon thereafter, in the boardroom of the offices of the Water District, 855 W. Base Line Rd., Rialto,

CA in order to provide members of the public and other interested entities with the opportunity to be heard in connection with proposed adoption of the WSCP and issues related thereto; and

WHEREAS, pursuant to said public hearing on the WSCP, the Water District, among other things, encouraged the active involvement of diverse social, cultural, and economic members of the community within the Water District's service area with regard to the preparation of the WSCP, encouraged community input regarding the Water District's WSCP; and

WHEREAS, the Board of Directors has reviewed and considered the purposes and requirements of the UWMP Act, the contents of the WSCP, and the documentation contained in the administrative record in support of the WSCP, and has determined that the factual analyses and conclusions set forth in the WSCP are legally sufficient; and

WHEREAS, the Board of Directors desires to adopt the WSCP in order to comply with the UWMP Act.

NOW THEREFORE BE IT RESOLVED, the Board of Directors of the Water District hereby resolve as follows:

1. The Water Shortage Contingency Plan is hereby adopted as amended by changes incorporated by the Board of Directors as a result of input received (if any) at the public hearing and ordered filed with the Secretary of the Board of Directors;

2. The General Manager is hereby authorized and directed to include a copy of this Resolution in Water District's WSCP;

3. The General Manager is hereby authorized and directed, in accordance with Water Code sections 10621(d) and 10644(a)(1)-(2), to electronically submit a copy of the WSCP to the California Department of Water Resources no later than July 1, 2021;

4. The General Manager is hereby authorized and directed, in accordance with Water Code section 10644(a), to submit a copy of the WSCP to the California State Library, and any city of county within which the Water District provides water supplies no later than thirty (30) days after this adoption date;

5. The General Manager is hereby authorized and directed, in accordance with Water Code section 10645, to make the WSCP available for public review at The Water District's offices during normal business hours and on The Water District's website no later than thirty (30) days after filing a copy of the WSCP with the California Department of Water Resources;

6. The General Manager is hereby authorized and directed, in accordance with Water Code Section 10635(b), to provide that portion of the WSCP prepared pursuant to

Water Code Section 10635(a) to any city or county within which The Water District provides water supplies no later than sixty (60) days after submitting a copy of the WSCP with the California Department of Water Resources;

7. The General Manager is hereby authorized and directed to implement the WSCP in accordance with the UWMP Act and to provide recommendations to the Board of Directors regarding the necessary budgets, procedures, rules, regulations or further actions to carry out the effective and equitable implementation of the WSCP.

ADOPTED, SIGNED, AND APPROVED THIS 17th DAY OF JUNE, 2021.

AYES:	**DIRECTORS:**
NOES:	**DIRECTORS:**
ABSENT:	**DIRECTORS:**
ABSTAIN:	**DIRECTORS:**

ATTEST:

Peggy Asche
Board Secretary

Channing Hawkins,
President of the Board of Directors
of West Valley Water District