2015 Agricultural Water Management Plan

Rancho California Water District

ADOPTED JUNE 9, 2016

2015
AGRICULTURAL WATER MANAGEMENT PLAN

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Since the District's formation in 1965, the Rancho California Water District has remained steadfast in its commitment to provide a reliable supply of high-quality water, wastewater and reclamation services. Through leadership and representation, and working closely with our neighboring agencies, the District continues to plan for and meet the ever-changing needs of a growing and diverse community. Conserving and managing the area's unique water resources are essential to the continued viability of the community. By integrating local planning challenges and regional stakeholder partnerships, the District maximizes system reliability and efficiencies, while preservation of resources for future generations utilizing the principles of sustainability and prudent fiscal practices.

Board of Directors
President, William E. Plummer
Sr. Vice President, Bennett R. Drake
Vice President, Stephen J. Corona
Vice President, Lisa D. Herman
Vice President, John E. Hoagland
Vice President, Danny J. Martin
Vice President, Bill J. Wilson

Mission Statement

"The mission of the Rancho California Water District is to deliver reliable, high-quality water, wastewater and reclamation services to its customers and communities in a prudent and sustainable manner.

Executive Management
General Manager, Jeffrey D. Armstrong
Assistant General Manager, Eva Plajzer, P.E.
Director of Finance/Treasurer, Richard R. Aragon, CPFO
Director of Administration, Jason A. Martin
Interim Director of Operations & Maintenance, Rich Ottolini, R.E.H.S., MSL
Chief Engineer, Andrew L. Webster, P.E.

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APPENDICES

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Appendix F RCWD Salt & Nutrient Management Plan
Appendix G RCWD Groundwater Production Recommendations
Appendix H RCWD Water Loss Audit Report
Appendix I RCWD Consumer Confidence Report

Glossary of Abbreviations and Terms

Agencies

CALFED	State/Federal collaboration to improve San Francisco Bay/Sacramento-San Joaquin River Delta
CDPH	California Department of Public Health
District	Rancho California Water District
DOE	U.S. Department of Energy
DOF	California Department of Finance
DWR	California Department of Water Resources
EMWD	Eastern Municipal Water District
EVMWD	Elsinore Valley Municipal Water District
LAFCO	Local Agency Formation Commission
MCWD	Murrieta County Water District *(consolidated with WMWD in November 2005)*
Metropolitan/MWD	Metropolitan Water District of Southern California
RCWD	Rancho California Water District
RWQCB	Regional Water Quality Control Board
SANDAG	San Diego Association of Governments
SAWPA	Santa Ana Watershed Project Authority
SCAG	Southern California Association of Governments
SDCWA	San Diego County Water Authority
SFWPA	South Feather Water and Power Agency
SWRCB	State Water Resources Control Board
USBR	U.S. Bureau of Reclamation
USEPA	U.S. Environmental Protection Agency
WMWD	Western Municipal Water District

Facilities and Locations

CRA	Colorado River Aqueduct
SARI	Santa Ana River Interceptor
SRWRF	Santa Rosa Water Reclamation Facility
SWP	State Water Project
TVRWRF	Temecula Valley Regional Water Reclamation Facility
VDC	Valle del los Caballos

Measurements

AF	Acre feet
AFY or AF/Y	Acre-feet per year
cfs	Cubic feet per second
ged	Gallons per employee per day
gpcd	Gallons per capita (person) per day
gpd	Gallons per day
gpm	Gallon per minute
GWS	Gross water savings
HCF	Hundred cubic feet
MAF	Million acre feet
MCL	Maximum Contaminant Level
MG	Million gallons
mg/L	Milligram Per Liter (10^{-3} gram per liter)
MGD	Million gallons per day
pCi/L	Picocuries Per Liter (A unit of measure of levels of radon gas)
µg/L	Microgram Per Liter (10^{-6} gram per liter) or parts per billion

Glossary of Abbreviations and Terms

Water Quality

DBPs	Disinfection Byproducts
DWSAPP	Drinking Water Source Assessment and Protection Program
EDCs	Endocrine Disrupting Compounds
IX	Iron Exchange
MTBE	Methyl Tertiary-Butyl Ether
NDMA	N-nitrosodimethylamine
PCE	Perchloroethylene
PPCPs	Pharmaceuticals and Personal Care Products
TCE	Trichloroethylene
TDS	Total Dissolved Solids
Title 22	California Title 22 Drinking Water Standards
TOC	Total Organic Carbon
VOC	Volatile Organic Compounds

Other

Act	Agricultural Water Management Planning Act of 2009
AG	Agricultural
AWMP	Agricultural Water Management Plan
AG/D	Agricultural/domestic
AH/NR	Average Hydrology/Normal Replenishment
AOP	Advanced Oxidation Processes
AWT	Advanced Water Treatment
BMP	Best Management Practice
Board	Board of Directors
BOD	Biochemical Oxygen Demand
CEQA	California Environmental Quality Act
CI	Commercial and industrial
CII	Commercial, industrial and institutional
DMM	Demand Management Measure
DRIP	Desalination Research and Innovation Partnership
EOC	Emergency Operations Center
EIR	Environmental Impact Report
ESA	Endangered Species Act
ET or ETo	Evapotranspiration
IAWP	Interim Agricultural Water Program
IRP	Regional Integrated Resources Plan
IRPP	Infrastructure Reliability and Protection Program
IRWM	Integrated Regional Water Management
IRWMP	Integrated Regional Water Management Plan
Judgment	Modified Final Judgment and Decree
LPP	Local Projects Program
LRP	Local Resources Program
M&I	Municipal and Industrial
MF	Microfiltration
MOU	Memorandum of Understanding
NWDOP	New Water Demand Off-set Program
O&M	Operation and maintenance
PAC	Project Advisory Committee
PRISM	Precision Irrigation Scheduling Method
QSA	Quantification Settlement Agreement
RGPR	Recommended Groundwater Production Report
RO	Reverse Osmosis
RAWMP	Regional Urban Water Management Plan
SCCWRRS	Southern California Comprehensive Water Reclamation and Reuse Study
SDP	Seawater Desalination Program

STIP	Short-term Implementation Plans
TDR	Time Domain Reflectometry
UV	Ultraviolet Light
UWMP	Urban Water Management Plan
WBIC	Weather-based irrigation controllers
WARN	California Water Agencies Response Network
WSC Plan	Water Shortage Contingency Plan
WSDM	Water Shortage and Demand Management

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SECTION 1
INTRODUCTION

The Rancho California Water District (RCWD or District) provides water for agricultural uses to 10,371 irrigated acres of farmland. Therefore, as per Executive Order B-29-15, which requires agricultural water suppliers serving between 10,000 and 25,000 acres of irrigated agriculture to submit an Agricultural Water Management Plan (AWMP or Plan) to the Department of Water Resources (DWR) by July 1, 2016, the District has prepared a 2015 AWMP. RCWD's 2015 AWMP was developed in compliance with the requirements of Water Conservation Act of 2009 (SBx7-7) and Executive Order B-29-15, in conformity with the framework presented in *A Guidebook to Assist Agricultural Water Suppliers to Prepare a 2015 Agricultural Water Management Plan* (2015 Guidebook), and with funding provided by the DWR. Subsequent AWMP updates will be submitted every five years in years ending in five and zero.

The District's 2015 AWMP updates its 2012 AWMP, and incorporates changes enacted by legislation since that time. In particular, Executive Order B-29-15, signed by Governor Edmund G. Brown on April 1, 2015, now requires that AWMP's include quantified water supply and demand data for the years 2013, 2014, and 2015. RCWD's 2015 AWMP includes this required data and other important information including:

1. A Description of the Service Area
   Describes RCWD's service area in terms of its size, location, climate, terrain and soils, operating rules and regulations, methods of water delivery measurements and calculations, water rate schedules and billing, and its water shortage allocation policies.

2. A Description of the Quantity of Water Uses
   Describes the water uses within RCWD's service area including agricultural, environmental, recreational, municipal and industrial, groundwater recharge, transfers and exchanges, and other water uses.

3. A Description of the Quantity and Quality of Water Resources
   Describes the sources and quality of water available to RCWD including surface water, groundwater, and other water supplies

4. Water Supply Reliability Information
   Describes RCWD's water supply reliability and provides an overall picture of water use and the ability of available water supplies to meet water demands within the service area.

5. Climate Change Information
   Describes efforts undertaken by RCWD to assess the vulnerability of the service area to climate change.

6. A Description of Efficient Water Management Practices
   Describes RCWD's compliance with implementation of Efficient Water Management Practices (EWMP's).

7. Other Supporting Documentation
   Provides documentation that supports its descriptions and analyses.

The 2015 AWMP was developed by the RCWD's Administration Department in coordination with its Engineering & Operations Department. The Plan was noticed, made available, adopted, and submitted according to the requirements of the California Water Code. The Cities of Temecula and Murrieta, the County of Riverside, EMWD, and WMWD were notified 60 days prior to the public hearing on the District's intent to update the District's 2015 AWMP, in accordance with CWC 10621(b). The public hearing was noticed in local newspapers, which included the time and place of the hearing, as well as the location where the plan is available for public inspection. The Cities of Temecula and Murrieta, the County of Riverside, EMWD, and WMWD were also notified of the public hearing. The 2015 AWMP was made available at the District's headquarters for public inspection prior to the public hearing. As part of the public hearing, the District provided information on the District's baseline values, water use targets, and implementation plan. The District's Board of Directors had the opportunity to modify the 2015 AWMP in response to public input before adoption.

1.1 DESCRIPTION OF PREVIOUS WATER MANAGEMENT ACTIVITIES

Rancho California Water District (RCWD/District) and its agricultural water users have implemented all of the Efficient Water Management Practices (EWMPs) required by Water Code sections 10608.48(b) and 10608.48(c), which are applicable to its service area. A description of RCWD's EWMP implementation efforts is included in section VII of this Plan. In addition, the District has implemented water use efficiency activities beyond those required by legislation. These activities are outlined in the District's 2015 Strategic Business Plan (2015 SBP), which is a blueprint for how Rancho Water responds to current water management challenges and makes the best of future opportunities for the benefit of its customers. The following activities conducted by RCWD are consistent with its 2015 SBP Guiding Principles, which illustrate the District's approach to water management, and its commitment to maintain and improve water supply reliability, water quality, water stewardship, water supply sustainability, and customer engagement:

- **Guiding Principle 1: Reliability - Provide a level of water supply reliability that ensures customers' water needs are met**
    a. Activity 1: Developed appropriate water resource mix to meet the water supply reliability needs of the service area
        i. Developed of an Integrated Resources Plan
        ii. Monitored of Water Transfer Opportunities
        iii. Developed of resource planning tools and models to support long-term planning
        iv. Implemented of a Capital Improvement Program that reflects a dynamic water supply portfolio

b. Activity 2: Increased the use of recycled water in the service area
    i. Processed on-site recycled water conversions for urban water users
    ii. Coordinated water and recycled water service opportunities with are agencies
c. Activity 3: Develop and implement a comprehensive groundwater management strategy
    i. Worked with Riverside County Health Department to develop a Local Agency Management Plan that addresses District concerns
    ii. Conducted Basin modeling
    iii. Implemented groundwater conjunctive use projects
    iv. Engaged with wholesale water agencies to negotiate access to replenishment water
d. Activity 4: Develop a brine management strategy and future recycled water projects
    i. Working toward preliminary design
e. Activity 5: Engage on Statewide water policy issues
    i. Worked with RCWD Board of Directors to develop position on Bay Delta Conservation Plan
    ii. Tracked and engaged on regulations and legislation that affects the District
f. Activity 6: Respond to anticipated near-term water shortages through rate structure modification, conservation assistance, customer service, and outreach
    i. Implemented updated Water Shortage Contingency Plan
    ii. Increased local messaging and outreach to respond to water supply constraints

- **Guiding Principle 2: Quality - Provide safe water and high quality services to its customers**
    a. Activity 1: Address planning for long-term salinity/nutrient management
        i. Implemented Salt/Nutrient Management Plan with regional partners
        ii. Tracked progress on wine country infrastructure
    b. Activity 2: Anticipate and comply with regulatory and environmental changes
        i. Continued to meet regulatory requirements water/wastewater/environmental security
        ii. Evaluated impacts of potential changes to water quality changes for RCWD well production and cost of operations
        iii. Tracked regulation development and engaged where appropriate
    c. Activity 3: Provide safe drinking water to our customers by ensuring all current and anticipated drinking water regulations are met or surpassed
        i. Met all drinking water standards

- **Guiding Principle 3: Stewardship – Exercise good stewardship of financial and operating assets through use of sound, cost-effective business judgement**
    a. Activity 1: Planned and prepared for catastrophic emergencies
        i. Conducted annual joint agency hazardous material response drill at the SRWRF-CCR Title 19 compliance
        ii. Conducted annual NIMSCAST report to FEMA. Report RCWD compliance with the National Incident Management System (NIMS)
        iii. Conducted RCWD Emergency Operations Plan training &/or exercise periodically and implement lessons learned
        iv. Evaluated EOC needs
        v. Assessed business resumption capability
    b. Activity 2: Researched and analyzed beneficial outside services agreements
        i. Evaluate potential service agreement for Western Municipal Water District retail service area
        ii. Evaluate providing sewer collection maintenance services to adjacent areas
        iii. Achieved the formation of a JPA with Santa Rosa Water Reclamation Plant agencies
    c. Activity 3: Optimized real estate management (acquisition and use)
        i. Developed a plan for Tarwater Property suitable for developing income-producing property program
        ii. Acquired 1305 and 1610 PZ reservoir sites
        iii. Investigated and acquire potential sites as identified in the Integrated Resource Plan
    d. Activity 4: Maximized outside funding opportunities
        i. Completed Proposition 84 Integrated Regional Water Management and other state/local grants
        ii. Tracked and report grant opportunities/wins
        iii. Pursued Title XVI funding – Annual Appropriations
        iv. Evaluated and Pursued Opportunities for Grant Funds from proposed 2014 Water Bond
        v. Implemented adopted grant management procedures
    e. Activity 5: Maintained, implemented and enhanced the long-range financial plan
        i. Implemented Asset Management Planning
        ii. Updated Water Facility Master Plan
        iii. Updated Wastewater Facility Master Plan
        iv. Annually developed a 5-year Capital Improvement Plan
        v. Continued participation in the Rate Refinement Workgroup
        vi. Achieved cash reserve and revenue levels as identified in Cash Reserve Policy
        vii. Investigated reserve and revenue protection strategies
        viii. Reviewed budget-based tiered rate model and cost allocations to tiers

ix. Prepared and annual update to the Long-Range Financial Plan
x. Annually updated financial policies
xi. Conducted an annual credit rating review process

f. Activity 6: Implemented long-term plan for wastewater treatment
    i. Initiated and complete rehabilitation of the Santa Rosa Water Reclamation Facility (SRWRF)
    ii. Established JPA for future wastewater service at the SRWRF

g. Activity 7: Pursued maintenance on existing facilities that met or exceed industry norms
    i. Implemented, integrated, and utilized a replacement Computerized Maintenance Management System (CMMS)
    ii. Evaluated maintenance level of service standards
    iii. Imbedded maintenance standards in the maintenance program
    iv. Rehabilitated wells to restore system capac

h. Activity 8: Continued to use Effective Utility Management as a management tool for optimizing RCWD activities
    i. Continued to track EUM performance measurement indicators

i. Activity 9: Optimized external shared services opportunities
    i. Explored bulk purchase of chemicals
    ii. Explored biosolid disposal partnership
    iii. Explored state purchase pools
    iv. Explored equipment sharing with adjacent regional government entities
    v. Explored O&M opportunities to provide or receive services to/from other government/private entities

j. Activity 10: Improved organizational effectiveness
    i. Furthered use of organizational performance measurement/management
    ii. Implemented remaining Track 2 items of Enterprise Resource Planning (ERP) – Document Management and Performance Management
    iii. Implemented Track 2 of ERP Customer Information System (CIS) Project Objective
    iv. Implemented Geographic Information System (GIS) Master Plan
    v. Reviewed outsourcing opportunities related to fleet maintenance, inspection, leasing/ maintenance
    vi. Examined vacancies to determine optimum staffing levels
    vii. Conducted post technology implementation audits to determine value provided
    viii. Tracked and evaluate overtime trends
    ix. Improved internal communications to enhance staff awareness and engagement
    x. Briefed all employees on the Strategic Plan
    xi. Continued to set and communicate performance metrics to all employees

xii. Provided appropriate education & safety-related training for all employees
xiii. Reviewed District website and for additional customer functionality opportunities
xiv. Updated the Information Technology Master Plan
xv. Identified and phase out, as appropriate, duplicate data handling systems

k. Activity 11: Promoted an open and effective work environment throughout the organization
   i. Reinforced partnerships with the bargaining units to promote a spirit of cooperation, respect, and trust
   ii. Reinforced District value statement – "PRIDE"
   iii. Proactively addressed appropriate policy and process changes
   iv. Proactively and collaboratively addressed grievances
   v. Provided cooperative cross-functional problem-solving opportunities

l. Activity 12: Attracted, retained, and developed quality staff
   i. Maintained competitive compensation & benefits package
   ii. Optimized human resources of organization through involvement & empowerment
   iii. Conducted annual performance management and evaluation
   iv. Developed a succession plan
   v. Tracked attrition and causes
   vi. Assessed and revise employee-training programs to develop bench strength
   vii. Included a cross-divisional review element in employee performance evaluations

- **Guiding Principle 4: Sustainability – Address, adopt, and implement policies that support the social, economic, and environmental values of the service area**

a. Activity 1: Implemented effective water use efficiency (conservation) plan that meets or exceeds voluntary best management practices and/or legislative requirements
   i. Presented Water Use Efficiency Blueprint to Board for approval
   ii. Completing 2015 Urban Water Management Plan/Agricultural Water Plan
   iii. Provided customer information and assistance – water use efficiency evaluations
   iv. Targeted Demonstration Efforts – Partnered with local Homeowner's Associations to promote and encourage sound water use through efficient irrigation and plant materials
   v. Developed a Financial Incentive Program targeted to the commercial, industrial, and institutional customer sector
   vi. Continued to provide a Financial Incentive Program tailored to the agricultural customer sector

vii. Conducted research projects to demonstrate new agricultural irrigation efficiency techniques and technologies
viii. Continued to implement residential and landscape water use efficiency programs
ix. Worked cooperatively with the Cities of Temecula and Murrieta and the County of Riverside to develop effective landscape ordinance that is consistent with encouraging efficient landscape
x. Implemented conservation program review recommendations
xi. Complied with state-mandated 20 percent urban per capita water use reduction by 2020 legislation, SB x7-7
xii. Established efficiency requirements for recycled water to maximize efficient use of the resource
xiii. Increased representation of retailers, particularly with a finance perspective, in the California Urban Water Conservation Council (CUWCC) regarding the value of water budget based rate structures to achieve conservation
xiv. Provided customer information and assistance – Workshops and information
xv. Implemented conservation program review recommendations

b. Activity 2: Optimized the Vail Lake asset
    i. Prepared a Resource Management Plan for Vail Lake
    ii. Evaluated development of a riparian mitigation land bank
    iii. Developed a financial and operational sustainability plan for the Vail Lake properties/assets
c. Activity 3: Optimized partnerships with neighboring public agencies
    i. Partnered with Eastern Municipal Water District, Western Municipal Water District, and Metropolitan Water District of Southern California (and others) to offer conservation programs to Rancho California Water District customers
    ii. Worked with Cities of Temecula and Murrieta and County of Riverside to pursue sustainability initiatives where practical
    iii. Worked with local school boards to communicate key water messages
    iv. Worked with local water agencies, Association of California Water Agencies, California Association of Sanitation Agencies, and others to track and comment on state legislative proposals that may impact Rancho California Water District and its customers
d. Activity 4: Optimized energy efficiencies including the economically appropriate use of renewable power
    i. Evaluated and implement energy-efficient systems
    ii. Evaluated and implement alternative energy opportunities
    iii. Utilized new Supervisory Control and Data Acquisition (SCADA) system to achieve greater energy optimization

- **Guiding Principle 5: Customer & Community – Inform and engage customers and community leaders as we pursues reliable, high quality, and sustainable water supply**
    a. Activity 1: Communicated with and engage our community on water matters of importance to the region
        i. Continued to provide informative articles in water bill mailer, newsletter, newspaper, & other avenues
        ii. Conducted targeted outreach to customers who may be impacted by RCWD construction projects
        iii. Communicated strategic progress to stakeholders
        iv. Briefed key stakeholders on water supply challenges & need for their support for solutions in Sacramento
        v. Briefed chambers of commerce & other local business groups on water supply challenges, need for Delta solution, & RCWD's Integrated Plan for local supplies
        vi. Briefed editorial boards of local newspapers on current water supply challenges & RCWD's Integrated Plan
        vii. Expanded executive staff involvement with local chambers & community groups
        viii. Assessed opportunities to increase customer awareness of imported water supply conditions
        ix. Met educational water efficiency BMP through school educational programs
        x. Met and brief city councils to leverage televised broadcasts to convey water issue information
    b. Activity 2: Provide prompt responses and cost-effective customer service
        i. Developed customer service standards
        ii. Conducted cost-effective Customer Satisfaction/Feedback Survey every 5 years
        iii. Tracked call-wait times and validate benchmarks
    c. Activity 3: Minimize complaints on quality, reliability, billing, and customer service
        i. Tracked and analyze customer complaints
        ii. Incorporated the findings into revised customer service policies/standards
    d. Activity 4: Provided staff support for Board of Directors' meetings to engage the community
        i. Prepared adequate and timely information to support sound policy decisions by the Board of Directors

1.2 COORDINATION ACTIVITIES

Development of the updated 2015 AWMP was performed by the District's Administration Department in coordination with the District's Engineering Department and Operations Department. In addition, the District coordinated with multiple agencies including a court-appointed Watermaster, Metropolitan Water District of Southern California (Metropolitan/MWD), Eastern Municipal Water District (EMWD) and Western Municipal

Water District (WMWD) to obtain, discuss and utilize information in the development of the updated 2015 AWMP. The 2015 AWMP will refer to Metropolitan, EMWD, WMWD and the Watermaster throughout.

Notification of AWMP Preparation
As required by legislation, the Cities of Temecula and Murrieta, and the County of Riverside were notified of the District's intent to prepare the 2015 AWMP Update. In addition, RCWD's water wholesaler, EMWD and WMWD were also notified. Copies of the notice of preparation are included in Section VIII this Plan.

Public Participation
Pursuant to Water Code section 10841 and Government Code section 6066, RCWD made the 2015 AWMP Update available for public inspection and held a public hearing on the Plan. Notice of the time and place of the hearing was published within the jurisdiction of RCWD one time per week for two successive weeks with at least five days intervening between the respective publication dates not counting the publication dates. Copies of the public notifications are included in Section VIII of this Plan.

1.3 AGRICULTURAL WATER MANAGEMENT PLAN ADOPTION, SUBMITTAL, REVIEW & AVAILABILITY

The District's 2015 AWMP Update incorporates requirements enacted by legislation, including Senate Bill (SB) x7-7 (2009), and considers other relevant legislation pertaining to water sources, water quality, and water use efficiency. The AWMP also includes information on EWMPs pursuant to Section 10608.48 of the California Water Code. Furthermore, the AWMP has been prepared consistent with information relating to water demand, supply, sources and reliability contained in the District's 2015 Urban Water Management Plan (2015 UWMP).

The Department of Water Resources (DWR) has provided detailed guidance to water suppliers in developing the 2015 AWMP Updates. Section VIII includes a completed DWR checklist for preparing the AWMP in compliance with the Water Code. Information may be repeated in different sections of the Plan to appropriately address a required AWMP element, and to present information in a manner reflecting the unique characteristics of the District's water utility.

AWMP Adoption
The 2015 AWMP Update was adopted immediately following a public hearing held on June 9, 2016. A copy of the adoption resolution and notice of public hearing is included in Section VIII of the AWMP Update. Additionally, this documentation was made available, along with the full 2015 AWMP Update, on the District's website at www.ranchowater.com/2015AWMP_UWMPUpdate

AWMP Submittal
The District submitted the 2015 AWMP Update, as per the instructions included in the 2015 Guidebook, to DWR, the County of Riverside, the Watermaster, EMWD, WMWD, LAFCO, city and county libraries, and the California State Library.

AWMP Availability

The 2015 AWMP Update was made available for public inspection prior to the public hearing in accordance with Water Code Sec. 10841, and a public hearing was properly noticed pursuant to Section 6066 of the Government Code. RCWD solicited public input on the 2015 AWMP Update during a public hearing held on June 9, 2016. The public hearing was advertised in *The Californian* newspaper on June 2, 2016, and June 8, 2016. Proof of advertisement is included in Section VIII of this Plan. Additionally, Worksheet 1 shows the agencies that were directly notified of the Plan's development.

The following table shows actions taken by RCWD to properly coordinate the preparation of the 2015 AWMP Update.

Summary of Coordination, Adoption and Submittal Activities for the 2015 AWMP Update

Potential Interested Parties *[Provide names(s)]*	**Notified of AWMP Preparation**	**Requested Copy of Draft** ***(Optional)***	**Commented on Draft/Action Taken by Supplier** ***(Optional)***	**Notified of Public Meetings**	**Attended Public Meetings** ***(Optional)***	**Copy of Adopted AWMP/ Amendment Sent**
City of Temecula	30-Nov-15	-	-	-	-	June 24, 2016
City of Murrieta	30-Nov-15	-	-	-	-	June 24, 2016
County of Riverside	30-Nov-15	-	-	-	-	June 24, 2016
Eastern Municipal Water District	30-Nov-15	-	-	-	-	June 24, 2016
Western Municipal Water District	30-Nov-15	-	-	-	-	June 24, 2016
Watermaster	-	-	-	-	-	June 24, 2016
City Library	-	-	-	-	-	June 24, 2016
County Library	-	-	-	-	-	June 24, 2016
California State Library	-	-	-	-	-	June 24, 2016
LAFCO	-	-	-	-	-	June 24, 2016
Department of Water Resources	-	-	-	-	-	June 24, 2016
Local Newspaper	-	-	-	June 2, 2016 & June 8, 2016	-	-
Website	-	-	-	-	-	June 24, 2016

1.4 AGRICULTURAL WATER MANAGEMENT PLAN IMPLEMENTATION

RCWD continually implements all of the EWMPs appropriate to its service area. In addition, the District implements capital projects that are consistent with the goals of the EWMPs and the Guiding Principles of the District's Strategic Business Plan. The status of the District's EWMP implementation is described in section VII of this Plan.

SECTION 2

DESCRIPTION OF RANCHO CALIFORNIA WATER DISTRICT & SERVICE AREA

2.1 PHYSICAL CHARACTERISTICS

Organization, Size and History

The District is a "Special District" organized and operated pursuant to the California Water Code. The District is governed by a seven member board of directors (Board) that is elected by the voters of the region. The district serves the area known as Temecula/Rancho California, which includes the City of Temecula, portions of the City of Murrieta, and unincorporated areas of Riverside County.

The District started when landowners of the Temecula/Rancho California formed the original "Rancho District" in 1965, which served 41,000 acres of the easterly portion of the community. In 1968, the Santa Rosa Ranches Water District was organized to serve the westerly 44,800 acres of the community. To gain access to imported water to meet growing water demands and supplement local groundwater, the Rancho District was annexed in 1966 to the EMWD, while the Santa Rosa Ranches Water District was annexed into the WMWD in 1968. Both EMWD and WMWD are member agencies of Metropolitan. Metropolitan operates the Colorado River Aqueduct (CRA) and is a State Water Contractor, allowing imported water from Northern California to be delivered to Southern California via the State Water Project (SWP).

In 1965, the Rancho District and the Santa Rosa Ranches Water District were consolidated under the name Rancho California Water District, in accordance with Local Agency Formation Commission (LAFCO) resolutions. The District has the authority to operate, maintain, and furnish facilities for all water systems within the District's service area, and for the collection and treatment of wastewater for the Santa Rosa Division (west of Interstate 15). EMWD remains responsible for the wastewater treatment in the Rancho Division (generally east of Interstate 15). Throughout the 5 year term of this AWMP, little, if any, change to RCWD's service area will be seen. The following table provides information regarding the history, and size of RCWD's service area:

RCWD History & Size	
Date of Formation	1965
Source of Water	Check applicable sources
Local Surface Water*	
Local Groundwater	√
Wholesaler	√
USBR	
SWP	
Service Area Gross Acreage	99,141
Service Area Irrigated Acreage	10,371 irrigated agricultural acres

*RCWD manages Vail Lake, which is a surface water reservoir; however, the water contained in Vail Lake is diverted for groundwater recharge and is counted as groundwater in the District's water supply portfolio.

Location

The District is approximately 85 miles southeast of Los Angeles and 65 miles north of San Diego. Figure 2-1 on the previous page shows the District's service area. The District's current service area is bounded on the southeast by the Santa Ana Mountains and on the northeast by Gavilan Hills. The elevations of the valley floor range from 900 to 1,200 feet above sea level; however, the District pumps to a maximum elevation of 2,850 feet for some pressure zones in its service area.

RCWD Service Area

Terrain and Soils

The RCWD is within the Upper Santa Margarita Watershed, which includes portions of the Santa Margarita Hydrologic Unit contained within southwestern Riverside County. This area of the watershed includes approximately 548 square miles and includes a vast network of ephemeral streams with two main drainage basins, Temecula and Murrieta Creeks. Multiple individual hydrologic units are split between the upper and lower watershed.

Temecula Creek and its tributaries drain approximately 366 square miles with the upper portion of the watershed artificially controlled by a dam at Vail Lake. Lower portions of the drainage area, which is included in the District service area, are dominated by rolling hills and flat land.

Murrieta Creek and its tributaries drain approximately 222 square miles in the northwest portion of the upper watershed. At the Elsinore fault zone, located at the top of Temecula Canyon and near the City of Temecula, the drainage systems merge forming the Santa Margarita River. From this point the river flows through the Temecula Gorge and then into San Diego County near Fallbrook for approximately 30 miles ultimately draining into the Pacific Ocean.

The Soil Survey of Western Riverside Area (Survey), California[1] identifies the southern Riverside County area as nearly level to very steep and suitable for many kinds of crops. At the time of the survey (1971), a large area of rocky soils has a cover of brush and is pastured. Irrigation water brought to the area as early as the 1870s brought about the planning of citrus. The irrigated areas were also used for truck crops, alfalfa, grapes and permanent pasture. In the dry-farmed areas, barley and wheat were the major crops. Today, the area agriculture is predominantly citrus, avocados, and vineyards.

[1] U.S. Department of Agriculture, Soil Conservation Service, U.S. Department of Interior, Bureau of Indian Affairs, In Cooperation with the University of California Agricultural Experiment Station, *Soil Survey Western Riverside Area,* 1971 (http://soils.usda.gov/survey/online_surveys/california/w_riverside/ca_w_riverside.pdf)

The Survey identifies the following three soil area descriptions within the District's service area (General Map):

Area 2 - Friant-Lodo-Escondido Association: Located in the western portion of the District, generally in the area of avocados and citrus, this area is defined as well-drained and somewhat excessively drained, undulating to steep, shallow to deep soils that have a surface layer of fine sandy loam and gravelly loom, on metamorphosed sandstone and mico-schist.

Area 5 - Hanford-Tujunga-Greenfield Association: Located in the eastern portion of the District, generally in the location of many of the vineyards, this area is defined as very deep, well-drained to excessively drained, nearly level to moderately steep soils that have a surface layer of sand to sandy loam, on alluvial fans and flood plains.

Area 6 - Moserate-Arlington-Exeter Association: Located in the central and more urban portion of the District, generally along the Murrieta Creek, this area is defined as well-drained, nearly level to moderately steep soils that have a surface layer of sandy loam to loam, and are shallow to deep to a hardpan.

The terrain within the District service area requires the District to operate a number of pressure zones ranging from 1,305 feet above sea level to 2,850 feet. Due to the varying terrain, water is delivered through 903 miles of pipelines, from 53 active groundwater wells, 39 storage reservoirs and one open reservoir, and the use of multiple pump stations.

Climate

The regional climate is Mediterranean with hot, dry summers and cool, wet winters. Summer daytime temperatures are in the mid-80 to high-90 degrees range. The area's temperature is influenced by prevailing onshore winds from the Pacific Ocean and the rain shadow effect from the Santa Rosa Mountains. The "Santa Ana winds" can cause periods of extremely hot weather with dry winds. Winter daytime temperatures are mild, averaging in the mid-60 degree range. The service area's average monthly maximum temperature is 91.86 degrees, based on weather data from two local CIMIS stations. The annual average evapotranspiration rate (ETo) for the region is 55.36 inches per year (4.61 feet per year) with the highest rates occurring during the summer months.

Total annual precipitation averages 11.15 inches per year. During very wet years, rainfall can exceed 26 inches, while during very dry years rainfall can be less than 4 inches. Rainfall is more prevalent during the months of November through April.

2.2 OPERATIONAL CHARACTERISTICS

Operating Rules and Regulations

The District has adopted its "Rules and Regulations Governing Water System Facilities and Services" (Rules and Regulations) as Part III, Chapter 1, Section 1 of the District's Administrative Code. A copy is included as Appendix E to this Plan.

Water Delivery Measurements

The District has more than 43,000 water meter services that are maintained by District staff. All water deliveries in the District are measured by water meters, with the exception of temporary construction services as defined in the Rules and Regulations. Section 1.7.18 of the Rules and Regulations Governing Water System Facilities provides specific guidelines for meter testing parameters and criteria for meter replacement based on usage rates or expected life-cycle.

The Rules and Regulations include testing and repair requirements for: Initial Testing, Small Meter Testing and Repair, Large Meter Testing and Repair, Meter Testing at Customer's Request, and Meter Replacement Criteria. The following table lists the parameters for meter replacement and meter testing.

Parameters for Meter Replacement and Testing

Meter Size	Replacement Schedule
¾"	Replace at 15 years
1"	Replace at 15 years
1.5"	100,000 hundred cubic feet (HCF) / 15 years
2"	100,000 HCF / 15 years
3" – 12"	Chamber exchange or rebuilt per usage
Meter Size	**Testing Schedule**
¾" – 2"	At the discretion of the District
3" – 4"	Annually – usage great than 10,000 HCF per year Biennially – usage greater than 5,000 HCF and less than 10,000 HCF per year Every five years – less than 5,000 HCF per year
6" – 12"	Annually, with usage

Water Rate Schedule and Billing

Section 1.5.3.2 of the Rules and Regulations Governing Water System Facilities and Services of the Administrative Code confirms that to qualify for agricultural water service, the customer must use the water for "Agricultural Purposes, which is defined as the growing of raising of agricultural projects in conformity with recognized practices of husbandry, for the purpose of commerce, trade, or industry, or for feeding of fowl or livestock." Properties qualifying for agricultural water service must also contain one acre or more utilized exclusively for agriculture.

In 2008, RCWD implemented a tiered-rate pricing structure for agricultural water service that promotes more efficient use of water at the farm level and reduces waste. Under this rate structure, each agricultural customer is charged a Tier 1 rate plus an energy/pumping

charge for each hundred cubic feet of water (HCF) used up to an amount of water allocated to the customer for meeting the needs of their property. Water allocations provided to agricultural customers are based on:

- historical weather data (ETo) obtained from the California Irrigation Management Information System (CIMIS) network of weather stations
- crop water-use information obtained from agricultural and academic publications
- planted acreage obtained through GIS irrigated acreage measurements
- information about livestock reared for human consumption or market, and the associated irrigated grazing areas
- "incidental" domestic use are provided with additional water allocations for domestic indoor and landscape water use

Further details about the agricultural water allocations and pricing structure are included in Section VII.

Drought Management Plan and Water Shortage Allocation Policies

Because RCWD serves water to more than 10,000 acres of irrigated agriculture, the District is considered an Agricultural Water Supplier under current legislation, and is thereby required to submit an AWMP to DWR, which includes a Drought Management Plan (DMP). In addition, as per the Urban Water Management Planning Act, RCWD is considered an Urban Water Supplier and is required to submit to DWR an Urban Water Management Plan (UWMP), which includes a Water Shortage Contingency Plan (WSCP). Both the DMP and the WSCP are required to describe the actions and measures the water supplier will take to manage water demand during drought conditions caused by hot and dry weather, or a failure of the water delivery system due to seismic activity or other catastrophic event.

RCWD's Board of Directors has adopted a WSCP, which describes the actions and measures the District will take to manage both urban and agricultural water demand during adverse water supply conditions. The District's WSCP provides details on how the District will prepare for droughts and manage water supplies and both urban and agricultural water demand during drought. The District's WSCP satisfies the legislative requirements of Water Code 10826(a) (8), which requires agricultural water suppliers to develop and include with their AWMPs a Drought Management Plan for agricultural water use. Therefore, RCWD's WSCP functions as the District's Drought Management Plan for agricultural water use, and is included in as Appendix F to this Plan.

Moreover, RCWD'S WSCP is linked to Metropolitan's drought management activities since a large portion of the water RCWD sells to its customers is imported from Metropolitan through EMWD and WMWD. The following sections discuss Metropolitan's Water Surplus and Drought Management Plan and Water Supply Allocation Plan, and EMWD and WMWD's Water Shortage Contingency planning efforts.

Metropolitan's Water Surplus and Drought Management Plan (WSDM)
In 1999, Metropolitan developed a WSDM Plan that included guidelines for implementing water supply restrictions in the event of a water shortage. The WSDM Plan does not outline specific criteria for how water would be distributed among the Metropolitan member agencies during water shortage conditions, but states that the methods to be used for determining reduction in supplies to each member agency would be developed in a manner that was equitable and minimized hardship to retail water customers.

The WSDM Plan will guide management of regional water supplies to achieve the reliability goals of Southern California's IRP. The IRP sought to meet long-term supply and reliability goals for future water supply planning. The WSDM Plan's guiding principle is to minimize adverse impacts of water shortage and ensure regional reliability. From this guiding principle come the following supporting principles:

- Encourage efficient water use and economical local resource programs.
- Coordinate operations with member agencies to make as much surplus water as possible available for use in dry years.
- Pursue innovative transfers and banking programs to secure more replacement water for use in dry years.
- Increase public awareness about water supply issues.

The WSDM Plan guides the operations of water resources (local resources, Colorado River, SWP, and regional storage) to ensure regional reliability. It identifies the expected sequence of resource management actions Metropolitan will take during surpluses and shortages of water to minimize the probability of severe shortages that require curtailment of full-service demands. Mandatory allocations are avoided to the extent practicable, however, in the event of an extreme shortage an allocation plan will be adopted in accordance with the principles of the WSDM Plan.

The WSDM Plan describes Metropolitan's ability to meet demand during a Surplus, Shortage, Severe Shortage, and Extreme Shortage. Within the WSDM Plan, these terms have specific meaning relating to Metropolitan's capability to deliver water to the District, as follows:

Surplus: Metropolitan can meet full-service and interruptible program demands, and it can deliver water to local and regional storage.

Shortage: Metropolitan can meet full-service demands and partially meet or fully meet interruptible demands, using stored water or water transfers as necessary.

Severe Shortage: Metropolitan can meet full-service demands only by using stored water, transfers, and possibly calling for extraordinary conservation. In a Severe

Shortage, Metropolitan may have to curtail Interim Agricultural Water Program (IAWP) deliveries in accordance with IAWP.

Extreme Shortage: Metropolitan must allocate available supply to full-service customers.

The WSDM Plan also defines five "surplus" management stages and seven "shortage" management stages to guide resource management activities. Each year, Metropolitan will consider the level of supplies available and the existing levels of water in storage to determine the appropriate management stage for that year. Each stage is associated with specific resource management actions designed to: 1) avoid an Extreme Shortage to the maximum extent possible; and 2) minimize adverse impacts to retail customers should an Extreme Shortage occur. The current sequencing outline in the WSDM Plan reflects anticipated responses based on detailed modeling of Metropolitan's existing and expected resource mix. This sequencing may change as the resource mix evolves.

Reliability Modeling of the WSDM Plan

Using a technique known as "sequentially indexed Monte Carlo simulation," Metropolitan undertook an extensive analysis of system reservoirs, forecasted demands, and probable hydrologic conditions to estimate the likelihood of reaching each Shortage Stage through 2010. The results of this analysis demonstrated the benefits of coordinated management of regional supply and storage resources. Expected occurrence of a Severe Shortage is four percent or less in most years and never exceeds six percent; equating to an expected shortage occurring once every 17 to 25 years. An Extreme Shortage was avoided in every simulation run.

Metropolitan also tested the WSDM Plan by analyzing its ability to meet forecasted demands given a repeat of the two most severe California droughts in recent history. Hydrologic conditions for the years 1923–34 and 1980–91 were used in combination with demographic projections to generate two hypothetical supply and demand forecasts for the period 1999–2010. Metropolitan then simulated operation to determine the extent of regional shortage, if any. The results again indicate 100 percent reliability for full-service[2] demands through the forecast period.

Allocation of Supply for Municipal & Industrial Demands

The equitable allocation of supplies is addressed by the Implementation Goals for the WSDM Plan, with the first goal being to "avoid mandatory import water allocations to the extent practicable." The reliability modeling for the WSDM Plan discussed above results in 100 percent reliability for full-service demands through the year 2010. However, the second

[2] Firm demands can be viewed the same as full-service demands, and can be defined as, the following: *The total demand for water under the conditions existing in a particular period without mandatory rationing or other short-term water-use reductions, but reflecting the results of demand management measures.*

fundamental goal of the WSDM Plan is to "equitably allocate imported water on the basis of agencies' needs." Factors for consideration in establishing the equitable allocation include retail and economic impacts, recycled water production, conservation levels, growth, local supply production, and participation and investment in Metropolitan's system and programs. In the event of an extreme shortage, an allocation plan will be adopted in accordance with the principles of the WSDM Plan.

In an effort to avoid allocation, import water reliability is planned through the Southern California IRP and the WSDM Plan. The IRP presents a comprehensive water resource strategy to provide the region with a reliable and affordable water supply for the next 25 years. The WSDM Plan will guide management of regional water supplies to achieve the reliability goals of the IRP.

Metropolitan's Water Supply Allocation Plan

In 2007, Metropolitan began to update its plans for addressing water shortage conditions. The impetus for this was a combination of on-going dry conditions and reduced deliveries from the SWP, creating water supply challenges that threatened access to the imported supplies necessary to meet Southern California's water demands in the coming years. Critically dry conditions in the western United States, including the Colorado River experiencing the driest time in over a century, as well as the federal court ruling in late 2007 to protect the Delta Smelt in the Sacramento-San Joaquin River Delta which brought uncertainty about future pumping operations from the State Water Project, all contribute to the region's water supply challenges.

In preparing for the possibility of not meeting firm demands of its member agencies, Metropolitan's Board adopted the Water Supply Allocation Plan in February 2008, subsequently updated in June 2009. This plan is an extension of the WSDM Plan and includes specific formula for calculating member agency supply allocations and the key implementation elements needed for administering an allocation. The Water Supply Allocation Plan is the foundation for the urban water shortage contingency analysis required under Water Code Section 10632 and is part of Metropolitan's Regional AWMP.

The table on the following page summarizes the surplus and shortage actions to be taken by Metropolitan as defined in the WSDM Plan. As shown, water shortage Stage 7 is where the Water Supply Allocation Plan is implemented.

Metropolitan Resource Conditions and Action Stages

Resource Stage	Action to be Taken
Surplus 5	Make cyclic deliveries
Surplus 4	Fill Central Valley Groundwater Basins
Surplus 3	Store Supplies in SWP Carryover
Surplus 2	Fill Conjunctive Use Basins
Surplus 1	Fill DWR and Diamond Valley Reservoir
Supplies = Demands	Conduct Public Affairs Program (Conservation)
Shortage 1	Utilize Diamond Valley Reservoir for Additional Supplies to MWD System
Shortage 2	Utilize Central Valley Groundwater Storage to Supplement Supplies
Shortage 3	Interrupt Long-term Seasonal and Replenishment Deliveries
Shortage 4	Take from Conjunctive Use and DWR Storage to Supplement Supplies
Shortage 5	Call for Extraordinary Conservation/Reduce Interim Agricultural Water Program (IAWP) Deliveries
Shortage 6	Call Options Contracts/Buy Spot Water
Shortage 7	Implement Water Supply Allocation Plan

Metropolitan's Water Supply Allocation Plan was developed in consideration of the principles and guidelines described in the WSDM Plan, with the objective of creating an equitable needs-based allocation. The plan's formula seeks to balance the impacts of a shortage at the retail level while maintaining equity on the wholesale level for shortages of Metropolitan supplies of up to 50 percent. The formula takes into account: impact on retail customers and the economy; growth and population; changes in supply conditions; investments in local resources; demand hardening aspects of non-potable recycled water use; implementation of conservation savings program; participation in Metropolitan's interruptible programs; and investments in facilities.

The formula is calculated in three steps: based period calculations, allocation year calculations, and supply allocation calculations. The first two steps involve standard computations, while the third section contains specific methodology developed for the Water Supply Allocation Plan.

Step 1: Base Period Calculations

The first step in calculating a water supply allocation is to estimate water supply and demand using a historical based period with established water supply and delivery data. The base period for each of the different categories of demand and supply is calculated using data from the three most recent non-shortage years, 2004-2006.

Step 2: Allocation Year Calculations

The next step in calculating the water supply allocation is estimating water needs in the allocation year. This is done by adjusting the base period estimates of retail demand for population or economic growth and changes in local supplies.

Step 3: Supply Allocation Calculations

The final step is calculating the water supply allocation for each member agency based on the allocation year water needs identified in Step 2. Each element and its application in the allocation formula are discussed in detail in Metropolitan's Water Supply Allocation Plan.

In order to implement the Water Supply Allocation Plan, the Metropolitan Board will make a determination on the level of the regional shortage, based on specific criteria, in April each year. If it is determined allocations are necessary, they will go into effect in July for that year and remain for a 12-month period, although the schedule is at the discretion of Metropolitan's Board.

EMWD Water Shortage Contingency Planning Affecting RCWD

EMWD's Water Shortage Contingency Plan applies regulations and restrictions on the delivery and consumption of potable outdoor water use during water shortages. EMWD restrictions are structured to protect the safety, health and welfare of the public and minimize the impact a water shortage may have on the local economy and quality of life. Specific reduction requirements and restrictions are applied to four customer types, including residential and landscape, CII, agricultural, and wholesale water. Wholesale customers are allocated water using the formula and methodology based on MWD's Water Supply Allocation Plan.

Since EMWD will respond to Metropolitan's implementation of its WSDM Plan and activation of its Water Supply Allocation Plan, RCWD will be impacted by EMWD's water use restrictions in the event of a water shortage.

WMWD Water Shortage Contingency Planning Affecting RCWD

During a water shortage WMWD will adopt an Ordinance that restricts water usage and penalizes excess usage. Prohibitions of water use that may be imposed by WMWD include street/sidewalk cleaning, washing cars, lawn/landscape watering, non-permanent agriculture, uncorrected plumbing leaks, gutter flooding, and restrictions on construction use. According to the WMWD's Water Shortage Contingency Plan, the stages when these prohibitions become mandatory may vary.

WMWD will respond to Metropolitan's implementation of its WSDM Plan and activation of its Water Supply Allocation Plan. WMWD has also prepared actions to be taken should a catastrophic event occur. Possible catastrophes it is prepared for include: regional power outage, earthquake, extreme weather, terrorism/sabotage, water borne diseases, and system failure. WMWD's Water Shortage Contingency Plan states that it may stop wholesale water sales during a water shortage emergency period, which will have a direct impact on RCWD supplies.

SECTION 3
DESCRIPTION OF QUANTITY OF WATER USES

This section describes water uses for agricultural, environmental, recreational, municipal and industrial, groundwater recharge, transfer and exchanges, and other water uses within the District's service area. These water uses are measured using water production data generated by the District's Operations Department.

3.1 AGRICULTURAL WATER USE

Agricultural demand includes water used for commercial agricultural production. Commercial agricultural production is defined by the U.S. Department of Agriculture and the Census Bureau as any place from which $1,000 or more of agricultural products (crops and livestock) were sold or normally would have been sold during the year.

The main crop types within RCWD's service area are perennial and include wine grapes, citrus, avocados, and other minor crops totaling 10,371 irrigated acres, or approximately 10 percent of the District's service area. Water delivered by RCWD to its customers for agricultural use is a combination of imported water and groundwater. The following table provides details on the quantity of water delivered by RCWD for agricultural purposes for the fiscal years 2013, 2014, and 2015. Additionally, it provides projections for annual agricultural water use in future years.

Annual Agricultural Water Use								
Source	2013	2014	2015	Projected				
				2020	2025	2030	2035	2040
Agricultural Water Supplier Delivered								
Surface Water	0	0	0	0	0	0	0	0
Groundwater	14,802	15,776	14,179	16,244	16,914	17,584	18,254	19,003
Imported Water	8,943	10,035	7,761	8,973	9,344	9,714	10,084	10,498
Subtotal	23,745	25,811	21,940	25,217	26,258	27,298	28,338	29,501
Other Water Supplies Used								
Surface Water	0	0	0	0	0	0	0	0
Groundwater*	0	0	0	0	0	0	0	0
Imported Water	0	0	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0	0	0
TOTAL	**23,745**	**25,811**	**21,940**	**25,217**	**26,258**	**27,298**	**28,338**	**29,501**

*Through Agency Agreements RCWD has with most of its customers, the District functions as the manager of the local aquifer, and generally, does not permit use of private wells within parts of the District's service area considered to be hydrologically significant. However for the few private wells that are known to operate in these areas, no data yield data is available.

3.2 ENVIRONMENTAL WATER USE

Construction of the District's Recycled Water Storage Pond #5 resulted in impacts to approximately 0.26 acres of streambed subject to the jurisdiction of the California Department of Fish and Wildlife (CDFW) and 0.10 acres of waters of the United States subject to the jurisdiction of the U.S. Army Corps of Engineers (Corps) and Regional Water Quality Control Board (RWQCB). Mitigation for these project-related impacts is required by CDFW Streambed Alteration Agreement No. 1600-2012-0037-R6, Corps Clean Water Act Section 404 Permit No. SPL-2012-00393-JEM, and RWQCB Clean Water Act Section 401 Water Quality Certification No. 12C-028.

The *Habitat Mitigation and Monitoring Plan, Recycled Water Storage Pond No. 5 Project, City of Murrieta, County of Riverside, California* (HMMP) prepared on August 31, 2012, provides the concepts and direction to implement and maintain the mitigation requirements to compensate for permanent impacts to habitats associated with construction related activities. The *Addendum to the Habitat Mitigation and Monitoring Plan, Recycled Water Storage Pond No. 5 Project, City of Murrieta, County of Riverside, California* (HMMP Addendum) prepared on October 2, 2012, addresses the revised location of the Wetland and Riparian Habitat Creation Site.

To mitigate for project-related impacts, the HMMP calls for the creation of 0.03 acre of ephemeral streambeds, 0.27 acre of seasonal wetlands, and 0.48 acre of riparian vegetation. To meet the mitigation requirement, the District established two mitigation sites on vacant land, within the District's property. The restoration process was implemented in accordance with the HMMP and HMMP Addendum for a 5-year maintenance and monitoring period.

The District estimates that 2 AFY of demand will be required to mitigate the project-related impacts. This water usage did not begin until 2016, and is not anticipated to continue past 2021.

3.3 RECREATIONAL WATER USE

Located within the District's service area in Temecula's wine country, Vail Lake is a large reservoir of 1,000 surface-area acres in western Riverside County with a storage capacity of 45,207 acre feet. Although the lake provides recreational opportunities including fishing and boating during years when water levels permit these activities, water is not specifically allocated by the District for maintaining these uses; therefore there is no recreational water use within the District's service area. The primary function of Vail Lake is to help recharge groundwater through the use of infiltration basins downstream of its release facilities in order to satisfy municipal, industrial, and agricultural water demands.

3.4 MUNICIPAL & INDUSTRIAL WATER USE

The District provides water service to a large number of municipal and industrial (M&I) customers. M&I customers include single family residential; multifamily residential; commercial institutional and industrial; landscape and golf courses; construction and other temporary water use. The following table provides details regarding RCWD's M&I uses.

M&I Water Uses (AF)								
M&I Entity	2013	2014	2015	Projected				
				2020	2025	2030	2035	2040
Municipal Entity								
Single Family Homes	27,479	28,545	25,308	28,870	30,062	31,253	32,443	33,774
Multi-family Housing	2,165	2,307	2,201	2,511	2,615	2,718	2,822	2,937
Institutional / Governmental Entities	464	497	463	528	550	571	593	618
Dedicated Landscape Irrigation	6,191	6,621	5,601	6,389	6,653	6,916	7,180	7,474
Subtotal	36,300	37,970	33,573	38,298	39,880	41,458	43,038	44,803
Industrial Entity								
Commercial Enterprises	3,560	3,653	3,468	3,956	4,120	4,283	4,446	4,629
Subtotal	3,560	3,653	3,468	3,956	4,120	4,283	4,446	4,629
TOTAL	**39,860**	**41,623**	**37,041**	**42,254**	**44,000**	**45,741**	**47,484**	**49,432**

3.5 GROUNDWATER RECHARGE USE

Groundwater Recharge is the managed and intentional replenishment of natural groundwater supplies using man-made conveyances such as infiltration basins or injection wells. RCWD implements an aggressive groundwater recharge program, and all water recharged is pumped out of the basin for use by the District's agricultural and municipal and industrial customers. Therefore, groundwater recharge activities do not represent a type of water demand for this District, but rather a water management strategy. Following is information regarding the two water sources used by the District for groundwater recharge.

Groundwater Recharge with Native Water from Vail Lake

The District stores local runoff in Vail Lake, which was created through construction of Vail Dam on Temecula Creek. The SRWRCB issued an appropriation permit (No. 7032) in 1948 and amended permit in 2009. Permit No. 7032 grants an appropriate storage right of 40,000 AFY from November 1st to April 30th, points of diversion and re-diversion, place and purpose of use. During these months, water releases from Vail Lake are discharged into either outfall piping which conveys the flows directly to the Upper Valle de Los Caballos (VDC) groundwater recharge site, or the Temecula Creek. Flows to the Temecula Creek either percolate into the groundwater basin or continue downstream to the Santa Margarita River and ultimately the Pacific Ocean. The contribution of the Vail Lake water supply is reflected in the native groundwater produced from the Temecula Valley Groundwater Basin and is not accounted for as a separate water source Chapter 6. From May through October, existing State permits prohibit storage and require inflow to pass through Vail Lake to Temecula Creek.

Vail Dam is operated under an Interim Operation Restriction Plan (IORP) as submitted to the Division of Safety of Damns (DSOD) in 2014. The spillway elevation for Vail Dam is 1472.59 ft (NAVD88), the maximum operating level under the IORP is 1457.6 ft.

(NAVD88). The dam has a maximum height of 152 feet from the dam crest to the lowest point in the foundation.

Based on the 2013 Vail Lake Bathymetric and Topographic Mapping Project Report, the total storage capacity of Vail Lake is 45,206.7 AF at the spillway crest, with a surface area of 1,017 acres at spillway elevation. The District completed the Vail Lake Transmission Main, Pump Station and Quagga Mussel Control Facilities in 2013. These facilities allow the District to acquire imported water from MWD for storage in Vail Lake.

The historical available storage of the lake has varied widely as well, including two periods when the reservoir was full in February 1980 and February 1993. The average annual yield over the past 5 years is 1,843 AFY. There have been several years where the annual yield was 0 AFY, with a maximum yield of 35,552 AFY in 1993 (excluding releases from the overflow spillway).

Groundwater Recharge with Imported Water

In addition to the extraction of the natural yield of the basins, the District artificially recharges the Pauba Valley Basin with untreated imported water for enhanced groundwater production. The District purchases imported water from the MWD and delivers it from the San Diego aqueduct turnout EM-21 to the VDC recharge basins. Between the years 2000 to 2010, imported water provided an average of 15,000 AFY of artificial groundwater recharge through the VDC recharge basins.

The District artificially recharges the Temecula Valley Groundwater Basin with untreated imported water for enhanced groundwater production. The District's Valle de Los Caballos Recharge/Recovery Facility (VDCR/RF) features two groundwater recharge sites: the "Upper" VDC in the easternmost area of the Pauba Valley portion of the Temecula Valley Groundwater Basin, and the "Lower" VDC approximately 2 miles to the west. Untreated MWD water is introduced into the VDCR/RF Infiltration ponds for recharge into the ground.

Over the past decade, all of the groundwater recharge with imported water is subsequently pumped out of the Temecula Valley Groundwater Basin in the same year. This provided an average of 13,875 AFY of artificial groundwater recharge through the VDC recharge basins, with 12,254 AFY provided in FY2014/15. Accordingly, this water will be reported as groundwater supply in Chapter 6, with reliability similar to all MWD imported water in normal, single-dry and multi-dry years.

3.6 TRANSFER & EXCHANGE WATER USE

Water Transfers

The District pumps groundwater from the Temecula Valley Groundwater Basin, which underlies several valleys in southwestern Riverside County and a portion of northern San Diego County, within the Santa Margarita River Watershed. After many years of disputes over the interpretation of legal judgments governing the allocation of groundwater within the Temecula Valley Groundwater Basin, a Cooperative Water Resource Management Agreement (CWRMA) between Camp Pendleton and Rancho California Water District was reached and executed in March 2002 to more effectively manage surface water flow in the Santa Margarita River. To satisfy the requirements of CWRMA, RCWD purchases untreated MWD import water from WMWD, and transfers it for use downstream by conveying it through an outfall pipeline into the Santa Margarita River. Users of this transfer water include Fallbrook Public Utilities District & Camp Pendleton.

Water Wheeling Agreements

RCWD provides water services to properties within the EMWD and WMWD retail water service areas under water wheeling agreements. Water is provided by EMWD to RCWD on an annual basis for the wheeling of water to the following EMWD's water customers: Nakayama Park, Lake Skinner Park, and Glen Oaks. Similarly, water is provided by WMWD to RCWD on an annual basis for wheeling water to WMWD's water customer, Rock Mountain.

Direct water service (i.e., outside RCWD service area) are arranged pursuant to interagency agreements. The interagency agreements provide for and address specific issues and terms related to wheeling of water through RCWD's water distribution system from an imported water supply connection to the point of delivery. The following table provides an overview of these agreements.

Property Served	Service Capacity	Supply Connection	Interagency Agreement	Term	Status
Rancho Glen Oaks	Average 600 gpd/parcel for a maximum 115 metered (parcels) connections	EMWD adjustment of EM-13 allocation or other appropriate delivery point to compensate RCWD	Executed 1/20/93 between RCWD and EMWD	2023 (30 years)	Active
Lake Skinner Park	360 gpm	EM-13 and/or EM-20 will be identified in agreement update to reflect the supply connection to compensate RCWD	Executed 4/21/81 between RCWD and EMWD; update in 2011	2030 (15 years)	Active
Nakayama Park: Parcel No. 1 of PM 10037/APN 957-080-023	Undefined amount; inferred as amount used by property owner	Adjustment of EM-13 or EM-20 allocation to compensate RCWD	Executed 5/2/06 between RCWD and EMWD	2036 (30 years)	Active
Rock Mountain	500 gpm	WMWD adjustment of WR-26 or WR-28 allocation to compensate RCWD	Executed 1/19/05 between RCWD and WMWD	2035 (30 years)	Active
Pechanga Reservation	1,050 AFY (50% of safe yield of the Wolf Valley Groundwater Basin)	Produce groundwater from Pechanga wells or through potable connection to RCWD	Executed 12/21/06 Groundwater Management Agreement between RCWD and Pechanga Band of Luiseno Mission Indians	2031/2056 (25 years; auto-renew for 25 more years	Active
Pechanga Reservation	1,000 AFY	Metered connection for recycled from EMWD	Executed 2/28/08 between RCWD and EMWD	2028 (20 years)	Active

Total Water Transferred and Exchanged

The following table shows the total amount of water transferred through CWRMA and exchanged through wheeling agreements with neighboring agencies for the years 2013, 2014, and 2015. In addition, the table shows transfers and exchanges that are anticipated in future years.

Transfer & Exchange Water Uses (AF)									
From	To	2013	2014	2015	Projected				
					2020	2025	2030	2035	2040
RCWD	Camp Pendleton, EMWD, WMWD, Pechanga	2,749	4,187	3,258	6,781	9,278	9,278	9,278	9,278
	TOTAL	**2,749**	**4,187**	**3,258**	**6,781**	**9,278**	**9,278**	**9,278**	**9,278**

3.7 OTHER WATER USE

Other water uses include recycled water use and water lost through the Districts delivery and storage systems. Recycled water used by the District is produced at the Santa Rosa

Regional Resources Authority's (SRRRA) Santa Rosa Water Reclamation Facility (SRWRF) or purchased from EMWD's Temecula Valley Regional Water Reclamation Facility (TVRWRF). The SRRRA is constituted of three member agencies including WMWD, the Elsinore Valley Municipal Water District (EVMWD) and the District, all of which generate wastewater which is ultimately treated at the SRWRF. Both the TVRWRF and the SRWRF produce disinfected tertiary recycled water meeting the State of California Title 22 regulations for such uses as recreational impoundments and surface irrigation for landscaping, golf courses, agriculture, parks and playgrounds. Water loss is a calculated quantity, which is equal to the difference between the amount of water produced by the District for delivery to its customers, and the amount actually delivered to its users as measured by the District's water meters.

The following table shows both recycled water use and water water losses for 2013, 2014, and 2015. Projections are also provided for future years.

Other Water Uses (AF)								
Water Use Type	**2013**	**2014**	**2015**	**Projected**				
				2020	**2025**	**2030**	**2035**	**2040**
Recycled Water Use	4,347	4,554	3,909	4,599	6,107	7,663	8,053	8,129
Water Loss	3,030	2,897	2,931	3,391	3,531	3,671	3,811	3,967
TOTAL	**7,377**	**7,451**	**6,840**	**7,990**	**9,638**	**11,334**	**11,864**	**12,096**

SECTION 4
DESCRIPTION OF QUANTITY & QUALITY OF WATER RESOURCES

The District currently obtains its water supplies from the following primary water sources: 1) local groundwater from the Temecula Valley Groundwater Basin; 2) imported State Water Project (SWP) and Colorado River water from MWD via EMWD and WMWD; and 3) recycled water from both District and EMWD.

4.1 WATER SUPPLY QUANTITY

Surface Water Supply

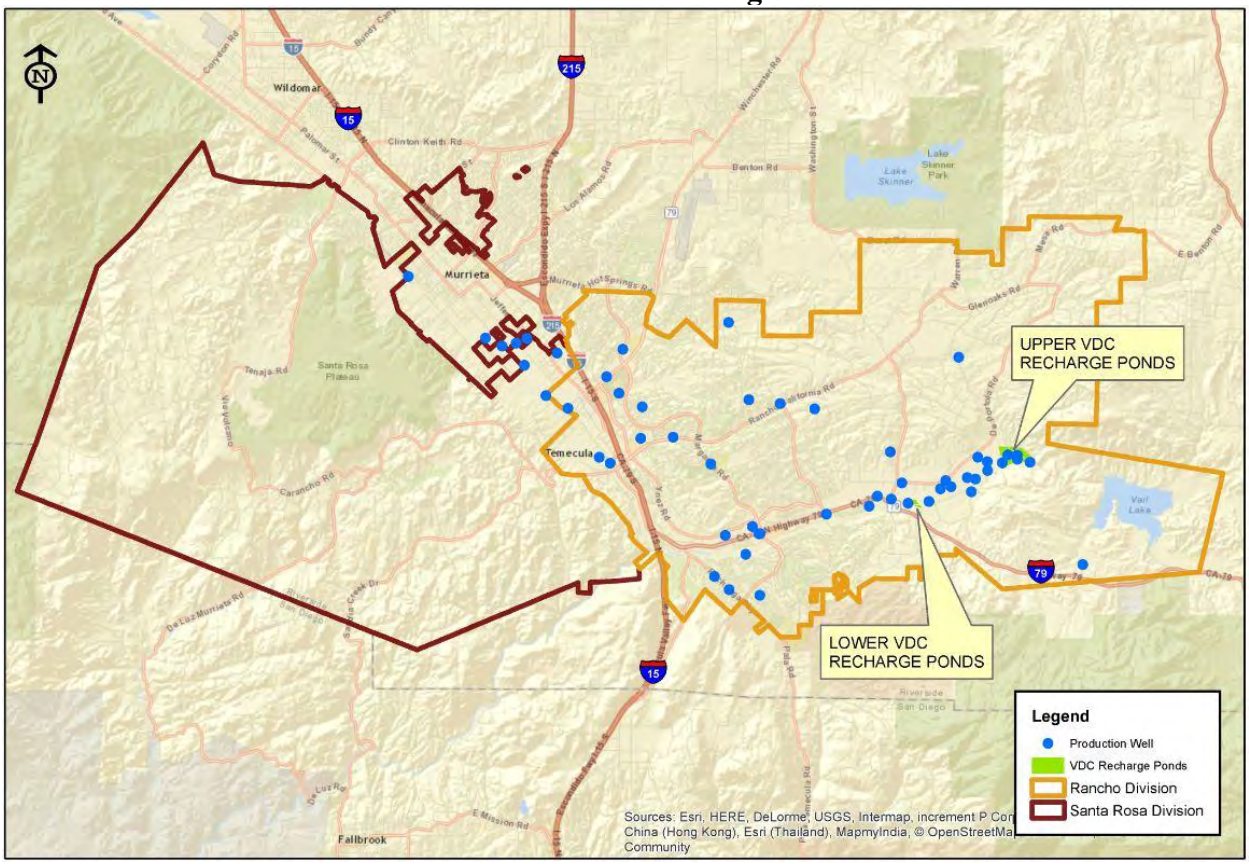
The storage capacity of Vail Lake is 45,207 acre feet (AF) and it is used to help recharge groundwater, through the use of infiltration basins downstream from the Vail Lake release facilities. Although the District owns and operates Vail Lake as a surface water reservoir, water from the lake is used for groundwater recharge. Therefore, the water supply held within Vail Lake prior to recharge is not considered surface water supply, but counted as groundwater supply.

Groundwater Supply

The District pumps groundwater from 48 district wells located within the Temecula Valley Basin. Historically groundwater has supplied between 25 to 40 percent of the District's total water supply. The District receives groundwater from the Temecula Valley Groundwater Basin, as identified in California's Groundwater Bulletin 118. The Basin underlies several valleys in southwestern Riverside County and a portion of northern San Diego County, within the Santa Margarita River Watershed. Further details regarding the Temecula Valley Groundwater Basin are provided in RCWD's Groundwater Management Plan, which is provided as an attachment to this AWMP.

The District overlies two major aquifers, the Temecula and the Pauba, which have been the subject of a number of studies over the years. The Pauba aquifer, covering approximately 18 square miles, is "comprised of younger alluvial sediments that occur along the principal streams of the watershed. Unconfined groundwater occurs within the sediments of the highly porous Pauba aquifer, and well yields typically range from 500 to 2,000 gpm. The Pauba aquifer reaches depths of up to 500 feet. The Pauba aquifer is underlain by the confined Temecula aquifer. The Temecula aquifer, approximately 100 square miles and consists of unconsolidated sediments that extend from 500 feet in depth to depths exceeding 2,000 feet. These aquifers have been divided into hydrologic subunits, which are illustrated in Figure 6-2. As shown in Figure 6-3, the Temecula Valley Groundwater Basin is an alluvial basin identified as Basin 9-5 in DWR Bulletin 118.

RCWD Well Locations & Recharge Areas



The following table shows the annual quantity of groundwater pumped by RCWD for use by its customers.

Groundwater Supplies (AF)										
Temecula Valley Groundwater Basin	**Diversion Restriction**	**2013**	**2014**	**2015**	**Projected**					**Anticipated Changes**
					2020	**2025**	**2030**	**2035**	**2040**	
Native Groundwater	No	27,393	28,063	25,018	25,422	25,422	25,422	25,422	25,422	None
Artificial Recharge	No	12,034	11,722	12,254	17,671	24,438	24,438	24,438	35,854	
	TOTAL	39,427	39,785	37,272	43,093	49,860	49,860	49,860	61,276	

Other agencies also pump from the basins in addition to the District, including WMWD, Pechanga Band of Luiseno Mission Indians (Pechanga) and other private pumpers. Accounting for these users, the total natural yield available to the District varies, and is estimated to average approximately 25,000 AFY.

Although there were no significant challenges in obtaining groundwater during the timeframe covered by this AWMP, the District does limit the operation of the groundwater basin within safe yield limits in order to avoid overdraft or other undesirable conditions that could degrade water quality or violate legal restrictions.

Conjunctive Use

Conjunctive Use is a management strategy where surface water is managed in conjunction with an underground aquifer. The District is currently in Phase III of the Upper VDC Conjunctive Use Optimization Project. This project includes purchasing more untreated water from MWD, and delivering it to the Valle de los Caballos (VDC) recharge basins. Ten new wells will be installed at the Upper VDC to increase groundwater production through artificial recharge. Pumping would occur year round. The recharge goal under this alternative is 35,854 AFY by 2040, representing an increase of 22,695 AFY over current artificial recharge capacity. Vail Lake and the groundwater basin can be utilized for storage, which allows the District to lower imported water costs by taking advantage of MWD's replenishment rates, when available. This also provides a level of reliability, as Vail Lake water or banked groundwater may be available for release or extraction during dry weather periods when MWD imposes mandatory reductions. MWD requires any replenishment water to remain in Vail Lake for a minimum of one-year.

In 2013, the District's Board approved both the Indirect Potable Reuse (IPR) Feasibility Study Report and the IPR Conceptual Design Study. Based on this evaluation, the District is considering proceeding with efforts to develop and permit an indirect potable reuse (IPR) project that would utilize available additional recycled water for groundwater recharge. The IPR technique is one of the recycled water applications that have developed in recent years, largely as a result of advances in treatment technology and regulatory achievements that enable the production of extremely high quality recycled water at increasingly reasonable costs and reduced energy inputs. In IPR, tertiary treated recycled water is further treated through reverse osmosis, ozone, and ultraviolet disinfection and utilized as a high-quality, low-salinity water source for groundwater or reservoir recharge with the intent of augmenting drinking water supplies. IPR is a feasible option for the sustainable management of water because it is a water supply alternative not dependent on rainfall and it is possible to achieve high quality recycled water in compliance with regulatory standards and guidelines. Based on the analysis and evaluation of alternatives conducted, a recommended approach was identified for implementation of an IPR project with a project capacity of 4,450 AFY in 2040.

The District will continue to coordinate with USGS, and by 2020, the two agencies will develop a comprehensive aquifer technical study to develop a 3-D geologic mapping of the Basin aquifers, evaluate bedrock flows/recharge contributions, assess conjunctive use opportunities, and evaluate TDS and nitrate groundwater quality data. This will help establish optimal groundwater management strategies to provide long-term utilization and optimization of the Basin.

Other Water Supplies

In addition to groundwater supplies, the District has access to imported and recycled water supplies. The table on the following page shows historic water production for these supply types within the District's service area.

Other Water Supplies (AF)			
Year	**Imported Water Supply**	**Recycled Water Supply**	**Total**
2013	30,047	4,257	34,304
2014	35,330	3,957	39,287
2015	27,771	4,036	31,807

Imported Water Supply
Imported water originates outside the Santa Margarita River Watershed (generally water from the Colorado River and the State Water Project) and is purchased by the District from the member agencies of MWD for delivery to its customers. The member agencies of WMWD from which the District purchases imported water are WMWD and EMWD.

Imported water is conveyed to the District through MWD's Lake Skinner Reservoir and Water Treatment Facility with back-up storage provided by Diamond Valley Lake. Lake Skinner Reservoir and Water Treatment Facility has six pipeline facilities that convey water south towards San Diego County. These include two (2) raw water pipelines (Pipeline Nos. 5 and 6) and two treated water pipelines (Bypass Pipeline No. 3 and Pipeline No. 4). Bypass Pipeline No. 3 is a treated water pipeline ultimately planned to connect to Pipeline No. 3 in a future conversion to potable water. Although the District purchases water from this facility through EMWD and WMWD, these MWD member agencies do not convey the water through their facilities to the District. Rather, the District receives the water directly at these MWD turnouts.

Imported treated water flow rates varies seasonally at the District's turnouts. During winter months when demand is typically lower, the District relies mostly on local groundwater resources. During these periods, the District may turn off all the imported water turnouts. As demands increase throughout the year, groundwater sources are augmented with imported water supplies to meet daily demand variations.

Recycled Water Supply
Recycled water used by the District is produced at the Santa Rosa Regional Resources Authority's (SRRRA) Santa Rosa Water Reclamation Facility (SRWRF) or purchased from EMWD's Temecula Valley Regional Water Reclamation Facility (TVRWRF). The SRRRA is constituted of three member agencies including WMWD, Elsinore Valley Municipal Water District (EVMWD) and the District, all of which generate wastewater which is ultimately treated at the SRWRF. Both the TVRWRF and the SRWRF produce disinfected tertiary recycled water meeting the State of California Title 22 regulations for uses within RCWD's service area such as surface irrigation for landscaping, golf courses, parks and playgrounds, as well as certain industrial processes.

Santa Rosa Water Reclamation Facility
The SRWRF has a current capacity of 5 mgd, or approximately 5,598 AFY. The plant collects flow from areas within portions of the District's service area, WMWD, and the Elsinore Valley Water District (EVMWD). The SRRRA owns both the SRWRF, as well as approximately 17 miles of gravity mains and the Cal

Oaks Lift Station. The SRWRF, gravity mains and lift station are operated by contract through the District.

Temecula Valley Regional Water Reclamation Facility
The TVRWRF treats wastewater from a service area which includes the "Golden Triangle" region between Interstates 15 and 215, the Murrieta Hot Springs area, and portions of the Rancho Division of the District. The TVRWRF also receives and treats wastewater generated in the WMWD and EVMWD service areas.

Effluent from TVRWRF is conveyed to on-site storage ponds prior to distribution. There are 225 million gallons (MG) of temporary on-site storage capacity. When additional storage is required, recycled water is conveyed to 450 MG storage ponds located 10 miles north in Winchester, providing recycled water supply for irrigation users along the way. When the ponds are full or there is not enough demand, the effluent is discharged to Temescal Creek, a tributary of the Santa Ana River, for ultimate disposal to the Pacific Ocean.

Drainage from RCWD's Service Area

For some agricultural regions within the state of California, significant precipitation, high water tables, or low quality water within the upper portion of the groundwater profile can require that water be removed from farmed lands through installation of drainage conveyances in order to optimize crop or livestock production. Within RCWD's service area, which is situated in an arid portion of the state, neither precipitation levels nor water tables are significantly high enough to warrant such activities. Moreover, all water pumped from the aquifer is treated to a satisfactory level prior to distribution to its agricultural customers, so no drainage water is produced as a result of poor groundwater quality. In addition, drainage due to on-farm tailwater within the District's service area does not exist due to the prevalence of relatively coarse soils with high infiltration and percolation rates in combination with highly-efficient, low precipitation-rate micro-irrigation systems. Therefore, there are no drainage water flows within RCWD's service area.

4.2 WATER SUPPLY QUALITY

Water supplies within the District's service area are derived from a combination of imported treated water from MWD and groundwater, which consists of untreated recharge purchased through MWD and native groundwater. The District blends these supplies to mitigate against water quality impacts and constraints on their uses.

RCWD's imported water supply is monitored for quality by the MWD before conveyance through its facilities. In addition, the District monitors the quality of these imported supplies at the source and after being blended with groundwater supplies. All water produced and delivered by RCWD is tested for quality according to applicable legal requirements and meets or exceeds standards for public drinking water. The results of the water quality tests performed by the District are included in Consumer Confidence Reports made available to the District's water users on an annual basis (see Appendices). Following is a description of the quality of RCWD's water supplies.

Surface Water Supply

Although the District owns and operates Vail Lake as a surface water reservoir, water from the lake is used for groundwater recharge. Therefore, the water supply held within Vail Lake prior to recharge is not considered surface water supply, but counted as groundwater supply.

Groundwater Supply

Recognizing the importance of groundwater for providing high-quality, affordable, reliable water supply for water users within RCWD's service area, the District led the development of a Salt and Nutrient Management Plan (SNMP) for the Temecula Valley Groundwater Basin to address the protection of beneficial uses of groundwater and meeting the overall supply need of the region. The SNMP includes extensive information regarding basin Plan Objectives for water quality, historical groundwater quality trends, water quality management strategies, and an implementation plan. The SNMP is included as Appendix G to this Plan. The following table summarizes RCWD's groundwater supply quality for 2015.

Groundwater Supply Quality (2015)		
Parameter	**Units**	**Value**
TDS	ppm	489
Se	ppm	Not Detected
B	ppm	0.37
Mo	ppm	Not Detected
As	ppb	3.2
Na	ppm	105
Cl	ppm	96
Pesticide	ppb	Not Detected
Herbicide	ppb	Not Detected
Fertilizer (NO_3)	ppm	7.9

Other Water Supplies

Imported Water Supply

Colorado River water is conveyed via MWD's 242-mile Colorado River Aqueduct from Lake Havasu on the California-Arizona border, to Lake Mathews near Riverside, CA. Water supplies from Northern California are drawn from the crossroads of the Sacramento and San Joaquin rivers. They are transported in the State Water Project's 444-mile California Aqueduct. These two supplies are blended and monitored for quality by MWD according to all applicable legal standards before they are purchased by RCWD for distribution to its customers. In addition, RCWD monitors the quality of the imported water both before and after it is blended with its groundwater supply. The following table summarizes RCWD's imported water supply quality for 2015.

Imported Water Supply Quality (2015)		
Parameter	**Units**	**Value**
TDS	ppm	621
Se	ppm	Not Applicable
B	ppm	110
Mo	ppm	Not Applicable
As	ppb	Not Detected
Na	ppm	98
Cl	ppm	102
Pesticide	ppb	Not Detected
Herbicide	ppb	Not Detected
Fertilizer (NO_3)	ppm	Not Detected

In addition, MWD publishes an Annual Drinking Water Quality Report. The 2015 report is available on MWDs website.

Recycled Water

RCWD treats all of the wastewater collected at the SRWRF to tertiary standards. EMWD treats all of the wastewater collected at the TVRWRF to tertiary standards and sells approximately 60 percent of total treated wastewater to EMWD retail and wholesale customers, including RCWD. The following table summarizes RCWD's recycled water supply quality for 2015.

Imported Water Supply Quality (2015)		
Parameter	**Units**	**Value**
TDS	ppm	765
Se	ppm	Not Applicable
B	ppm	0.55
Mo	ppm	Not Applicable
As	ppb	Not Applicable
Na	ppm	Not Applicable
Cl	ppm	196
Pesticide	ppb	Not Applicable
Herbicide	ppb	Not Applicable
Fertilizer (NO_3)	ppm	7.73

The primary water quality component that affects the beneficial use of recycled water in the District's service area is the level of Total Dissolved Solids (TDS), which generally classifies how salty the water is. The recycled water produced by the SRWRF and the TVRWRF generally averages a TDS value of 730 mg/L.

Within the District's service area, the San Diego Regional Water Quality Control Board's Basin Plan limits the use of recycled water to hydrologic sub-basins with a TDS limit of 750 mg/L. For hydrologic sub-basins with a TDS limit of 500 mg/L, the use of recycled

water in these areas requires the de-mineralization of recycled water or an approved recycled water use plan based on the assimilative capacity of the sub-basin.

Drainage from RCWD's Service Area

As described in section 4.1 of this AWMP, drainage water as a source of supply does not exist in RCWD's service area. Therefore, RCWD does not conduct water quality monitoring activities for drainage water.

4.3 SOURCE WATER QUALITY MONITORING PRACTICES

The District safeguards its water supply by collecting and analyzing more water samples than required by the EPA and SWRCB DDW. Further details regarding the District's water quality monitoring practices are included in Section VIII's AWMP Worksheet 38. The District collects more than 2,000 samples a year for analysis of 120 different contaminants including bacteria, metals, organic chemicals, pesticides, and aesthetic-related substances. As reported in the District's Annual Consumer Confidence Report for calendar year 2014, all water produced and delivered by the District meets or exceeds the standards for public drinking water.

Constituents of concern include TDS, nitrate, VOCs, perchlorate, arsenic, fluoride and manganese. Groundwater in most of the Pauba aquifer and the Temecula aquifer is generally suitable for domestic and irrigation uses. While the District's water meets the standards for arsenic and fluoride, it does contain low levels of both constituents. However, high concentrations have been detected in two groundwater wells causing the District to remove them from production and consider possible future treatment. After well water is extracted it is blended with other well water and imported water. The distribution system's lowest monthly average is well below the standard of 10 mg/L for arsenic. Fluoride occurs in the groundwater basins as a result of natural causes, and water samples exhibiting high concentrations of arsenic often show high concentrations of fluoride. The distribution system lowest monthly average level of fluoride is below 2.0 mg/L. Manganese is present in the groundwater as a result of leaching from natural deposits. Sampling in the distribution system has indicated that blending reduces the manganese concentration to the non-detect level.

There are several District wells which currently have primary or secondary health concerns resulting from measured levels of arsenic, fluoride and/or manganese. There are three wells on state approved blending plans as they have exceeded the primary Maximum Contaminant Level (MCL) for arsenic, including Well 106, Well 126 and Well 151. Well 143 has not yet exceeded the primary MCL for arsenic, but is being monitored. There are two wells on state approved blending plans which have exceed the primary MCL for fluoride, including Well 126 and Well 151. There are also two wells that are treated with sequestration as they have exceeded the secondary MCL for manganese, including Well 101 and Well 118.

Groundwater provides a local and independent water supply source for the District. Groundwater levels are dependent on natural factors such as precipitation and natural

recharge. District controlled factors include groundwater management activities, such as scheduled pumping and monitoring water quality, levels and subsidence.

Changes in the District's Water Supply Due to Water Quality

Imported water treated and delivered from Metropolitan is consistently of good quality, resulting in a reliable supply of imported water. Metropolitan has identified water quality issues that are of concern and has implemented water management strategies to minimize the impact on water supplies, as discussed earlier in Section 4.

The groundwater quality in the Murrieta-Temecula Basin is considered good, especially where recharge occurs. Early monitoring and implementation of programs are intended to help producers maintain the groundwater production ability in accordance with the Basin agreements. Recycled water meets or exceeds stringent water quality standards.

There are no known water quality concerns that will significantly impact water supply reliability. Therefore, there is no projected reduction in water supplies due to water quality constraints during the next 25 years. If water quality does impact the District's water supply in the future, the District will continue to implement its Water Facilities Master Plan and Capital Improvement Program, which provide for system redundancy and enhanced reliability of supply. For example, if groundwater becomes unusable (without treatment) due to water quality concerns, more imported water will be utilized and/or treatment could be applied to the affect groundwater. If imported water becomes limited due to diminished water quality, then additional treatment could be applied and/or more groundwater may be used.

SECTION 5
WATER ACCOUNTING & WATER SUPPLY RELIABILITY

5.1 QUANTIFICATION OF WATER SUPPLIES

As indicated in Section 4, the District's supplies consist of groundwater from the Temecula Valley Groundwater Basin, imported State Water Project (SWP) and Colorado River water from MWD via EMWD and WMWD, and recycled water generated by the District and EMWD.

The District receives its imported water (treated and untreated) directly through six MWD water turnouts, three in EMWD's service area and three in WMWD's service area. The District pumps groundwater from 53 district wells and recycles water at its Santa Rosa Water Reclamation Facility (SRWRF). Additional recycled water is available from EMWD's Temecula Valley Regional Water Reclamation Facility (TVRWRF). The District owns and operates 43 storage reservoirs and one surface reservoir, Vail Lake. The storage capacity of Vail Lake is 45,207 acre feet (AF) and it is used to help recharge groundwater, through the use of infiltration basins downstream from the Vail Lake release facilities.

Historically groundwater has supplied between 25 to 40 percent of the District's total water supply and imported water has supplied between 60 to 70 percent. In 2015, recycled water comprised approximately 6 percent of the District's water supply portfolio. The following table shows the District's combined annual water supply for 2013, 2014, and 2015, broken down among its sources. Projected future water supplies are also provided.

RCWD Current and Projected Water Supplies (AF)*

Water Supply Sources	2013	2014	2015	2020	2025	2030	2035	2040
Groundwater	39,427	39,785	37,272	43,093	49,860	49,860	49,860	61,276
Imported Water	30,047	35,330	27,771	43,169	36,402	36,402	36,402	25,886
Recycled Water	4,257	3,957	4,036	4,299	6,448	7,727	7,798	7,874
Total Supplies	**73,731**	**79,072**	**69,079**	**90,561**	**92,710**	**93,989**	**94,060**	**95,036**

*Supply data in this table represents supply used for satisfying demand for both M&I and agricultural customers.

Groundwater

Groundwater supplies have historically satisfied a significant portion of the overall District water demand. The District receives groundwater from the Temecula Valley Groundwater Basin, as identified in California's Groundwater Bulletin 118. The Basin underlies several valleys in southwestern Riverside County and a portion of northern San Diego County, within the Santa Margarita River Watershed.

The District overlies two major aquifers, the Temecula and the Pauba, which have been the subject of a number of studies over the years. The Pauba aquifer, covering approximately 18 square miles, is comprised of younger alluvial sediments that occur along the principal streams of the watershed. Unconfined groundwater occurs within the sediments of the highly porous Pauba aquifer, and well yields typically range from 500 to 2,000 gpm. The Pauba aquifer reaches depths of up to 500 feet. The Pauba aquifer is underlain by the confined Temecula aquifer. The Temecula aquifer, approximately 100 square miles,

consists of unconsolidated sediments that extend from 500 feet in depth to depths exceeding 2,000 feet. Within these aquifers, the District current maintains 53 production wells, including inactive and off-line wells.

In addition to the extraction of the natural yield of the basins, the District artificially recharges the Pauba Valley Basin with untreated imported water for enhanced groundwater production. The District's Valle de Los Caballos Recharge/Recovery Facility (VDCR/RF) features two groundwater recharge sites: the "Upper" VDC in the easternmost area of the Pauba Valley and the "Lower" VDC approximately 2 miles to the west. Untreated MWD water and/or Vail Lake surface water are introduced into the VDCR/RF Infiltration ponds for recharge into the ground. Over the past 15 Years, this supplemental water provided an average of 15,000 AFY of artificial groundwater recharge through the VDC recharge basins. The following table summarizes the quantity and types of groundwater pumped by the District over the past three years.

Groundwater Volume Pumped (AF)*

Groundwater Type	Basin Name	2013	2014	2015
Alluvial Basin*	Temecula Valley Groundwater Basin	39,427	39,785	37,272

*Includes both native and artificial recharge

The annual supply capacity of the District's groundwater sources is limited by the natural yield of the groundwater basin, in conjunction with the artificial groundwater recharge the District achieves at the VDC recharge basins. The District evaluates each groundwater well based on hydrogeological subunit and aquifer, to determine an annual pumping budget.

A significant aspect of the District's annual budget process is the determination of the quantity of groundwater that will be produced. Each year, staff and the District's consulting hydrogeologist, Dr. Dennis Williams of GEOSCIENCE Support Services Incorporated, jointly prepare an audit of groundwater resources at the conclusion of the water year (year ending September 30). The underlying philosophy guiding the audit has been, and continues to be, one of sound basin management. This involves operating the groundwater basin within safe yield limits to avoid creating a permanent overdraft or other undesirable condition, such as water quality degradation, reduction of long-term production capacity, or land subsidence. Determination of the amounts of groundwater hydrologically available to the District is an ongoing process of constant evaluation and review. Production recommendations are based primarily on a review of individual well production and historical hydrographs, consideration of groundwater level elevations from all production and monitoring wells, information from hydrologic subareas and index wells representing water level changes in the subarea, and District staff input. In accordance with sound groundwater basin management practices, the recommended production is considered a guide and is subject to revision as additional data is available.

Other agencies also pump from the basins in addition to the District, including WMWD, Pechanga Band of Luiseno Mission Indians (Pechanga) and other private pumpers. Accounting for these users, the total natural yield available to the District varies, and is estimated to average approximately 25,000 AFY.

Imported Water

Imported water is water that originated from outside of the Santa Margarita River Watershed (generally water from the Colorado River and the State Water Project). Imported water is treated water purchased by the District from EMWD and WMWD through MWD.

Imported water provided to the District is conveyed through MWD's Lake Skinner Reservoir and Water Treatment Facility with back-up storage provided by Diamond Valley Lake. MWD has six pipeline facilities which depart from MWD's Lake Skinner Reservoir and Water Treatment Facility and convey water south towards San Diego County. These include two (2) raw water pipelines (Pipeline Nos. 5 and 6) and two treated water pipelines (Bypass Pipeline No. 3 and Pipeline No. 4). Bypass Pipeline No. 3 is a treated water pipeline ultimately planned to connect to Pipeline No. 3 in a future conversion to potable water. EMWD and WMWD do not convey the water through their facilities to the District. Rather, the District receives the water directly from these MWD turnouts.

Imported treated water flow rates vary seasonally at the District's turnouts. During winter months when demand is typically lower, the District relies mostly on local groundwater resources. During these periods, the District may turn off all the imported water turnouts. As demands increase throughout the year, groundwater sources are augmented with imported water supplies to meet daily demand variations. The quantity of treated water purchased from EMWD and WMWD for the years 2013, 2014, and 2015 is shown in the following table.

Imported Water Source	Treatment Level	2013	2014	2015
MWD	Treated to Potable Standards	30,047	35,330	27,771

Recycled Water

Wastewater in the upper Santa Margarita watershed is collected by a sewer system in the more densely populated areas and by septic systems in the rural areas. The District and EMWD collect all wastewater within the District's water service area. Wastewater collected by the District is conveyed to a collection system owned and operated by the Santa Rosa Regional Resources Authority (SRRRA). The SRRRA is comprised of three member agencies, including the District, EVMWD and WMWD. The SRRRA collection system also conveys flow from EVMWD and WMWD, for ultimate treatment at the Santa Rosa Water Reclamation Facility (SRWRF), which is owned by the SRRRA, and operated through contract with the District. Wastewater collected by EMWD is treated at the Temecula Valley Regional Water Reclamation Facility (TVRWRF).

Recycled water used by the District is produced at SRWRF or purchased from EMWD's TVRWRF. Both the TVRWRF and the SRWRF produce disinfected tertiary recycled water meeting the State of California Title 22 regulations for such uses as recreational impoundments and surface irrigation for landscaping, golf courses, agriculture, parks and playgrounds, as well as certain industrial processes. However, recycled water is not a significant water supply for agricultural uses within the District.

Santa Rosa Water Reclamation Facility

The SRWRF has a current capacity of 5 mgd, or approximately 5,598 AFY. The plant collects flow from areas within portions of the District's service area, WMWD, and the Elsinore Valley Water District (EVMWD). The SRRRA owns both the SRWRF, as well as approximately 17 miles of gravity mains and the Cal Oaks Lift Station. The SRWRF, gravity mains and lift station are operated by contract through the District.

The total wastewater treated at the SRWRF was 2,858 AFY in 2015, with all of the recycled water produced at this plant reused. Seasonal storage ponds near the SRWRF, as well as the Cole Creek Storage Ponds, store effluent during the winter months (low demand period) to prevent discharges and provide reclaimed water supply to meet peak summer demands. The current pond storage capacity is 1,495 AF.

Temecula Valley Regional Water Reclamation Facility

The TVRWRF treats wastewater from a service area which includes the "Golden Triangle" region between Interstates 15 and 215, the Murrieta Hot Springs area, and portions of the Rancho Division of the District. The TVRWRF also receives and treats wastewater generated in the WMWD and EVMWD service areas.

The total wastewater treated at the TVRWRF in 2015 was 15,088 AFY. Effluent from TVRWRF is conveyed to on-site storage ponds prior to distribution. There are 225 million gallons (MG) of temporary on-site storage capacity. When additional storage is required, recycled water is conveyed to 450 MG storage ponds located 10 miles north in Winchester, providing recycled water supply for irrigation users along the way. When the ponds are full or there is not enough demand, the effluent is discharged to Temescal Creek, a tributary of the Santa Ana River, for ultimate disposal to the Pacific Ocean. Recycled water produced by the TVRWRF is currently distributed to a variety of users, including users in the District's service area.

The following table shows recycled water supplies for 2013, 2014, and 2015.

Water Supply Source	2013	2014	2015
Recycled Water	4,257	3,957	4,036

Recycled water planning within the District's service area requires close coordination with several agencies. The District developed a Regional IRP in 2005 that evaluated alternatives to increase recycled water within the District's service area. As previously noted, the District and EMWD are working cooperatively to achieve maximum reuse of all available recycled water. Additionally, the three member agencies of SRRRA have monthly meetings to discuss and coordinate operations and planning of the SRWRF. Development of local recycled water facilities will be the key to expanding the direct use of recycled water and deliver the ultimate recycled water demand.

Effective Precipitation

The District is located within an arid region of southern California, and generally does not receive amounts of rainfall significant enough to satisfy the requirements of the locally grown crop types. Therefore, RCWD does not consider precipitation as part of its water supply. However, for the purpose of making a simplistic estimation of the amount of rainfall that may have been effective in meeting crop water demands, 66 percent of total precipitation (as reported by local CIMIS stations) was used to generate the following table.

Effective Precipitation (inches)				
Month	Year			Average
	2013	2014	2015	
January	0.51	0.08	0.36	0.32
February	0.63	1.95	0.46	1.01
March	0.73	1.07	0.46	0.75
April	0.05	0.25	0.08	0.13
May	0.32	0.00	0.87	0.40
June	0.01	0.02	0.09	0.04
July	0.03	0.01	0.33	0.12
August	0.02	0.40	0.03	0.15
September	0.00	0.14	0.48	0.20
October	0.38	0.02	0.20	0.20
November	0.33	0.36	0.25	0.31
December	0.28	3.14	0.67	1.36
TOTAL	**3.29**	**7.42**	**4.28**	**4.99**

5.2 TABULATING WATER USES

As indicated in Section 3, the District's water uses consist of mainly of agricultural, and municipal and industrial demands. Other water uses within the service area include environmental water use, uses for transfers and exchanges, recycled water use, and water loss. The following table shows the District's combined annual water demands for 2013, 2014, and 2015, broken down among its usage types. Projected future water demands are also provided.

RCWD Current and Projected Water Use (AF)

Water Use Type	2013	2014	2015	2020	2025	2030	2035	2040
Agricultural	23,745	25,811	21,940	25,217	26,258	27,298	28,338	29,501
Municipal & Industrial	39,860	41,623	37,041	42,254	44,000	45,741	47,484	49,432
Environmental Use	0	0	0	2	0	0	0	0
Transfers & Exchanges	2,749	4,187	3,258	6,781	9,278	9,278	9,278	9,278
Recycled	4,347	4,554	3,909	4,599	6,107	7,663	8,053	8,129
Water Loss	3,030	2,897	2,931	3,391	3,531	3,671	3,811	3,967
Total Use	**73,731**	**79,072**	**69,079**	**82,244**	**89,174**	**93,651**	**96,964**	**100,307**

Agricultural Water Uses

Over the last three years, the total amount of water RCWD has delivered for agriculture purposes has ranged between approximately 22,000 and 26,000 acre feet per year. This water was used mainly for the growing of avocados, citrus, and wine grapes with a small amount being used for other minor agricultural uses. The following table provides details regarding the total annual water use for all agricultural uses within the District's service area and estimations of crop ET, water used for cultural practices, and leaching requirements.

Agricultural Crop Information for RCWD's Service Area									
Year	**Crop**	**Irrigation Method**	**Planting Month**	**Harvest Month**	**Est. Crop ET (AF/Ac)***	**Est. Use for Cultural Practices (AF/Ac)****	**Est. Use for Leaching (AF/Ac)*****	**Acres******	**Total Water Use (AF/Ac)**
2013	Avocado, Winegrape, Citrus, and other Minor Ag uses	Drip / Micro-sprinkler	Perennial Crops	Year round	1.95	0.11	0.23	10,371	23,745
2014	Avocado, Winegrape, Citrus, and other Minor Ag uses	Drip / Micro-sprinkler	Perennial Crops	Year round	2.12	0.12	0.25	10,371	25,811
2015	Avocado, Winegrape, Citrus, and other Minor Ag uses	Drip / Micro-sprinkler	Perennial Crops	Year round	1.81	0.11	0.21	10,371	22,106

*Estimated at 85% of total water use
**Estimated at 5% of total water use
***Estimated at 10% of total water use
****Data for 2013 and 2014 not available. Therefore, 2015 acreage analysis considered best data available and used for 2013 and 2014 calculation.

Other Water Uses

Other water uses within the District's service area include municipal and industrial use, environmental use, transfer and exchange use, recycled water use, and system water loss. Each of these uses is reported in the following table.

Water Use Type	2013	2014	2015	2020	2025	2030	2035	2040
Municipal & Industrial	39,860	41,623	37,041	42,254	44,000	45,741	47,484	49,432
Environmental Use	0	0	0	2	0	0	0	0
Transfers & Exchanges	2,749	4,187	3,258	6,781	9,278	9,278	9,278	9,278
Recycled	4,347	4,554	3,909	4,599	6,107	7,663	8,053	8,129
Water Loss	3,030	2,897	2,931	3,391	3,531	3,671	3,811	3,967
Total Use	**49,986**	**53,261**	**47,139**	**57,008**	**62,916**	**66,353**	**68,626**	**70,806**

Recoverable and Irrecoverable Water Flows

For some agricultural regions within the state of California, significant precipitation, high water tables, or low quality water within the upper portion of the groundwater profile can require that water be removed from farmed lands through installation of drainage conveyances in order to optimize crop or livestock production. Within RCWD's service area, which is situated in an arid portion of the state, neither precipitation levels nor water tables are significantly high enough to warrant such activities. Moreover, all water pumped from the aquifer is treated to a satisfactory level prior to distribution to its agricultural customers, so no drainage water is produced as a result of poor groundwater quality. In addition, drainage due to on-farm tailwater within the District's service area does not exist due to the prevalence of relatively coarse soils with high infiltration and percolation rates in combination with highly-efficient, low- precipitation rate micro-irrigation systems. Therefore, there are no drainage water flows within RCWD's service area to recover.

In terms of recoverable and/or irrecoverable deep percolation of agricultural irrigation water, the District estimates that little, if any, exists within RCWD's service area due to the prevalence of precision irrigation practices that are implemented on local agricultural lands. If deep percolation does exist, it would recharge a usable aquifer and would be recovered by the District's production wells and/or private wells.

5.3 OVERALL WATER BUDGET

District water supplies and demands for the years 2013, 2014, and 2015 were compared to create a water budget summary. The overall amount of imported water, groundwater, and recycled water delivered and used within RCWD's service area during those years is detailed below. In all three of these years, available supplies satisfied demands.

Water Budget Summary for 2013, 2014 and 2015

Supply Type	2013	2014	2015
Imported Water	30,047	35,330	27,771
Groundwater	39,427	39,785	37,272
Recycled Water	4,257	3,957	4,036
TOTAL	**73,731**	**79,072**	**69,079**
Demand Type	**2013**	**2014**	**2015**
Agricultural	23,745	25,811	21,940
Municipal & Industrial	39,860	41,623	37,041
Transfers & Exchanges	2,749	4,187	3,258
Recycled	4,347	4,554	3,909
Water Loss	3,030	2,897	2,931
TOTAL	**73,731**	**79,072**	**69,079**
Difference	**0**	**0**	**0**

The available supplies and water demands for the District's water service area were analyzed to assess the District's ability to satisfy demands during three hydrologic scenarios: a normal water year, single dry water year, and multiple-dry water years. The tables in this section present the supply-demand balance for each of the hydrologic scenarios for the 25-year planning period 2015 to 2040. It is expected that the District will be able to meet 100 percent of its dry year demand under every scenario.

Reliability by Type of Year

The available supplies and water demands for the District's water service area were analyzed to assess the District's ability to satisfy demands during three hydrologic scenarios: a normal water year, single dry water year, and multiple-dry water years. The District has identified 2001 as an average year and 2013 as the single-dry year, due to precipitation recorded and available supplies during these years. DWR has interpreted "multiple dry years" to mean three dry years, however, water agencies may project their water supplies for a longer time period. The District has elected to include a fourth dry-year as well, as the District has experienced four dry years from 2012-2015 during California's unprecedented drought during this time. Average year, single dry year and multi-dry years are the same for all sources of the District's water supply. The tables in this section present the supply-demand balance for each of the hydrologic scenarios for the 25-year planning period 2015 to 2040. It is expected that the District will be able to meet 100 percent of its dry year demand under every scenario.

Normal Year Supply & Demand

As shown in the following table, the District's current Tier 1 allocations from EMWD and WMWD are sufficient through 2035, while an additional 900 AFY of imported water is required in 2040 for sufficient supplies in a normal year. Based on the results presented in Table 7-4, the District should not experience any problems in meeting its demands in normal year scenarios through 2040.

Normal Year Supply & Demand Comparison (AF)

	2020	2025	2030	2035	2040
Supply	93,414	99,660	102,639	104,410	106,986
Demand	82,244	89,174	93,651	96,964	100,307
Difference	***11,170***	***10,486***	***8,988***	***7,446***	***6,679***

Single Dry Year Supply & Demand

During a single dry year, there is an increase in irrigation demand throughout the District due to low precipitation levels. Almost all demands are anticipated to increase by 5 percent during a single-dry year. This is consistent with historical demand increases experienced by the District during single-dry years. While this 5 percent demand increase includes all recycled water demands utilized for outdoor irrigation, it does not include recycled water demands for IPR beginning in 2025. IPR demands are anticipated to remain constant during single-dry years. Similarly, the demand for 4,000 AFY of untreated MWD imported water purchased by the District from WMWD is also anticipated to remain the same during a single-dry year. This untreated water is conveyed through an outfall pipeline to release makeup water into the Santa Margarita River at the Gorge pursuant to the Cooperative Water Resource Management Agreement.

As presented in the following table, the District's reasonably available supplies are sufficient in all single dry years through 2040.

Single Dry Year Supply & Demand Comparison (AF)

	2020	2025	2030	2035	2040
Supply	93,414	99,660	102,639	104,410	106,986
Demand	86,017	93,092	97,716	101,175	104,681
Difference	***7,397***	***6,568***	***4,924***	***3,235***	***2,305***

Multiple Dry Year Supply & Demand

During the first several multi-dry years, there is an increase in irrigation demand throughout the District due to low precipitation levels. As such, almost all demands are anticipated to increase by 5% during a single-dry year above those previously summarized for normal years. This is consistent with historical demand increases experienced by the District during single-dry years. While this 5% demand increase includes all recycled water demands utilized for outdoor irrigation, it does not include recycled water demands for IPR beginning in 2025. IPR demands are anticipated to remain constant during single-dry years. Similarly, the demand for 4,000 AFY of untreated MWDSC imported water purchased by the District from WMWD is also anticipated to remain the same during a single-dry year. This untreated water is conveyed through an outfall pipeline to release makeup water into the Santa Margarita River at the Gorge, pursuant to the Cooperative Water Resource Management Agreement.

Based on the District's multiple dry year supply and demand analysis, it is only in a fourth dry year in which the District must enact elements of the WSC Plan to reduce demands in order to mitigate reductions in anticipated supplies. In the first three dry

years, the District's reasonably available supplies are sufficient through 2040. However, at the time a water shortage condition is identified, the District's General Manager shall recommend the appropriate shortage stage and corresponding water budget decrease based on an analysis of current and available water supplies and anticipated demands. The District's Board of Directors shall consider and adopt a resolution declaring the appropriate shortage stage and measures to be implemented. In practice, such actions could be made in any hydrologic year as deemed necessary.

In 2015, the District initiated Stage 4A of the WSC Plan, which resulted in an estimated 28% decrease in potable water consumption. The District's WSC Plan provides a critical tool allowing for decreases in potable water consumption. As presented in the following table, the District would utilize the WSC Plan in a fourth dry year to reduce potable water demands by the following minimum amounts:

- A 2% decrease in potable water consumption in the fourth-dry year in 2020;
- A 4% decrease in potable water consumption in the fourth-dry year in 2025;
- A 6% decrease in potable water consumption in the fourth-dry year in 2030;
- A 8% decrease in potable water consumption in the fourth-dry year in 2035;
- A 9% decrease in potable water consumption in the fourth-dry year in 2040;

The District should not experience any problems in meeting its demands in multi-dry scenarios through 2040.

Multiple Dry Year Supply & Demand Comparison (AF)

		2020	2025	2030	2035	2040
First Year	Supply	93,414	99,660	102,639	104,410	106,986
	Demand	86,017	93,092	97,716	101,175	104,681
	Difference	***7,397***	***6,568***	***4,924***	***3,235***	***2,305***
Second Year	Supply	93,414	99,660	102,639	104,410	106,986
	Demand	86,017	93,092	97,716	101,175	104,681
	Difference	***7,397***	***6,568***	***4,924***	***3,235***	***2,305***
Third Year	Supply	91,889	98,135	101,756	102,885	105,461
	Demand	86,017	93,092	97,716	101,175	104,681
	Difference	***5,872***	***5,042***	***4,040***	***1,710***	***780***
Fourth Year	Supply	81,012	86,910	89,570	91,083	93,280
	Demand	80,622	86,535	89,152	90,984	93,014
	Difference	***389***	***375***	***418***	***98***	***266***

5.4 WATER SUPPLY RELIABILITY

The reliability of the District's water supply is partially dependent on the reliability of its imported water supplies, which are managed and delivered by EMWD and WMWD, each a direct member agency of MWD. The District also overlies the Temecula Valley Groundwater Basin and is working in cooperation with the Santa Margarita River Watershed Watermaster and multiple stakeholders to achieve water supply reliability, water quality and watershed management goals for the Upper Santa Margarita Watershed.

MWD's Draft 2015 UWMP includes a supply reliability analysis that indicates the region will be able to meet 100 percent of its dry year demand under every hydrologic scenario through the year 2040. Based on historical supply reliability data consistent with MWD, the District has identified supply reliability for imported water as 100 percentage of normal water year supply and the first three multiple dry water years. On April 14, 2015, MWD announced a 15 percent reduction in wholesale deliveries to its 26 member public agencies, as part of the current Water Supply Allocation Plan (WSAP). This is the fourth time MWD has restricted imported supplies in response to drought conditions, the last being a 10 percent cutback from July 2009 to April 2011. Imported supplies from MWD reflect a 15 percent reduction in the fourth dry-year of all multi-dry year analysis performed as part of this AWMP.

For groundwater, the annual supply capacity of the District's groundwater sources is limited by the natural yield of the groundwater basin, in conjunction with the artificial groundwater recharge the District achieves at the VDC recharge basins. Based on historical records, the District estimates that a 6 percent reduction of native groundwater is experienced in the third dry year, with a 12 percent reduction experienced in the fourth year. Artificial recharge allocations are dependent on the quantity of untreated, imported water available to the District. Accordingly, the District estimates a 15 percent reduction in artificial recharge in a fourth multi-dry year.

There are indirect constraints on recycled water during multiple-dry years that reduce the amount of recycled water available in a fourth dry year. The District estimates a 5 percent reduction in availability in a fourth multi-dry year, as general conservation efforts begin to decrease indoor water usage, and thus decrease the amount of recycled water available to the District.

Constraints on Water Sources

The District currently obtains its water supplies from the following primary water sources: 1) local groundwater from the Temecula Valley Groundwater Basin; 2) imported SWP and Colorado River water from MWD via EMWD and WMWD; and 3) recycled water from both District and EMWD.

There are no known water quality concerns that will significantly impact water supply reliability. Therefore, there is no projected reduction in water supplies due to water quality constraints during the 25-year planning period. Imported water treated and delivered from MWD is consistently of good quality, resulting in a reliable supply of imported water. MWD has identified water quality issues that are of concern and has implemented water management strategies to minimize the impact on water supplies. The groundwater quality in the Temecula Valley Groundwater Basin is considered good, especially where recharge occurs. Early monitoring and implementation of programs are intended to help producers maintain the groundwater production ability in accordance with the Basin agreements. Recycled water meets or exceeds stringent water quality standards.

If water quality does impact the District's water supply in the future, the District will continue to implement its Water Facilities Master Plan and Capital Improvement Program,

which provide for system redundancy and enhanced reliability of supply. For example, if groundwater becomes unusable (without treatment) due to water quality concerns, more imported water will be utilized and/or treatment could be applied to the affect groundwater. If imported water becomes limited due to diminished water quality, then additional treatment could be applied and/or more groundwater may be used.

Groundwater

The District works in cooperation with the Santa Margarita River Watershed Watermaster and multiple stakeholders to achieve water supply reliability, water quality and watershed management goals for the Temecula Valley Groundwater Basin. The District's *Recommended Groundwater Production* report is an annual audit prepared for the District to recommend a groundwater production program for the upcoming fiscal year. The *Recommended Groundwater Production is* included as Appendix H to this Plan, and was last developed in January 2016 for production recommendations for Fiscal Year 2016-2017. The recommended ground water production program involves the operation of the groundwater basin within safe yield limits so not to create permanent overdraft or other undesirable conditions that could degrade water quality or violate legal restrictions. The recommendation also includes information gained from workshops held between the District, WMWD and consultant staff. Information includes discussion of previous audits, instantaneous yield, natural and artificial recharge, water quality, pump settings, and well construction factors. In addition to the extraction of the natural yield of the basins, the District artificially recharges the Pauba Valley Basin with untreated imported water for enhanced groundwater production. The District's Valle de Los Caballos Recharge/Recovery Facility (VDCR/RF) features two groundwater recharge sites: the "Upper" VDC in the easternmost area of the Pauba Valley and the "Lower" VDC approximately 2 miles to the west. Untreated MWD water and/or Vail Lake surface water are introduced into the VDCR/RF Infiltration ponds for recharge into the ground. Over the past 10 years, this supplemental water provided an average of 13,875 AFY of artificial groundwater recharge for the District.

The annual supply capacity of the District's groundwater sources is limited by the natural yield of the groundwater basin, in conjunction with the artificial groundwater recharge the District achieves at the VDC recharge basins. The District evaluates each groundwater well based on hydrogeologic subunit and aquifer, to determine an annual pumping budget. As presented in Table 6-5, the sustainable yield of the District's groundwater basin (including artificial recharge allotments) has averaged to 38,159 AFY over the past five years. This includes an average 13,823 AFY of artificial recharge water over a similar five year period.

The underlying philosophy guiding the District's *Recommended Groundwater Production* report has been, and continues to be, one of sound basin management. This involves operating the groundwater basin within safe yield limits to avoid creating a permanent overdraft or other undesirable condition, such as water quality degradation, reduction of long-term production capacity, or land subsidence.

Determination of the amounts of groundwater hydrologically available to the District is an ongoing process of evaluation and review.

The fiscal year groundwater production recommendations are based primarily on review of individual well production and historical hydrographs, as well as consideration of water level elevations from all production and monitoring wells. This information is used to formulate a recommendation for groundwater production for the next fiscal year. The recommendation also includes information gained from workshops held between the District, WMWD and consultant staff. Information includes discussion of previous audits, instantaneous yield, natural and artificial recharge, water quality, pump settings, well construction factors, and the projected production from WMWD's wells in the northern Murrieta Valley area. Recommendations are consistent with the District's groundwater management plan and are verified using the calibrated surface and groundwater model of the Temecula Valley Groundwater Basin. The model simulates changes in water levels for a two-year period under recommended production conditions.

Native groundwater allocations are intended to maintain the sustainability of the groundwater basin, and consider the quantities of surface water from Vail Lake which are drafted, and allowed to percolate into the Temecula Valley Groundwater Basin as native groundwater. In the third and fourth multi-dry years, the quantity of rainfall, infiltration and draft from Vail Lake decreases, and as such, decreases the amount of native groundwater available to the District. Based on historical records, the District estimates that a 6 percent reduction of native groundwater is experienced in the third dry year, with a 12 percent reduction experienced in the fourth year. Reductions of the native groundwater supply can be compensated for by increased short-term conservation efforts (e.g. Water Shortage Contingency Plan), by utilizing water previously banked by the District in either Vail Lake or the groundwater basin, and/or by increasing the amount of imported water.

Artificial recharge allocations are dependent on the quantity of untreated, imported water available to the District. In 2015, this quantity was decreased by 15 percent by MWD during the District's fourth multi-dry year. Accordingly, the District estimates a 15 percent reduction in artificial recharge in a fourth multi-dry year, which can be compensated for by increased short-term conservation efforts (e.g. Water Shortage Contingency Plan) and/or by utilizing water previously banked by the District in either Vail Lake or the groundwater basin.

Groundwater provides a local and independent water supply source for the District. Groundwater levels are dependent on natural factors such as precipitation and natural recharge. District controlled factors include groundwater management activities, such as scheduled pumping and monitoring water quality, levels and subsidence.

The District safeguards its water supply by collecting and analyzing more water samples than required by the EPA and SWRCB DDW. The District collects more

than 2,000 samples a year for analysis of 120 different contaminants including bacteria, metals, organic chemicals, pesticides, and aesthetic-related substances. As reported in the District‘s Annual Consumer Confidence Report for calendar year 2014, all water produced and delivered by the District meets or exceeds the standards for public drinking water.

Constituents of concern include TDS, nitrate, VOCs, perchlorate, arsenic, fluoride and manganese. Groundwater in most of the Pauba aquifer and the Temecula aquifer is generally suitable for domestic and irrigation uses. While the District‘s water meets the standards for arsenic and fluoride, it does contain low levels of both constituents. However, high concentrations have been detected in two groundwater wells causing the District to remove them from production and consider possible future treatment. After well water is extracted it is blended with other well water and imported water. The distribution system’s lowest monthly average is well below the standard of 10 mg/L for arsenic. Fluoride occurs in the groundwater basins as a result of natural erosion, and water samples exhibiting high concentrations of arsenic often show high concentrations of fluoride. The distribution system lowest monthly average level of fluoride is below 2.0 mg/L. manganese is present in the groundwater as a result of leaching from natural deposits. Sampling in the distribution system has indicated that blending reduces the manganese concentration to the non-detect level.

There are several District wells which currently have primary or secondary health concerns resulting from measured levels of arsenic, fluoride and/or manganese. There are three wells on state approved blending plans as they have exceeded the primary Maximum Contaminant Level (MCL) for arsenic, including Well 106, Well 126 and Well 151. Well 143 has not yet exceeded the primary MCL for arsenic, but is being monitored. There are two wells on state approved blending plans which have exceed the primary MCL for fluoride, including Well 126 and Well 151. There are also two wells that are treated with sequestration as they have exceeded the secondary MCL for manganese, including Well 101 and Well 118.

Imported Water

Imported water is water that originated from outside of the Santa Margarita River Watershed (generally water from the Colorado River and the State Water Project). Imported water is acquired from the member agencies of the MWD.

Imported water provided to the District is from MWD’s Lake Skinner Reservoir and Water Treatment Facility with back-up storage provided by Diamond Valley Lake. Imported treated water flow rates varies seasonally at the District’s turnouts. During winter months when demand is typically lower, the District relies mostly on local groundwater resources. During these periods, the District may turn off all the imported water turnouts. As demands increase throughout the year, groundwater sources are augmented with imported water supplies to meet daily demand variations.

Federal regulations require the U.S. Environmental Protection Agency (EPA) to safeguard drinking water by establishing standards that limit the amount of substances in drinking water. In California, Title 22 Drinking Water Standards (Title 22) incorporates the federal requirements of the Safe Drinking Water Act (SDWA), and compliance with Title 22 is required by all water service providers. In California, the State Water Resource Control Board (SWRCB) Division of Drinking Water (DDW) also safeguards drinking water by establishing standards that are as stringent as the EPA‘s. The District safeguards its water supply by collecting and analyzing more water samples than required by the EPA and SWRCB and DDW. As reported in the District‘s Annual Consumer Confidence Report for Calendar Year 2014, all water produced and delivered by the District meets or goes above the standards for public drinking water.

Imported water provided to the District from MWD’s Lake Skinner Reservoir and Water Treatment Facility is a blend of State Project water and Colorado River water. The untreated water is affected by invasive species such as Quagga mussels. The treated water is chloraminated by MWD based on 2.5 to 2.7 Parts Per Million (PPM).

The reliability of MWD’s water supply is dependent on a variety of factors. Per Section 4503 of MWD’s Division IV Water Service Policies, the District should have sufficient resources (local reservoir storage, groundwater production capacity, system interconnections or alternate supply sources) to sustain a seven day interruption in MWD’s deliveries from raw and treated turnout facilities based on average annual demands. There are no other significant interconnections that exist between the District and either EMWD or WMWD for alternative sources of imported water beyond the existing turnout connections.

MWD’s primary goal is to provide reliable water supplies to meet the water needs of its service area at the lowest reasonable cost. The reliability of MWD’s water supply has been stressed as existing imported water supplies from the Colorado River and SWP face increasing challenges.

MWD evaluated the dependability of these supplies and concluded that the combination of imported water storage and expanding local resource programs would ensure its service area’s demands would be met in the future. EMWD and WMWD and their member agencies, including the District, expressly rely upon MWD’s Draft 2015 UWMP in estimating future imported water availability to its service area. Specifically, MWD has concluded that it has supply capabilities that would be sufficient to meet expected demands from 2020 through 2040 under the single dry-year and multiple dry-year conditions. (2015 Draft MWD UWMP, Page ES-5).

On April 14, 2015, MWD announced a 15 percent reduction in wholesale deliveries to its 26 member public agencies, as part of the current Water Supply Allocation Plan (WSAP). This is the fourth time MWD has restricted imported supplies in

response to drought conditions, the last being a 10 percent cutback from July 2009 to April 2011. Imported supplies from MWD will reflect a 15 percent reduction in the fourth dry-year of all multi-dry year analysis performed as part of this UWMP. Reduced supplies from imported water can be compensated for by increased short-term conservation efforts (e.g. Water Shortage Contingency Plan) and/or by utilizing water previously banked by the District in either Vail Lake or the groundwater basin.

State Water Project (SWP)

The reliability of the SWP impacts MWD's member agencies' abilities to plan for future growth and supply. In July 2015, the DWR published a report specifically addressing the reliability of the SWP.[4] This report, *The State Water Project Delivery Reliability Report 2011* (2015 DWR SWP Delivery Report) provides information on the reliability of the SWP to deliver water to its contractors assuming historical precipitation patterns. The report updates the DWR's estimate of current (2015) SWP water delivery reliability. As in previous reliability reports, SWP deliveries are based upon operation simulations in DWR's CalSim II model. Many of the same specific challenges to operations described in the 2013 Report remain in 2015. Most notably, the effects on SWP pumping caused by issuance of the 2008 and 2009 federal biological opinions continue to affect SWP delivery reliability. The resulting differences between the 2013 and 2015 Reports can be attributed primarily to updates in the modeling assumptions and inputs.

The 2015 DWR SWP Delivery Report represents the state of affairs if no Delta improvements are made. It shows the continued erosion of SWP water delivery reliability under the current method of moving water through the Delta. The average Table A water delivery was about 64 percent (of maximum Table A amount) for 2013 conditions and about 63 percent for 2015 conditions. (2015 DWR SWP Delivery Report, Page 23). Most of the reduced reliability is caused by the export limitations resulting from the two Biological Opinions—a factor identified above.

These estimates incorporate restrictions on SWP operations in accordance with the biological opinions of the U.S. Fish and Wildlife Service and National Marine Fisheries Service issued on December 15, 2008, and June 4, 2009, respectively. Under the 2015 Delivery Capability Report with existing conveyance and low outflow requirements scenario, the delivery estimates for the SWP for 2020 conditions as percentage of Table A amounts are 12 percent, equivalent to 230 TAF, under a single dry-year (1977) condition and 51 percent, equivalent to 975 TAF, under the long-term average condition. In dry, below-normal conditions, MWD has increased the supplies received from the California Aqueduct by developing flexible Central Valley/SWP storage and transfer programs. Over the last two years under the pumping restrictions of the SWP, MWD has worked

collaboratively with the other contractors to develop numerous voluntary Central Valley/SWP storage and transfer programs. The goal of these storage/transfer programs is to develop additional dry-year supplies that can be conveyed through the California Aqueduct during dry hydrologic conditions and regulatory restrictions (2015 Draft MWD UWMP, Page ES-4).

On an annual basis, each of the 29 SWP contractors including MWD request an amount of SWP water based on their anticipated yearly demand. In most cases, MWD's requested supply is equivalent to its full Table A Amount. After receiving the requests, DWR assesses the amount of water supply available based on precipitation, snow pack on northern California watersheds, volume of water in storage, projected carry over storage, and Sacramento-San Joaquin Bay Delta regulatory requirements. Due to the uncertainty in water supply, contractors are not typically guaranteed their full Table A Amount, but instead a percentage of that amount based on the available supply.

On February 24, 2016, DWR announced it would only be able to deliver 30 percent of requested Table A SWP water in 2016. (DWR Notice Number 16-04). This is up from 20 percent of requested deliveries in 2015, 5 percent in 2014, 30 percent in 2013, 65 percent in 2012, 80 percent in 2011, 50 percent in 2010, 40 percent in 2009, 35 percent in 2008, and 60 percent in 2007.

The Bay-Delta Conservation Plan would reduce harm to fish from altered stream flows caused by the south Delta pumps serving the SWP and Central Valley Project (CVP). Pumping there at times causes reverse flows which may disorient or entrain fish. The Bay-Delta Conservation Plan's large-scale habitat restoration would also improve Delta conditions for fish and wildlife. More detail on the Bay- Delta Conservation Plan follows this section.

Much of California's water comes from the mountainous country from Shasta Lake in the north to the American River in the south. The November and December 2015 storms build California's snowpack water content to over 130 percent of normal by January 1, 2015. Since then, manual surveys and electronic readings have recorded the water content decline since dry weather set it. Statewide, the March 14, 2016 manual snowpack survey found the snowpack water content at 100 percent of normal. (Statewide Summary of Snow Water Content, 2016).

The Monterey Agreement, an accord intended to address SWP allocations during drought conditions, states that SWP contractors will be allocated part of the total available project supply in proportion to their Table A Amount. Water is allocated to urban and agricultural purposes on a proportional

basis, eliminating a previous initial supply reduction to agricultural contractors. The Agreement further defines and permits permanent sales of SWP Table A amounts and provides for transfer of up to 130,000 AF of annual Table A amounts from agricultural use to municipal use. The Agreement also allows SWP contractors to store water in another agency's reservoir or groundwater basin, resulting in flexibility for SWP contractors to use their share of storage in SWP reservoirs; facilitates the implementation of water transfers; and provides a mechanism for using SWP facilities to transport non-project water for SWP water contractors.

To strengthen the reliability of SWP water from the Bay-Delta, the Bay-Delta Conservation Plan (BDCP) sets out a comprehensive conservation strategy for the Delta designed to restore and protect ecosystem health, water supply, and water quality within a stable regulatory framework. The BDCP reflects the outcome of a multiyear collaboration between public water agencies, state and federal fish and wildlife agencies, nongovernment organizations, agricultural interests, and the general public. The BDCP is intended to result in a permit decision concerning long-term regulatory authorizations under state and federal endangered species laws for the operations of the SWP and the CVP. The BDCP will further provide the basis for durable regulatory assurances and the basis for a biological assessment. The public review draft of the BDCP was released in 2015, with the Final EIR/EIS currently in production.

Colorado River Aqueduct (CRA)

MWD also depends on Colorado River water to meet its service area demands. The CRA is owned and operated by MWD to transport water from the Colorado River approximately 242 miles to its terminus at Lake Mathews in Riverside County. Colorado River Aqueduct supplies include supplies that would result from existing and committed programs and from implementation of the Quantification Settlement Agreement (QSA) and related agreements. The QSA establishes the baseline water use for each of the agreement parties and facilitates the transfer of water from agricultural agencies to urban uses. Colorado River Water Management Programs are potentially available to supply additional water up to the CRA capacity of 1.2 MAF on an as needed basis. (2015 Draft MWD
UWMP, Page ES-4).

In October 2003, the Quantification Settlement Agreement (QSA), a critical component of California's Colorado River Water Use Plan and the Interim Surplus Guidelines, was authorized defining Colorado River water deliveries, commitments, and transfers. The QSA is a landmark agreement, signed by the four California agencies that use Colorado River water and the U.S. Secretary of the Interior. The amount of Colorado River water available to MWD's service area was augmented with the long-term transfer agreement between the IID and the San Diego County Water Authority

(SDCWA). The transfer agreement provides up to 200,000 acre-ft of water per year from IID to SDCWA for a seventy five year term. The transfer agreement is dependent upon the QSA, which was invalidated on January 14, 2010 when a Sacramento Superior Court Judge issued a final ruling. In 2011, California's Third District Court of Appeal reversed the Superior Court ruling remanding several issues, including whether the agreement was properly processed under CEQA. In June 2013, after an appeal was heard before the court, the QSA was upheld in a decision issued by a Sacramento Superior Court Judge. Remaining intact, the QSA will guide reasonable and fair use of the Colorado River by California through the year 2037 with a 45 year renewal for a total of 75 years.

Recycled Water

Recycled water is municipal wastewater that is purified for beneficial reuse. The State of California has declared that recycled water is safe and is a reliable and cost-effective resource to meet California's water supply needs. Recycled water used by the District is produced at the Santa Rosa Regional Resources Authority's (SRRRA) Santa Rosa Water Reclamation Facility (SRWRF) or purchased from EMWD's Temecula Valley Regional Water Reclamation Facility (TVRWRF). Both the TVRWRF and the SRWRF produce disinfected tertiary recycled water meeting the State of California Title 22 regulations for such uses as recreational impoundments and surface irrigation for landscaping, golf courses, agriculture, parks and playgrounds, as well as certain industrial processes.

The primary water quality component that affects the beneficial use of recycled water in the District's service area is the level of Total Dissolved Solids (TDS), which generally classifies how salty the water is. The recycled water produced by the SRWRF and the TVRWRF generally averages a TDS value of 730 mg/L. Within the District's service area, the San Diego Regional Water Quality Control Board's Basin Plan limits the use of recycled water to hydrologic sub-basins with a TDS limit of 750 mg/L. For hydrologic sub-basins with a TDS limit of 500 mg/L, the use of recycled water in these areas requires the de-mineralization of recycled water or an approved recycled water use plan based on the assimilative capacity of the sub-basin.

The variability of recycled water provided is primarily due to the impact of weather on the customer's use of recycled water. Thus, the District utilizes seasonal storage ponds for recycled water in order to balance the fluctuations between recycled water supply and demand.

There are indirect constraints on recycled water during multiple-dry years that reduce the amount of recycled water available in a fourth dry year. The District used was 3,477 AFY in 2015. However, as shown in Table 6-8, recycled water usage averaged approximately 4,000 AFY during the previous 2 fiscal years. The lower use in 2015 is attributed to the public outreach effort for water conservation, performed by the District and other agencies, and motivated as part of California's multi-year drought. So while there is no direct constraint on recycled water, the District estimates a 5 percent reduction in availability in

a fourth multi-dry year, as general conservation efforts begin to decrease indoor water usage, and thus decrease the amount of recycled water available.

Imported Water and Artificial Groundwater Recharge

As previously noted, the District is a member agency of EMWD and WMWD, which are member agencies of MWD. Although only a portion of the District's total water supply is imported by MWD, that portion does have an impact on the District's water reliability and is therefore discussed in this section.

In its 2015 Draft UWMP, MWD chose the year 1977 as the single driest year since 1922 and the years 1990-1992 as the multiple driest years over that same period. These years have been chosen because they represent the timing of the least amount of available water resources from the SWP, a major source of MWD's supply. As presented in MWD's 2015 Draft UWMP, MWD "can provide reliable water supplies under both the single driest year and the multiple dry-year hydrologies." (2015 Draft MWD UWMP, Page 2-13).

On April 14, 2015, MWD announced a 15 percent reduction in wholesale deliveries to its 26 member public agencies, as part of the current WSAP. This is the fourth time MWD has restricted imported supplies in response to drought conditions, the last being a 10 percent cutback from July 2009 to April 2011. Imported supplies from MWD will reflect a 15 percent reduction in the fourth dry-year of all multi-dry year analysis performed as part of this WSA.

MWD's 2015 Draft UWMP includes a supply reliability analysis that indicates the region will be able to meet 100 percent of its dry year demand under every hydrologic scenario through the year 2040. Based on historical supply reliability data consistent with MWD, the District has identified supply reliability for imported water as 100 for normal, single-dry and the first three multi-dry years. During the fourth multi-dry year, a 15 percent reduction in MWD imported supplies is anticipated. MWD imported supplies are summarized in the following table. As imported untreated water is utilized for the District's artificial recharge of the Temecula Valley groundwater basin, a 15 percent reduction in the fourth dry year also reduces the amount of artificial recharge by 15 percent in a fourth dry year.

Imported Water Supply Reliability

Year Type	Base Year (last year of the fiscal year)	Available Supplies if Year Type Repeats	
		Volume Available (AF)	Percent of Average Supply (%)
Average Year	2001	60,840	100%
Single-Dry Year	2013	60,840	100%
Multiple Dry Years (1st Year)	2012	60,840	100%
Multiple Dry Years (2nd Year)	2013	60,840	100%
Multiple Dry Years (3rd Year)	2014	60,840	100%
Multiple Dry Years (4th Year)	2015	51,714	85%

NOTES: The District has different water sources which vary in % of average supply available in each year. The District has created multiple versions of the Table, with this Table reporting MWD Imported Water and Artificial Groundwater Recharge.

Native Groundwater

Groundwater pumping has historically provided a significant portion of the overall District water demand. The District receives groundwater from the Temecula Valley Groundwater Basin (Basin), as identified in California's Groundwater Bulletin 118. The District's *Recommended Groundwater Production* report is an annual audit prepared for the District to recommend a groundwater production program for the upcoming fiscal year. The *Recommended Groundwater Production,* included in Appendix H, was last developed in January 2016 for production recommendations for Fiscal Year 2016-2017. The recommended ground water production program involves the operation of the groundwater basin within safe yield limits so not to create permanent overdraft or other undesirable conditions that could degrade water quality or violate legal restrictions. The recommendation also includes information gained from workshops held between the District, WMWD and consultant staff. Information includes discussion of previous audits, instantaneous yield, natural and artificial recharge, water quality, pump settings, and well construction factors.

The District's current native groundwater extraction capacity is approximately 25,422 AFY and is anticipated to remain consistent in a single dry water year. However, historically the Basin has been drawn down over multiple dry water years and extraction is reduced in years three and four of a multiple dry year by about 6 and 12 percent, respectively.

The District owns and operates one surface water reservoir (Vail Lake) located approximately 10 miles east of Temecula having a watershed area of 318 square miles. Water releases from Vail Lake are discharged into Temecula Creek, which either percolate into the groundwater basin or continue downstream to the Santa Margarita River and ultimately the Pacific Ocean. The contribution of the Vail Lake water supply is reflected in the native groundwater produced from the Temecula Valley Groundwater Basin. During the third and fourth multi-dry years, the draft from Vail Lake has been historically reduced, thereby reducing the amount of

native groundwater available to the District. Native groundwater supplies during average, single-dry and multi-dry years are summarized in the following table.

Native Groundwater Supply Reliability

Year Type	Base Year (last year of the fiscal year)	Available Supplies if Year Type Repeats	
		Volume Available (AF)	Percent of Average Supply (%)
Average Year	2001	25,422	100%
Single-Dry Year	2013	25,422	100%
Multiple Dry Years (1st Year)	2012	25,422	100%
Multiple Dry Years (2nd Year)	2013	25,422	100%
Multiple Dry Years (3rd Year)	2014	23,897	94%
Multiple Dry Years (4th Year)	2015	22,371	88%

NOTES: The District has different water sources which vary in % of average supply available in each year. The District has created multiple versions of the Table, with this Table reporting native groundwater.

Recycled Water

Recycled water used by the District is produced at the Santa Rosa Regional Resources Authority's (SRRRA) Santa Rosa Water Reclamation Facility (SRWRF) or purchased from EMWD's Temecula Valley Regional Water Reclamation Facility (TVRWRF). Both the TVRWRF and the SRWRF produce disinfected tertiary recycled water meeting the State of California Title 22 regulations for such uses as recreational impoundments and surface irrigation for landscaping, golf courses, agriculture, parks and playgrounds, as well as certain industrial processes.

During multiple-dry years, the amount of recycled water available to the District decreases in a fourth dry year. This lower supply, which was experienced by the District in 2015, is attributed to the public outreach effort for water conservation. The District estimates a 5 percent reduction in availability in a fourth multi-dry year, as general conservation efforts begin to decrease indoor water usage, and thus decrease the amount of recycled water available. Recycled water supplies during average, single-dry and multi-dry years are summarized in the following table.

Recycled Water Supply Reliability

Year Type	Base Year (last year of the fiscal year)	Available Supplies if Year Type Repeats	
		Volume Available (AF)	Percent of Average Supply (%)
Average Year	2001	4,036	100%
Single-Dry Year	2013	4,036	100%
Multiple Dry Years (1st Year)	2012	4,036	100%
Multiple Dry Years (2nd Year)	2013	4,036	100%
Multiple Dry Years (3rd Year)	2014	4,036	100%
Multiple Dry Years (4th Year)	2015	3,834	95%

NOTES: The District has different water sources which vary in % of average supply available in each year. The District has created multiple versions of the Table, with this Table reporting recycled water.

Regional Supply Reliability

The reliability of the District's water supply is currently partially dependent on the reliability of its imported water supplies, which are managed and delivered by EMWD and WMWD, each a direct member agency of MWD. The District also overlies the Temecula Valley Groundwater Basin and is working in cooperation with the Santa Margarita River Watershed Watermaster and multiple stakeholders to achieve water supply reliability, water quality and watershed management goals for the Upper Santa Margarita Watershed.

The following section describes the roles of various agencies in water supply reliability, and the near and long-term efforts they are involved with to ensure future reliability of water supplies to the District and the region as a whole. It provides a summary of the water management tools and options that are being implemented, or are planned for implementation, that maximize the use of local water resources and minimize the need to import water from other regions.

Regional Integrated Resources Plan (IRP)

To help achieve its mission, the District developed a Regional IRP in 2005. The purpose of the IRP is to provide a long-range water supply plan to reliably meet the needs of the District from now until 2050. The IRP examined different alternatives such as increased water conservation, additional groundwater, conversion of agriculture currently using treated imported water to raw imported water and/or advanced-treated recycled water, groundwater recharge using advanced-treated recycled water, and water transfers.

These alternatives were evaluated against a set of objectives, including the following:

- Reliably meet water demands
- Provide sustainable supply
- Maximize local control
- Manage costs
- Manage water quality
- Maintain quality of life
- Maximize implementation potential

Over a dozen alternatives were evaluated. The preferred plan included the following components:

1. Implement baseline water conservation measures. (On-going)
2. Connect imported water connection EM-21 to Vail Lake to expand groundwater recharge. (Completed)
3. Construct up to 18 new groundwater wells, along with increased imported water for recharge during non-drought years. (On-Going)
4. Recycled Water Indirect Potable Reuse (IPR) of approximately 5,000 AFY by constructing a microfiltration/reverse osmosis (MF/RO) treatment facility to reduce the salinity of recycled water so that it can be used to

meet western area agricultural demands, as well as potential groundwater replenishment in the future. (Feasibility study completed in 2013. Implementation planned for 2025).

Recommended Groundwater Production FY July 1, 2016 through June 30, 2017
The District's Recommended Groundwater Production report is an annual audit to recommend a groundwater production program for the upcoming fiscal year. The most current report was developed in January 2016 using current data from the water year ending in September 2015. The recommended ground water production program involves the operation of the groundwater basin within safe yield limits so not to create permanent overdraft or other undesirable conditions that could degrade water quality or violate legal restrictions.

The fiscal year groundwater production recommendations are based primarily on review of individual well production and historical hydrographs, as well as consideration of water level elevations from all production and monitoring wells. This information is used to formulate a recommendation for groundwater production for the next fiscal year. The recommendation also includes information gained from workshops held between the District, WMWD and consultant staff. Information includes discussion of previous audits, instantaneous yield, natural and artificial recharge, water quality, pump settings, and well construction factors.

Recommendations are consistent with the District's groundwater management plan and are verified using the calibrated surface and groundwater model of the Temecula Valley Groundwater Basin. The model simulates changes in water levels for a two-year period under recommended production conditions.

Upper Santa Margarita Planning Region Integrated Regional Water Management Plan Update (IRWMP)
The Upper Santa Margarita Planning Region IRWMP was adopted in 2007 to establish a collaborative effort in the watershed to ensure a sustainable water supply through more efficient use of water, protection and improvement of water quality and environmental stewardship. In 2012, the Region received a Proposition 84, Round 2 Planning Grant to update its 2007 IRWM Plan in accordance with new Plan guidelines and standards issued by the California Department of Water Resources (DWR) in 2012.
In April 2014, IRWM Plan Update was prepared to better reflect the Region's current issues, objectives, and strategies, as well as to satisfy the requirements of DWR's Planning Grant award and the November 2012 IRWM Proposition 84 and 1E Program Guidelines. The 2014 IRWM Plan Update documents the current IRWM Program and processes that have evolved since the 2007 Plan was developed. Through the IRWMP, regional water agencies, flood control districts, counties, cities, federal, state and local agencies and other stakeholders groups, are working across jurisdictional boundaries to implement water resource management projects with multiple benefits.

The following is the vision statement of the IRWMP: *"The Integrated Regional Water Management Plan will take a balanced and consensus-based approach that will provide for the protection and sustainability of the Upper Santa Margarita Watershed's water resources, natural resources, and habitats."* Development of the IRWM required a cooperative effort on the part the District, Riverside County Flood Control and Water Conservation District (RCFC), and the County of Riverside, which have authority for planning and implementation of water management strategies in the watershed. The District, RCFC and the County of Riverside have signed a Memorandum of Understanding (MOU) by which the agencies cooperate and work collaboratively with other stakeholders in the watershed. The MOU provided for a Stakeholder Advisory Committee representing significant water and related organizations in the region to work collaboratively to improve water supply reliability, protect and improve water quality, ensure environmental sustainability, promote multiple benefits, and promote integration and regional planning. As a result, the IRWMP includes a list of priority ranked projects to meet the goals and objectives of the IRWMP. Both the IRWMP and the project listing are flexible and will be updated periodically.

Metropolitan Water District of Southern California (MWD)
MWD's primary goal is to provide reliable water supplies to meet the water needs of its service area at the lowest reasonable cost. The reliability of MWD's water supply has been stressed as existing imported water supplies from the Colorado River and SWP face increasing challenges.

MWD evaluated the dependability of these supplies and concluded that the combination of imported water and expanding local resource programs would ensure its service area's demands would be met in the future. EMWD and WMWD and their member agencies, including the District, expressly rely upon MWD's Draft 2015 UWMP in estimating future imported water availability to its service area.

In April 1998, MWD adopted the WSDM Plan. The guiding principal of the WSDM Plan is to manage MWD's water resources and programs to maximize utilization of wet year supplies and minimize adverse impacts of water shortages to retail customers. The WSDM also included the following supporting principles:

- Encourage efficient water use and economical local resource programs
- Coordinate operations with member agencies to make as much surplus water as possible available for use in dry years
- Increase public awareness about water supply issues

In February 2008, MWD adopted the Water Supply Allocation Plan (WSAP). The WSAP was developed in consideration of the principles and guidelines described in the WSDM Plan, with the objective of creating an equitable needs based water supply allocation. The WSAP formula seeks to balance the impacts of a shortage at the retail level while maintaining equity on the wholesale level for shortages of

MWD supplies of up to 50 percent. Despite these challenges, MWD continues to develop and encourage projects and programs to ensure reliability now and into the future

Integrated Water Resources Plan (IRP)
To address MWD's reliability challenges, MWD and its member agencies developed an IRP in 1996. The overall objective of the MWD IRP process is the selection and implementation of a Preferred Resource Mix (or strategy) consisting of complementary investments in local water resources, imported supplies and demand-side management that meet the region's desired reliability goal in a cost-effective and environmentally sound manner. The MWD IRP 2003 Update was approved and released in July 2004, and includes various projects and programs that contribute to the reliability of MWD's imported water supplies. The MWD IRP Update concluded that the resource targets from the 1996 IRP, factored in with changed conditions, will continue to provide for 100 percent reliability through 2025. MWD's 2010 IRP Update stated that a key evolution from the July 2004 IRP Update is the identification of uncertainties and contingency actions that MWD can take in order to swiftly respond to uncertainties that exist with all water resource programs that will extend planning actions into an operational approach.

Throughout 2015, MWD engaged in a comprehensive process with its Board of Directors and member agencies to review how conditions have changed since the 2010 IRP Update and to establish targets for achieving regional reliability, taking into account known opportunities and risks. Areas reviewed in the 2015 IRP Update include demographics, hydrologic scenarios, water supplies from existing and new projects, water supply reliability analyses, and potential resource and conservation targets. (MWD 2015 Draft UWMP, Page 2-4)

The 2015 IRP Update approach explicitly recognizes that there are remaining policy discussions that will be essential to guiding the development and maintenance of local supplies and conservation. Following adoption of the 2015 IRP Update and its targets for water supply reliability, MWD will begin a process to address questions such as how to meet the targets for regional reliability, what are local and what are regional responsibilities, how to finance regional projects, etc. This discussion will involve extensive interaction with MWD's Board of Directors and member agencies, with input from the public. (MWD 2015 Draft UWMP, Page 2-4)

The findings and conclusions of the 2015 IRP Update are:

- Encourage efficient water use and economical local resource programs.
- Coordinate operations with member agencies to make as much surplus water as possible available for use in dry years.
- Action is needed – Without the investments in conservation, local supplies and the California WaterFix targeted in the 2015 IRP Update, MWD's

service area would experience unacceptable level of shortage allocation frequency in the future.

- Maintain Colorado River supplies – The plan to stabilize deliveries at 900,000 AF in a typical year.
- Stabilize SWP supplies – A collaborative approach with state and federal agencies to pursue better science for resolving questions about SWP operations and advancing coequal goals of Delta restoration and statewide water supply reliability in the near term. Also work collaboratively with state and federal agencies in the California WaterFix and EcoRestore efforts.
- Develop and protect local supplies and water conservation – The 2015 IRP Update embraces and advances the regional self-sufficiency ethics by increasing the targets for additional local supplies and conservation. These targets are discussed in detail in Section 3 of this UWMP.
- Maximize the effectiveness of storage and transfers – Rebuilding MWD's supply of water reserves is imperative when the drought is over. A comprehensive water transfer approach that takes advantage of water when it is available will help to stabilize and build storage reserves, increasing the ability for MWD to meet water demands in dry years.
- Continue with the adaptive management approach – The IRP is updated periodically to incorporate changed conditions, and an implementation report is prepared annually to monitor the progress in resources development. The 2015 IRP also includes Future Supply Actions that would advance a new generation of local supplies through public outreach; development of legislation and regulation; technical studies and support; and land and resource acquisitions. (MWD 2015 Draft UWMP, Page 2-4)

In addition to the IRP, MWD also provides financial and technical assistance for implementing water conservation Best Management Practices, as well as a significant investment in regional and local water conservation programs, and distribution of funding for conjunctive management programs in Southern California. MWD has made investments in conservation, water recycling, storage, and supply that are all part of MWD's long-term water management strategy that is adaptive to current reliability challenges.

State Water Project (SWP)

The reliability of the SWP impacts MWD's member agencies' abilities to plan for future growth and supply. State Water Project (SWP) supplies are estimated using the 2015 SWP Delivery Capability Report distributed by DWR in July 2015. The 2015 SWP Delivery Capability Report presents current DWR estimates of the amount of water deliveries for current (2015) conditions and conditions 20 years in the future. These estimates incorporate restrictions on SWP and Central Valley Project (CVP) operations in accordance with the biological opinions of the U.S. Fish and Wildlife Service and National Marine Fisheries Service issued on December 15, 2008, and June 4, 2009, respectively. Under the 2015 SWP Delivery Capability Report with existing conveyance and low outflow requirements

scenario, the delivery estimates for the SWP for 2020 conditions as percentage of Table A amounts are 12 percent, equivalent to 230 TAF, under a single dry-year (1977) condition and 51 percent, equivalent to 975 TAF, under long-term average condition. (MWD 2015 Draft UWMP, Page 2-13)

The goal for the 2015 IRP Update for SWP supplies is to manage flow and export regulations in the near term and ultimately to achieve a long-term Bay-Delta solution. This goal involves continued engagement in collaborative science-based approaches to manage regulations in the near-term and continued participation in the long-term California WaterFix and the California EcoRestore efforts. This approach targets an average of 980 TAF of SWP supplies in the near-term and 1.2 MAF of supplies on average starting in 2030 when the long-term Delta solution is assumed to be in place. In dry and below-normal conditions, MWD has increased the supplies received from the California Aqueduct by developing flexible Central Valley/SWP storage and transfer programs. (MWD 2015 Draft UWMP, Page 2-13)

Colorado River Aqueduct (CRA)
MWD also depends on Colorado River water to meet its service area demands. The CRA is owned and operated by MWD to transport water from the Colorado River approximately 242 miles to its terminus at Lake Mathews in Riverside County. CRA supplies include supplies that would result from existing and committed programs and from implementation of the QSA and related agreements. The QSA establishes the baseline water use for each of the agreement parties and facilitates the transfer of water from agricultural agencies to urban uses. Colorado River transactions are potentially available to supply additional water up to the CRA capacity of 1.2 MAF on an as-needed basis. (MWD 2015 Draft UWMP, Page 2-13)

Storage
A key component of MWD's water supply capability is the amount of water in MWD's storage facilities. Over the past two decades, MWD has developed a large regional storage portfolio that includes both dry-year and emergency storage capacity. Storage is a key component of water management. Storage enables the capture of surplus amounts of water in normal and wet climate and hydrologic conditions when it is plentiful for supply and environmental uses. Stored water can then be used in dry years and in conditions where augmented water supplies are needed to meet demands. MWD's resource analysis model considers all the capacities and constraints of its storage facilities and programs and simulates the fill and withdrawal of these facilities through the 91 hydrologic conditions from 1922-2012. (MWD 2015 Draft UWMP, Page 2-14)

Western Municipal Water District and Eastern Municipal Water District
As a water wholesaler, MWD supplies supplemental imported water to WMWD and EMWD to meet the water needs of their service areas. MWD's diverse resources and aggressive conservation program protect the reliability of the region's water supply, as discussed above. MWD demonstrates that sufficient

supplies can be reasonably relied on to meet projected supplemental demands. As a result, during a single dry year or multiple dry years, MWD will have the resources to supply its member agencies with 100 percent of their imported water demands.

Santa Margarita River Watershed Watermaster

The Watermaster works cooperatively with a steering committee comprised of entities within the watershed and overlying the groundwater basin. This collaborative approach contributes to and supports the management of reliable water supplies in the watershed. The Watermaster prepares the "Santa Margarita Watershed Annual Watermaster Report", which provides annual reporting of water conditions in the watershed, but does not manage the groundwater basins. Water users in Santa Margarita River watershed are required to report the amount of surface water and groundwater they use to the Watermaster. The Annual Watermaster Report, prepared pursuant to the U.S. District Court Order, March 13, 1989, includes information on surface and subsurface water, imports and exports, water rights, water production and use, threats to water supply, water quality, review of agreements, and Watermaster five-year projection of activities.

The District works cooperatively with the Watermaster to manage the basin on a watershed-wide basis through the Court jurisdiction, using the Annual Watermaster Report, groundwater management agreement, and cooperative water resource agreement, as well as the annual groundwater hydrogeologic assessment – *"Recommended Ground Water Production"* – that continuously guides the management of the Temecula Valley Groundwater Basin on a sustainable safe yield basis.

The Sustainable Groundwater Management Act of 2014 (SGMA) (Water Code §§ 10720 et seq.) went into effect on January 1, 2015. SGMA established a new structure for managing California's groundwater resources at a local level. For the Temecula Valley Groundwater Basin, the Watermaster will submit to DWR a copy of a governing final judgment, or other judicial order or decree by April 1, 2016. Also, by April 1, 2016, and annually thereafter, the Watermaster will submit to DWR a report containing the following, per Water Code Section 10720.8 (f) (3):

- Groundwater elevation data;
- Annual aggregated data identifying groundwater extraction;
- Surface water supply used;
- Total water use; and
- Change in groundwater storage.

California Regional Water Quality Control Board – San Diego Region (9)

The State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (Regional Boards) are responsible for the protection and, where possible, the enhancement of the quality of California's waters. The SWRCB sets statewide policy, and together with Regional Boards, implements state and

federal laws and regulations. Each of the nine Regional Boards adopts a Water Quality Control Plan or Basin Plan, which recognizes and reflects regional differences in existing water quality, the beneficial uses of the region's ground and surface waters, and local water quality conditions and problems.

In 1975, the San Diego Regional Water Quality Control Board (RWQCB) published the original *Comprehensive Water Quality Control Plan for the San Diego Basin* (Basin Plan). In 1994, the RWQCB updated and adopted the Basin Plan to address issues that had evolved over time due to increasing populations and changing water demands in the region, which supersedes the 1975 Basin plan and its amendments.

The Basin Plan is more than just a collection of water quality goals and policies, descriptions of conditions, and discussions of solutions. It is also the basis for the RWQCB's regulatory programs. The Basin Plan establishes water quality standards for all the ground and surface waters of the region. The RWQCB also regulates water discharges to minimize and control their effects on the quality of the region's ground and surface water. Permits are issued under a number of programs and authorities.

Water quality problems in the region are listed in the Basin Plan, along with the causes, where they are known. For water bodies with quality below the levels necessary to allow all the beneficial uses of the water to be met, plans for improving water quality are included. Legal basis and authority for the RWQCB reflects, incorporates, and implements applicable portions of a number of national and statewide water quality plans and policies, including the California Water Code (Porter-Cologne Water Quality Control Act) and the Clean Water Act.

Periodic review of the Basin Plan is required by state and federal law. California Water Code section 13240 states Basin Plans “shall be periodically reviewed and may be revised.” Because federal law requires that water quality standards be reviewed every three years, the periodic review of the Basin Plan is commonly referred to as the “triennial review.” The triennial review is not itself a Basin Plan amendment and does not itself result in changes to the Basin Plan. It is the process by which the San Diego RWQCB identifies and prioritizes Basin Plan issues in need of further review.

For the 2014 Triennial Review, the San Diego RWQCB embarked on a basin plan review process by which the San Diego RWQCB identified and prioritized suggested Basin Plan revisions in need of further evaluation. The process included a public solicitation and identification of potential revisions that may require incorporation into the Basin Plan. With input from stakeholders and staff, the San Diego Water Board developed a "short list" of suggested revisions to be investigated further. Following an opportunity for public review and a formal public hearing, the San Diego Water Board adopted a resolution containing the

short list. Once adopted, the list serves to guide work on the Basin Plan during the next three years.

Board members adopted Resolution No. R9-2015-00443 approving the Basin Plan review and adopting a short list of suggested basin plan revisions developed through the 2014 Basin Plan Review and to work on over the subsequent three years.

Watershed Management Initiative

The Watershed Management Initiative, included in the 1995 Strategic Plan of the SWRCB and RWQCBs, addresses issues related to watershed management, describes current regional efforts, and established an action plan to implement watershed management plans statewide.

The San Diego RWQCB is fully committed to implementing the Watershed Management Initiative in the San Diego Region. Watershed management represents a departure from the traditional approach of protecting the quality and beneficial uses of ground and surface waters. The Watershed Management approach provides a framework to integrate RWQCB programs and activities and allocating resources so as to more effectively and efficiently address water quality and beneficial use issues. Many water quality and beneficial use problems are best solved by considering entire watersheds, or portions of watersheds, rather than considering only individual waters, discharges, discharge types, or political jurisdictions. Involvement of all stakeholders, governmental and non-governmental agencies must be actively sought to identify the highest priority issues and achieve mutually beneficial solutions.

SECTION 6
CLIMATE CHANGE

6.1 CLIMATE CHANGE ANALYSIS

The District's climate is a semi-arid environment with mild winters, warm summers and moderate rainfall, consistent with coastal and inland Southern California. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. The usually mild to warm climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds.

Climatological data in California has been recorded since the year 1858. During the twentieth century, California has experienced three periods of severe drought: 1928-34, 1976-77 and 1987-91. The year 1977 is considered to be the driest year of record in the Four Rivers Basin by DWR. These rivers flow into the San Francisco Bay Delta and are the source of water for the SWP. Southern California and, in particular, the southwest Riverside County area, sustained few adverse impacts from the 1976-77 drought, due in large part to the availability of Colorado River water and groundwater in the Murrieta-Temecula Basin. In contrast, the 1987-91 drought created considerably more concern for Southern California.

Assessing Regional Vulnerability to Climate Change

The District is a partner in the Upper Santa Margarita Watershed (USMW), and partnered on the development of an Integrated Regional Water Management (IRWM) Plan. The IRWM Plan includes an assessment of vulnerabilities to climate change, which explores the Region's water resource sensitivity to climate change, prioritizes climate change vulnerabilities, and ultimately guides decisions as to what strategies and projects would most effectively help the Region to adapt to and mitigate against climate change.

A series of questions from DWR's 2011 *Climate Change Handbook for Regional Water Planning* were used as the basis for a specific climate change workshop for the Region conducted in November 2013. The vulnerability issues decided upon to be relevant to the Region are described and prioritized in the following table.

Vulnerability Issue	Description	Priority Level
Decreased imported water supply	Imported water makes up well over 50% of the Region's supplies. The vulnerability of State Water Project and Colorado River supplies combined with the area's dependence on imported water makes the Region highly vulnerable to any decreases in imported supply.	High

Vulnerability Issue	Description	Priority Level
Decreased local water supply	Decreases in local precipitation would decrease the local runoff to recharge groundwater (both naturally and through managed spreading grounds), reducing the amount of local groundwater supply available to meet demand.	High
Demand for all water use sectors would increase	Demand is expected to increase in the Region due to population growth. Climate change is expected to further increase demand due to higher temperatures increasing evapotranspiration, and put strain on the Region's limited supplies.	High
Episodes of flooding would increase	Increases in the intensity of storms may increase the frequency of flooding as storms exceed the capacity of flood control facilities. Given that areas of the Region, particularly rural areas, already experience flooding during large seasonal storms, the Region is highly vulnerable to this issue.	High
Ability to store groundwater/recharge capacity would decrease	Reductions in imported water supply and local surface water (described above) could intensify groundwater use as a result of climate change. This increased groundwater use may result in difficulty in managing the basin in a long term, sustainable fashion. Together these concerns make this issue of medium concern to the Region.	Medium
Higher drought potential (unmet demands)	The frequency, duration, and intensity of droughts are expected to increase with climate change, and reduce both the local and imported supplies available. A reduction in either imported or local supplies has the potential to cause unmet demand should demand reduction measures not be sufficient, making the Region moderately vulnerable to this issue.	Medium
Constituent of concern concentrations would increase	Decreases in local surface water flows caused by reduced precipitation may reduce the volume of water available to dilute constituents of concern. As surface water quality is of concern to the Region to maintain local supply, this issue is of medium concern to the Region.	Medium

Vulnerability Issue	Description	Priority Level
Assimilative capacity of water bodies would decrease	During general drought conditions, natural inflow is not available to maintain or improve assimilative capacity of groundwater basins. Reduced precipitation could further reduce natural inflow, and further reduce assimilative capacity. Given that the Region is taking steps to implement programs to use imported water for reservoirs and groundwater recharge, this issue is of medium concern to the Region.	Medium
Invasive species would increase	A reduction in local water supply available to support native species may impact these species ability to compete with invasive species. Though this is an issue of concern to the Region, it's considered a low priority at this time in comparison to other issues.	Low
Available necessary habitat would decrease	Habitat for a number of threatened or endangered species exists in the Region (i.e. California gnatcatcher, least Bell's vireo, Quino checkerspot butterfly, Stephens' kangaroo rat). Changes in temperature and water available may cause shifts in the location and quality of habitat necessary for these species. Given that habitat has been designated for species in the Region, this vulnerability issue has been designated to be of low priority.	Low
Erosion and sedimentation would increase	Increases in the intensity of storms could increase erosion and sedimentation, which both impacts water quality and increases flood risk. This may be exacerbated with increases in wildfires. As the Region does not currently have issues with erosion and sedimentation, this vulnerability issue has been prioritized as low.	Low
Impacts to water dependent species would increase	Reduced surface water flows and increased water temperatures can negatively impact aquatic species. Though water dependent species are not currently experiencing issues, this is still an issue of concern for the Region.	Low

The effects of climate change to which the District is most vulnerable include those that decrease water supplies during times of high demand. While the data presented in this Plan indicates water availability during times of low supplies (i.e. single and multiple dry year scenarios), response to a situation for which water supplies were not adequate would follow the water use efficiency mandates of MWD's WSDM Plan, along with implementation of the appropriate stages of the District's Water Shortage Contingency Plan. These programs are discussed more specifically in Section II of this Plan.

SECTION 7
WATER USE EFFICIENCY INFORMATION

Efficient Water Management Practices (EWMPs) for agriculture were established as part of California Assembly Bill 3616, Agricultural Efficient Water Management Act of 1990, and were officially defined on January 1, 1999 by an advisory committee consisting of State, federal, and local agencies; agricultural communities; the California university system; environmental and public interest groups; and other interested parties in a Memorandum of Understanding (MOU) establishing the Agricultural Water Management Council (AWMC). These EWMPs were later included in California Senate Bill X7-7 (SB X7-7) on November 9, 2009 as mandated water use efficiency targets for agricultural water suppliers.

EWMPs refer to policies, programs, rules, and other activities conducted by a water supplier that, over the long-term, have been generally justified and accepted by the industry as providing for the advancement of the efficient use of water used for agricultural purposes in California. RCWD recognizes agricultural water use efficiency as an integral component of current and future water supply development and reliability strategies for its service area. The District has made implementation of EWMPs the cornerstone of its agricultural water use efficiency programs and efforts.

7.1 EWMP IMPLEMENTATION & REPORTING

Critical activities and conditional activities are the two general classes of EWMPs defined in SB X7-7. Critical activities must be implemented by agricultural water suppliers and include requirements for accurate measurement of water deliveries to individual farming operations and for adopting a pricing structure for agricultural water customers based at least in part on quantity of water delivered. Conditional activities are those that must be implemented by agricultural water suppliers if they are locally cost-effective and technically feasible. The following table lists EWMPs as required by the Act.

Agricultural Water Management Planning Act
Required Efficient Water Management Practices

CRITICAL (REQUIRED)	
1	Measure the volume of water delivered to customers with sufficient accuracy.
2	Adopt a pricing structure for water customers based on at least in part on quantity delivered.
CONDITIONAL (REQUIRED IF LOCALLY COST EFFECTIVE AND TECHNICALLY FEASIBLE)	
1	Facilitate alternate land use for lands with exceptionally high water duties or whose irrigation contributes to significant problems, including drainage.
2	Facilitate use of available recycled water that otherwise would not be used beneficially, meets all health and safety criteria, and does not harm crops or soils.
3	Facilitate the financing of capital improvements for on-farm irrigation systems.

CONDITIONAL (REQUIRED IF LOCALLY COST EFFECTIVE AND TECHNICALLY FEASIBLE)	
4	Implement an incentive pricing structure that promotes one or more of the following goals: a. More efficient water use at the farm level. b. Conjunctive use of groundwater. c. Appropriate increase of groundwater recharge. d. Reduction in problem drainage. e. Improved management of environmental resources. f. Effective management of all water sources throughout the year by adjusting seasonal pricing structures based on current conditions.
5	Expand line or pipe distribution systems, and construct regulatory reservoirs to increase distribution system flexibility and capacity, decrease maintenance, and reduce seepage.
6	Increase flexibility in water ordering by, and delivery to, water customers within operational limits.
7	Construct and operate supplier spill and tailwater recovery systems.
8	Increase planned conjunctive use of surface water and groundwater within the supplier service area.
9	Automate canal control structures.
10	Facilitate or promote customer pump testing and evaluation.
11	Designate a water conservation coordinator who will develop and implement the water management plan and prepare progress reports.
12	Provide for the availability of water management services to water users. These services may include, but are not limited to, all of the following: a. On-farm irrigation and drainage system evaluations. b. Normal year and real-time irrigation scheduling and crop ETo information. c. Surface water, groundwater, and drainage water quality and quality data. d. Agricultural water management educational programs and materials for farmers, staff, and the public.
13	Evaluate the policies of agencies that provide the supplier with water to identify the potential for institutional changes to allow for more flexible water deliveries and storage.
14	Evaluate and improve the efficiencies of the supplier's pumps.

The District has committed to use good-faith efforts to implement all 16 EWMPs. While many of the EWMPs are implemented exclusively by RCWD with funding allocated annually to the District's operating budget, some of them are implemented by the District through funding partnerships with other agencies. The US Bureau of Reclamation (Reclamation), DWR, and WMWD have cost shared with the District on providing water management services to its agricultural water users and for financing capital improvements for on-farm irrigation systems. Reclamation has also provided significant funding for the construction of the Vail Lake Pipeline and Pump Station, which will ultimately lead to increased conjunctive use and distribution system flexibility. In addition, Southern California Edison provides free pump testing services that allow the District and its customers to evaluate the efficiency of their well and booster pumps.

STATUS OF EWMPS

The following tables provide a summary of the implementation status of each of the EWMPs, and estimated water use efficiency improvements that will result from their implementation. The table is followed by a narrative providing details of the RCWD's efforts related to the implementation of each of the EWMPs.

Report of EWMP's Implemented/Planned		
EWMP No.	**Description of EWMP Implemented**	**Description of EWMP Planned**
Critical EWMPs		
1	Accurately measure the volume of water delivered	-
2	Adopt a pricing structure based on quantity delivered	-
Conditional EWMPs		
1	Facilitate alternative land use	-
2	-	-
3	Facilitate the financing of capital improvements for irrigation systems	-
4	Implement an incentive pricing structure	-
5	Expand line or pipe distribution systems, and construct regulatory reservoirs	-
6	-	-
7	-	-
8	Increase planned conjunctive use of surface water and groundwater	-
9	-	-
10	Facilitate or promote customer pump testing and evaluation	-
11	Designate a water conservation coordinator	-
12	Provide for the availability of water management services to water users	-
13	Evaluate the policies of agencies	-
14	Evaluate and improve the efficiencies of the supplier's pumps	-

Report of EWMP's Efficiency Improvements		
EWMP No.	**Estimate of Water Use Efficiency Improvements Since Last Report**	**Estimate of Water Use Efficiency Improvements 5 and 10 years in Future**
Critical EWMPs		
1	Expanded the District's Automated Metering Infrastructure (AMI) to include >20,000 additional self-reporting water meters.	Continue to accurately measure the volume of water delivered
2	Already compliant; no improvements since last report.	Continue to implement existing pricing structure based on quantity delivered.
Conditional EWMPs		
1	Requested grant funding from State and Federal governments for implementing an Agricultural Crops Conversion Program for which financial incentives would be offered for the replacement of high water use crops with lower water use varieties. This program will be an addition to an existing MWD program.	Implement an Agricultural Crops Conversion Program for which financial incentives would be offered for the replacement of high water use crops with lower water use varieties.
2	—	Use of recycled water for agriculture in RCWD's service area is not feasible due to the intolerance of existing crop types to recycled water quality and Basin Plan restrictions on deposition of salts into local aquifer. Therefore, there are no future improvements anticipated at this time.
3	Distribution uniformity for 81 on-farm irrigation systems improved by average of 25% through implementation of an RCWD financial incentives program for farmers.	Continue implementation of a financial incentives program for farmers, which facilitates irrigation system efficiency improvements.
4	Modified widths of pricing tiers for agricultural customers to reflect actual water needs for specific types of water use.	Continue to implement existing incentive pricing structure.
5	Completed Vail Lake Pipeline and Pump Station Project, Purchased land surrounding Vail Lake, which gives District additional flexibility in provision of local water supply, continued Upper VDC Optimization Project.	Continue to implement capital improvement projects, which enable the District to provide high quality, reliable water to its customers in a prudent and sustainable manner.
6	—	RCWD operates a piped, pressurized distribution system that provides water to all of its customers on an on-demand basis. Therefore, there are no future improvements anticipated at this time.

Conditional EWMPs		
7	—	RCWD operates a piped, pressurized distribution system that is not prone to spills. Moreover, tailwater recovery systems are not applicable to the District's method of water operations. Therefore, there are no future improvements anticipated at this time.
8	Upper VDC optimization increased recharge of groundwater basin	The District will continue to implement the Upper VDC Conjunctive Use Project.
9	—	RCWD operates a piped, pressurized distribution system with no canal structures. Therefore, there are no future improvements anticipated at this time.
10	Customers who operate wells are informed of the availability of free pump testing services through the regional electrical utility.	Continue to inform customers who operate of the availability of free pump testing services through the regional electrical utility.
11	A water conservation coordinator has been designated by the District.	No future improvements anticipated.
12	Facilitated 126 irrigation system evaluations, installed four ETo weather stations, provided water quality information to customers via website	Continue to provide irrigation system evaluations and tools/data to growers via RCWD's website
13	No improvements made since last report.	No future improvements anticipated.
14	Each well and booster pump is tested annually and bi-annually, respectively. Pumps operating below efficiency industry standards are repaired or replaced.	Continue to test each well and booster pump annually and bi-annually, respectively. Pumps operating below efficiency industry standards will be repaired or replaced.

7.2 DOCUMENTATION FOR NON-IMPLEMENTED EWMPs

RCWD will continue to implement the two required Critical EWMPs and ten of the fourteen Conditional EWMPs. However, four of the fourteen Conditional EWMPs have not and will not be implemented by the District in the near future due to the technical infeasibility of their application within the service area. The table on the following page includes information regarding the justification for the non-implementation of those four Conditional EWMPs.

Non-Implemented EWMP Documentation				
		(check one or both)		
EWMP #	**Description**	**Technically Infeasible**	**Not Locally Cost-Effective**	**Justification**
2	Facilitate use of available recycled water that otherwise would not be used beneficially, meets all health and safety criteria, and does not harm crops or soils.	√		Expansion of use of recycled water for agriculture in RCWD's service area is not feasible due to the intolerance of existing crop types to recycled water quality and Basin Plan restrictions on deposition of salts into local aquifer.
6	Increase flexibility in water ordering by, and delivery to, water customers within operational limits.	√		RCWD operates a piped, pressurized distribution system that provides water to all of its customers on an on-demand basis. Therefore, water ordering flexibility is at its maximum and cannot be increased.
7	Construct and operate supplier spill and tailwater recovery systems.	√		RCWD does not operate a canal distribution system, but a piped, pressurized system that is not prone to spills, and not applicable to tailwater recovery systems.
9	Automate canal control structures	√		RCWD does not operate a canal distribution system, but a piped, pressurized system.

DETAILED DESCRIPTION OF EWMP STATUS

Critical EWMPs (Required)

EWMP 1: Measure the Volume of Water Delivered to Customers with Sufficient Accuracy

The points at which water is delivered from RCWD's delivery system to each of its agricultural customers consist of a variety of different water meter types including nutating disk, turbine, high pressure turbine, and compound meters. The majority of these meters are read automatically using AMR technology, which can be read remotely and as often as is necessary. All agricultural points of connection are physically accessible to District staff, and are read, at a minimum, on a monthly basis through an automatic (AMR) or manual process. Table 6.3-2 shows the different types of metering devices used by the District to deliver water to agricultural properties, and the accuracy of each of the device types as published by their manufacturer.

Table 6.3-2
RCWD Water Meters

Manufacturer	Type	Size	Accuracy %
Badger	Nutating Disc	¾"	-1% to 1%
Badger	Nutating Disc	1"	-3% to 1%
Badger	Nutating Disc	1 ½"	-3% to 1%
Badger	Nutating Disc	2"	-3% to 1%
Badger	Turbine	2"	-1% to 1%
Meinecke	High Pressure Turbine	2"	-1% to 1%
Badger	Compound	3"	-3% to 1%
Badger	Turbine	3"	-0.5% to 1.5%
Badger	Turbine	4"	-2% to 1%
Badger	Compound	4"	-2.5% to 1%
Badger	Compound	6"	-5% to 0.5%

Each of the manufacturers who supply the water meters used by the District for delivering water to agricultural customers test their meters for accuracy under laboratory conditions and comply with accuracy standards for water measurement regulation. To ensure compliance over the long term, RCWD's Board of Directors approved a modification to the District's Administrative Code in April 2012 to include procedures for the periodic testing, repair, and replacement of water meters. Following is the modification to section 1.7.18 of the Rules and Regulations Governing Water System Facilities and Service, now included in Part III, Chapter 1, Section 1 of the District's Administrative Code.

Meter Testing, Repair, and Replacement

Meters will be thoroughly inspected for excessive wear during testing and rebuilt or replaced, as required. In addition, when there is uncertainty regarding the accuracy of any size meter within the District, the meter will be tested by staff. Meter sizes ¾" through 2" will be replaced, while meters sized 3" and above will either be rebuilt or replaced if a problem is found.

A. Initial Test. Prior to installation, each meter will be tested by the manufacturer or by the District.

B. Large Meter Testing.

Meter Sizes 3" to 4": annually for meters with usage over 10,000 HCF per year; biannually for meters with usage of less than 10,000 HCF and greater than 5,000 HCF per year; and every 5 years for meters with usage of less than 5,000 HCF per year.

Meter Sizes Larger than 4": all meters larger than 4" with usage will be tested on an annual basis.

C. On Customer's Request. A customer may, by giving not less than one week's notice, request the District to test the meter serving customer's premises. The District will require the customer to deposit

the current fee to cover cost of the test, as indicated in the Customer Guide to Rates & Charges.

D. Replacement Criteria.

Meter Sizes ¾" through 2": to be replaced every 15 years, at 100,000 HCF consumption, or when not testing within specifications.

Meter Sizes 3" and Above: will be evaluated during the testing process and either be repaired or replaced, as required.

EWMP 2: Adopt a Pricing Structure for Water Customers Based on at Least in Part on Quantity Delivered

RCWD maintains a pricing structure for all of its customers based on the quantity of water delivered. Details regarding the pricing structure for RCWD's agricultural customers are provided in the description of Conditional EWMP 4 implementation.

Conditional EWMPs (Locally Cost Effective and Technically Feasible)

EWMP 1: Facilitate alternate land use for lands with exceptionally high water duties or whose irrigation contributes to significant problems, including drainage

The main crop types within RCWD's service area are perennial and include wine grapes, citrus, and avocados. Relative to other crops grown within the region and throughout the State, the volume of water required for growing these crops is not "exceptionally high." Furthermore, the irrigation of local crops involves micro irrigation systems consisting of low-flow micro-spinning and/or drip emitters with precipitation rates that do not exceed the infiltration rates of the locally farmed soils, which are for the most part, coarse in texture. Therefore, irrigated agriculture is not a major contributor to runoff or ponding within RCWD's service area. Generally, any deep percolation of irrigation water beyond the root zones of local crops drains to the local aquifer as groundwater recharge, or to Temecula Creek, Murrieta Creek, or the Upper Santa Margarita River.

However, in the interest of enhancing agricultural water use efficiency, the District is in the process of developing an Agricultural Crop Conversion Program, which will facilitate alternate land use through the offering of financial incentives for replacing crops with lower water use varieties.

EWMP 2: Facilitate use of available recycled water that otherwise would not be used beneficially, meets all health and safety criteria, and does not harm crops or soils

RCWD maintains a water reclamation facility and a recycled water distribution system, which supply a current demand of approximately 4,000 acre feet per year to dedicated landscape customers. The typical TDS of recycled water provided by RCWD is 750 mg/L. This exceeds the 500 mg/L TDS level that is permitted for application within the local Basin where a significant portion of the agricultural irrigation takes place within RCWD's service area. Furthermore, the crops being grown outside of the area where these TDS limitations exist consist primarily of avocados, which are known to have extremely low tolerance to chlorides. The typical chloride levels of RCWD's recycled water is 175 mg/L, while the tolerance of avocado trees to chloride concentrations is below 100 mg/L.

However, in the interest of maximizing water resources within the District's service area, the District investigated the use of demineralized wastewater for agricultural supply in the Santa Rosa Division, and raw untreated imported water in the eastern Rancho Division. In 2007, the RCWD completed a Demineralization and Non-Potable Water Conversion Feasibility Study, which examined a series of technically innovative approaches for the demineralization of wastewater and associated disposal of reject brine. In 2010, an update to the 2007 Study was prepared, which presented treatment alternatives, and updated cost and avoided cost estimates. An Indirect Potable Reuse (IPR) project was considered as an alternative in the 2010 analysis, which concluded that an IPR project is a feasible option for the production of recycled water within RCWD's service area.

The District is in now the process of completing a comprehensive IPR Study to explore options for expanding its recycled water distribution system to provide recycled water to agricultural customers while complying with local Basin Plan Groundwater TDS Objectives and mitigating the intolerance of local crops to salt concentrations found in recycled water. The IPR Study outlines the option of tertiary treatment and transportation of reclaimed water from RCWD's existing water reclamation facility to a proposed Advanced Water Purification Facility for further treatment before being pumped to Vail Lake or the local groundwater basin for storage where it would be captured by groundwater wells and used for water supply by RCWD domestic and agricultural customers. The feasibility analysis and preliminary design study of the IPR project is scheduled to conclude in January 2013 with a project concept for subsequent CEQA analysis, permitting, design and construction. The study will also include brine management and disposal options.

EWMP 3: Facilitate the Financing of Capital Improvements for On-farm Irrigation Systems

Since 2010, RCWD has implemented an Agricultural Irrigation Efficiency Program (AIEP/Program), which offers financial incentives to local farmers for improving the efficiency of on-farm irrigation systems. The original intent of the Program was to assist a few farmers by providing them with technical assistance and reimbursing them for 50 percent of the equipment costs required for irrigation system retrofits that improve

distribution uniformity. However, additional funding made available through grant awards and partnerships has made the AIEP available to a greater number of farmers, increased the agency cost share amount available to farmers for the irrigation system retrofits, and broadened the types of irrigation system improvement projects that are eligible for funding.

To date, California Department of Water Resource's Proposition 84 Implementation Grant funding awarded to RCWD has helped pay for 238 agricultural irrigation system audits, which test the irrigation systems for distribution uniformity. Of the irrigation systems that were audited, 81 have been improved through equipment retrofits financed under the AIEP. Results of additional irrigation system audits conducted after the implementation of the retrofits show that distribution uniformity increased from an average of 61 percent to 88 percent.

EWMP 4: Implement an Incentive Pricing Structure That Promotes One or More of the Following Goals:

a. More Efficient Water Use at the Farm Level Such That it Reduces Waste

In 2008, RCWD implemented a tiered-rate pricing structure for agricultural water use that promotes more efficient use of water at the farm level and reduces waste. Under this rate structure, each agricultural customer is charged a Tier 1 rate plus an energy/pumping charge for each hundred cubic feet of water (HCF) used up to an amount of water allocated to the customer for meeting the needs of their property. Water allocations provided to agricultural customers are based on:

- historical weather data (ETo) obtained from the California Irrigation Management Information System (CIMIS) network of weather stations
- crop water-use information obtained from agricultural and academic publications
- planted acreage obtained through GIS irrigated acreage measurements
- information about livestock reared for human consumption or market, and the associated irrigated grazing areas
- "incidental" domestic uses are provided with additional water allocations for domestic indoor and landscape water use

As growing conditions on agricultural properties change over the course of time (i.e., increased irrigated acreage), growers may request an increase to their Tier 1 water allocation. This process involves the verification of irrigated acreage through an on-site or GIS analysis.

For each HCF consumed in excess of a customer's water allocation, a Tier 2 rate (overuse rate) is charged in addition to the Tier 1 rate and energy/pumping charge.

EWMP 5: Expand line or pipe distribution systems, and construct regulatory reservoirs to increase distribution system flexibility and capacity, decrease maintenance, and reduce seepage.

To address long-term issues of imported water supply availability, system capacity constraints, and rising imported water costs, RCWD examined all possible supply-side and demand-side management opportunities through development of an Integrated Resources Plan (IRP). The purpose of the IRP was to identify strategies for meeting the needs of the District's customers in an economical and sustainable manner through development of a long-term water supply plan that can meet water demands until 2050. The IRP identifies a preferred strategy for meeting RCWD's long term-water supply needs through implementation of structural and non-structural supply options, as well as demand-side options, for enhancing distribution system flexibility and capacity.

To support IRP implementation, the District is in the process of updating its Facilities Master Plan (FMP). The purpose of the FMP is to ensure the District is successful in fulfilling its mission of delivering reliable, high quality water, wastewater and reclamation services to its customers and communities in a prudent and sustainable manner through improvement and maintenance of the District's water distribution facilities. As part of the FMP update, RCWD will develop its annual Capital Improvement Program, which will identify specific system upgrades and expansions targeted for completion for the upcoming year.

EWMP 6: Increase flexibility in water ordering by, and delivery to, water customers within operational limits.

RCWD delivers water to all of its customers on an on-demand basis through a pressurized pipeline system. EWMP 6 is not relevant to RCWD's water operations since is not necessary for agricultural water users to order water, nor is it possible for RCWD to increase the flexibility water availability.

EWMP 7: Construct and operate supplier spill and tailwater recovery systems.

RCWD delivers water to all of its customers through a pressurized pipeline system that is not prone to the operational spills common to the canal delivery systems that serve many of the State's agricultural water users. Therefore, construction of tailwater recovery systems or supplier spill recovery systems such as full-flexibility lateral interceptors is not appropriate to the District's water delivery operation. The District is, however, considering coordinated efforts with Riverside County Flood Control for opportunities to capture storm water for groundwater recharge of high quality water for Basin Plan Management.

EWMP 8: Increase planned conjunctive use of surface water and groundwater within the supplier service area.

In addition to the extraction of the natural yield of the local basins, RCWD artificially recharges the Pauba Valley Basin with untreated imported water for enhanced groundwater production. RCWD has increased groundwater production over the past 10 years to meet increased water demands.

RCWD's 2012 Upper VDC Conjunctive Use Optimization Study concluded that increasing artificial recharge of the local groundwater basin should be employed to reduce the costs of treated water and to enhance the sustainability of water supply during drought. Specific recommendations from the report include:

- Increasing recharge capacity while optimizing recovery rates through operation of new, strategically-located wells
- Managing recharge and recovery rates considering that leakage to deeper aquifer occurs at the advantage of creating long-term storage
- Managing the distribution pattern of recharge within the basin to avoid recharge and subsequent water loss to adjacent creeks
- Rehabilitating existing wells to enhance yields

RCWD also stores local runoff in Vail Lake, which was created in 1948 through construction of Vail Dam on Temecula Creek. The District has completed the construction of a Vail Lake Pipeline and Pump Station, a conjunctive use project, which allows the District to store additional untreated, imported water in Vail Lake. The combination of this naturally occurring and imported water could be stored and pumped from the lake using the District's newly constructed pipeline and pump station to the Upper VDC for underground storage.

EWMP 9: Automate canal control structures.

RCWD's water distribution system consists solely of pressurized pipelines and includes no canal delivery structures. Therefore, it is inappropriate for RCWD to implement EWMP 9.

EWMP 10: Facilitate or Promote Customer Pump Testing and Evaluation

Through Agency Agreements RCWD has with its customers, the District functions as the manager of the local aquifer. For this reason, construction or operation of private wells must be approved by the District. Customers who operate wells approved by the District are informed of the availability of free pump testing services available through Southern California Edison (SCE).

EWMP 11: Designate a water conservation coordinator who will develop and implement the water management plan and prepare progress reports.

RCWD has designated a water conservation coordinator who helps develop and implement the AWMP.

EWMP 12: Provide for the Availability of Water Management Services to Water Users. These services may include, but are not limited to, all of the following:

a. On-farm Irrigation and Drainage System Evaluations

RCWD makes available to all agricultural water users within its service area an Agricultural Irrigation Efficiency Program, which provides financial incentives to farmers for on farm irrigation system improvements. As part of program participation, farmers are provided with free irrigation system audits/evaluations, which include recommendations for implementation of applicable best management practices and water use efficiency improvements. The program also provides financial incentives to farmers who choose to implement the recommendations made as part of the irrigation system audits/evaluation process.

b. Normal Year and Real-Time Irrigation Scheduling and Crop Evapotranspiration Information

RCWD has provided a location for two CIMIS stations to be installed within the District's service area. Weather data produced by these two stations is available to local growers on DWR's CIMIS website. Additionally, RCWD has installed 4 more weather stations within strategically chosen areas within the service area that represent specific microclimates. Data produced by the stations is made available to farmers on the District's website.

c. Surface water, groundwater, and drainage water quantity and quality data

RCWD holds Agricultural Water Users Meetings at least one time per year to provide farmers with information on water quantity and quality. Speakers from the Metropolitan provide information on RCWD's imported water supply, and the District's General Manager speaks about the local water supply. Additionally, information is provided by other RCWD staff regarding water quality considerations and assistance programs available to farmers.

With regard to water quality, total dissolved solids and chloride data are of specific importance to growers within RCWD's service area. This data is made available in a Consumer Confidence Report that is distributed to all District customers on an annual basis. Furthermore, growers have the ability to call the District's Water Quality Department to obtain water quality data specific to their area, or to retrieve the data on the District's website.

d. Agricultural Water Management Educational Programs and Materials for Farmers, Staff, and the Public

Educational outreach provided to farmers within RCWD's service area consists mainly of technical assistance that is offered through the District's Agricultural Irrigation Efficiency Program. The technical assistance involves irrigation system audits/site-evaluations that are provided free of charge to farmers. These audits/site-evaluations provide farmers with important information regarding the hydraulic efficiency of their irrigation systems and information regarding the overall efficiency of their irrigation water management practices. Following an audit/evaluation, farmers are provided with a variety of informational materials relating to efficient farming practices. RCWD also facilitates occasional field

days and demonstrations for farmers pertaining to new irrigation technologies and best management practices.

EWMP 13: Evaluate the policies of agencies that provide the supplier with water to identify the potential for institutional changes to allow for more flexible water deliveries and storage.

The District's two primary imported water sources included State Water Project and Colorado River water delivered by Metropolitan through EMWD and WMWD. Metropolitan has evaluated the reliability of these imported supplies and concluded that these supplies can be met in the future under all hydrologic conditions.

The distribution systems of the agencies that directly supply RCWD with imported water are capable of delivering water to RCWD's system on an on-demand basis. Therefore, the District has not had to contend with issues pertaining to water delivery and storage flexibility. However, RCWD is engaged in a wide range of activities to ensure that the region continues to have a reliable supply of water in future years. Integrated Resources Planning, Integrated Regional Water Management Planning, Water Shortage Contingency Planning, and Demand Management Measures are all strategies employed by the District for sustaining adequate water supplies and managing local water demands.

EWMP 14: Evaluate and improve the efficiencies of the supplier's pumps.

RCWD Operations staff perform weekly look, listen, and feel checks for each of the District's well and booster pumps. These checks consist of pump vibration detection and flow observation activities. For any pump that shows signs of malfunction, a pump efficiency test is performed.

In addition to pump efficiency tests conducted as a result of the weekly checks, each of the District's well pumps and booster pumps is tested on an annual and bi-annual basis, respectively. Pumps found to be operating below industry standards for efficiency are repaired or replaced.

SECTION 8
SUPPORTING DOCUMENTATION

AWMP Worksheets

Worksheet 1. Summary of Coordination, Adoption, and Submittal Activities						
Potential Interested Parties *[Provide names(s)]*	**Notified of AWMP Preparation**	**Requested Copy of Draft** ***(Optional)***	**Commented on Draft/Action Taken by Supplier** ***(Optional)***	**Notified of Public Meetings**	**Attended Public Meetings** ***(Optional)***	**Copy of Adopted AWMP/ Amendment Sent**
City of Temecula	30-Nov-15					June 24, 2016
City of Murrieta	30-Nov-15					June 24, 2016
County of Riverside	30-Nov-15					June 24, 2016
Eastern Municipal Water District	30-Nov-15					June 24, 2016
Western Municipal Water District	30-Nov-15					June 24, 2016
Watermaster						June 24, 2016
City Library						June 24, 2016
County Library						June 24, 2016
California State Library						June 24, 2016
LAFCO						June 24, 2016
Department of Water Resources						June 24, 2016
Local Newspaper				June 2, 2016 & June 8, 2016		
Website						June 24, 2016

Worksheet 2. Water Supplier History and Size	
Date of Formation	1965
Source of Water	**Check applicable sources**
Local Surface Water	
Local Groundwater	√
Wholesaler	√
USBR	
SWP	
Service Area Gross Acreage	99,141 acres
Service Area Irrigated Acreage	10,371 irrigated acres

Worksheet 3. Expected Changes to Service Area		
Change to Service Area	**Estimate of Magnitude**	**Effect on the Water Supplier**
Population Growth	1,223 persons per year	~362 AFY demand increase

Worksheet 4. Water Conveyance and Delivery System	
System Used	**Number of Miles**
Unlined Canal	0
Lined Canal	0
Pipelines	903
Drains	0

Worksheet 5. Water Supplier Reservoirs	
Number	1*
Total Capacity	45,206.7 AF
*Vail Lake is a surface reservoir used to help recharge the groundwater basin using natural runoff; therefore, this water supply is counted as groundwater in sections of this 2015 AWMP Update related to quantification of types of water supplies.	

Worksheet 6. Tailwater/Spill Recovery System	
System	**Yes/No**
District Operated Tailwater/Spill Recovery	No
Grower Operated Tailwater/Spill Recovery	No

Worksheet 7. Landscape Characteristics			
Topography Characteristic	**% of the District**	**Effect on Water Operations and Drainage**	
Undulating to Steep Topography	50%	The terrain within RCWD's service area requires the District to operate a number of pressure zones ranging from 1,305 feet above sea level to 2,850 feet. Due to the varying terrain, water is delivered through multiple pump stations.	
Mostly Level Topography	50%	None.	
Soil Characteristic/ Classification	**% of the District**	**Percolation Rate (inches/hour)***	**Effect on Water Operations and Drainage**
Friant-Lodo-Escondido Association	45%	0.63 to 6.3	Local growers utilize drip and/or micro irrigation to ensure system precipitation rates do not exceed soil percolation and infiltration rates.
Hanford-Tujunga-Greenfield Association	30%	2.0 to 20.0	Local growers utilize drip and/or micro irrigation to ensure system precipitation rates do not exceed soil percolation and infiltration rates.
Monserate-Arlington-Exeter Association	25%	0.06 to >20.0	Local growers utilize drip and/or micro irrigation to ensure system precipitation rates do not exceed soil percolation and infiltration rates.

*Data from Soil Survey of Western Riverside Area, California

Worksheet 8. Summary Climate Characteristics	
Climate Characteristic	**Value**
Average Annual Precipitation (inches)	11.41
Annual Minimum Precipitation (inches)	4.60
Annual Maximum Precipitation (inches)	26.67
Average Annual Minimum Temperature (oF)	40.32
Average Annual Maximum Temperature (oF)	91.86

Worksheet 9. Detailed Climate Characteristics*				
Month/Time	**Average Precipitation, Inches**	**Average Reference Evapotranspiration (Et_o), Inches**	**Average Minimum Temperature, oF**	**Average Maximum Temperature, oF**
January	1.99	2.61	35.80	75.00
February	3.10	2.62	38.10	75.10
March	1.16	4.11	39.50	79.10
April	0.83	4.88	41.80	77.45
May	0.36	5.96	45.50	84.40
June	0.05	6.47	50.05	89.15
July	0.08	7.05	53.05	95.55
August	0.05	6.87	54.85	95.20
September	0.38	5.43	53.55	93.85
October	0.43	4.11	46.65	88.00
November	0.77	2.91	41.45	78.10
December	1.96	2.34	36.55	71.35
Wet Season**	10.24	23.58	39.98	77.73
Dry Season***	0.92	31.78	51.40	91.63
Extreme Annual Conditions****	3.87 (low); 26.67 (high)	49.85 (low); 62.65 (high)	35.05	95.55

*Data presented here represents average data from two CIMIS station locations within RCWD's service area.

**Wet Season is the average rainfall, Eto, or temperature occurring between October and April

***Dry Season is the average rainfall, Eto, or temperature occurring between May and September

****Extreme conditions reflect minimum and maximum annual values

Worksheet 10. Supplier Delivery System		
Type	**Check if Used**	**Percent of System Supplied**
On Demand	√	100%
Modified Demand		
Rotation		
Other		

Worksheet 11. Water Allocation Policy					
	(Check if applicable)			Allocation	
Basis of Water Allocation	**Flow**	**Volume**	**Seasonal Allocations**	**Normal Year**	**Percent of Water Deliveries (%)**
Area within the service area					
Amount of land owned					
Riparian rights					
Crop Type & Irrigated Area		√			

Worksheet 12. Actual Lead Times	
Operations	**Hours/Days**
Water orders	0; RCWD operates an on-demand system
Water shut-off	0; RCWD operates an on-demand system

Worksheet 13. Water Delivery Measurements			
Measurement Device	**Frequency of Testing**	**Frequency of Replacement**	**Estimated Level of Accuracy**
Nutating Disc Meters			
3/4"	District Discretion	15 Years	-1% to 1%
1"	District Discretion	15 Years	-3% to 1%
1 1/2"	District Discretion	100,000 HCF or 15 Years	-3% to 1%
2"	District Discretion	100,000 HCF or 15 Years	-3% to 1%
Turbine Meters			
2"	District Discretion	100,000 HCF or 15 Years	-1% to 1%
3"	District Discretion	Chamber exchange or rebuilt per usage	-0.5% to 1.5%
4"	District Discretion	Chamber exchange or rebuilt per usage	-2% to 1%
High Pressure Turbine Meters			
2"	District Discretion	100,000 HCF or 15 Years	-1% to 1%

Compound Meters			
3"	Annually – usage great than 10,000 HCF per year Biennially – usage greater than 5,000 HCF and less than 10,000 HCF per year Every five years – less than 5,000 HCF per year	Chamber exchange or rebuilt per usage	-3% to 1%
4"	Annually – usage great than 10,000 HCF per year Biennially – usage greater than 5,000 HCF and less than 10,000 HCF per year Every five years – less than 5,000 HCF per year	Chamber exchange or rebuilt per usage	-2.5% to 1%
6"	Annually	Chamber exchange or rebuilt per usage	-5% to 0.5%

Worksheet 14. Water Rate Basis			
Water Charge Basis	**Check if Used**	**Percent of Water Deliveries (%)**	**Description**
Volume of Water Delivered	√	100%	RCWD charges each agricultural customer for water delivery based on volumetric consumption as reported by water meters installed immediately upstream of their irrigation systems
Rate and Duration of Water Delivered			
Acre			
Crop			
Land Assessment			
Other			

Worksheet 15. Rate Structure		
Type of Billing	**Check if Used**	**Description**
Declining		
Uniform		
Increasing Block Rate	√	RCWD's agricultural customers are provided with a calendar year water allocation based on crop type and irrigated acreage. Water consumption within a customer's water allocation during the calendar year is charged at the Tier 1 rate. Water use in excess of the allocation is charged at a higher Tier 2 rate. During water shortages, surcharges may be added to the Tier 2 rate for use in excess of the allocation to encourage water use efficiency.
Other		

Worksheet 16. Frequency of Billing		
Frequency	**Check if Used**	**Explanation**
Weekly		
Biweekly		
Monthly	√	Water bills are sent to customers following each meter read, which takes place approximately every thirty days
Bimonthly		
Semiannually		
Annually		

Worksheet 17. Decreased Water Supplies Allocations		
Allocation Method	**Check if used**	**Explanation**
By crop	√	Water is allocated to agricultural customers according to crop type and irrigated acreage in both normal water supply and drought conditions
First come first served		
Area in district		
Other	√	During drought conditions, RCWD's crop and irrigated acreage based water allocations are reduced as per the provisions of the District's Water Shortage Contingency Plan
No specific policy		

Worksheet 18. Enforcement Methods of Allocation Policies		
Enforcement Method	**Check if used**	**Explanation**
Fines	√	Fines are assessed as per the provisions of RCWD's Water Conservation Policy (a component of the District's Water Shortage Contingency Plan) for infractions such as watering outside of a specific watering window, causing runoff, etc.
Water Shut-off		
Other	√	During normal water supply conditions, RCWD's increasing block rate structure encourages agricultural customers to not use water in excess of their annual water allocation. In times of water shortage, the reduction of water allocations combined with the assessment of higher tiered rates and surcharges for usage in excess of water allocations encourage customers to remain within their water allocation.
No specific policy		

Worksheet 19. Representative Years	
	Description
Representative year(s) based upon	2013, 2014, 2015
First month of representative year	July
Last month of representative year	June

Worksheet 20. Annual Agricultural Water Use (AF)								
Source	**2013**	**2014**	**2015**	**Projections**				
				2020	**2025**	**2030**	**2035**	**2040**
Agricultural Water Supplier Delivered								
Surface Water	0	0	0	0	0	0	0	0
Groundwater	14,802	15,776	14,179	16,244	16,914	17,584	18,254	19,003
Imported Water	8,943	10,035	7,761	8,973	9,344	9,714	10,084	10,498
Total	**23,745**	**25,811**	**21,940**	**25,217**	**26,258**	**27,298**	**28,338**	**29,501**
Other Water Supplies Used								
Surface Water	0	0	0	0	0	0	0	0
Groundwater	0	0	0	0	0	0	0	0
Imported Water	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0

Worksheet 21. Agricultural Crop Data For 2013								
Crop	**Total Acreage**	**Irrigation Method**	**Planting Month**	**Harvest Month**	**ET crop (AF/Ac)***	**Cultural Practices (AF/Ac)***	**Leaching Requirement (AF/Ac)***	**Total Crop Water Needs (AF)***
Avocado, Wine grape, Citrus, and other Minor Crops	10,371	Drip / Micro sprinkler	Perennial Crops	Year round	1.95	0.11	0.23	23,745
TOTAL	10,371	-	-	-	-	-	-	23,745

Worksheet 21. Agricultural Crop Data For 2014								
Crop	Total Acreage	Irrigation Method	Planting Month	Harvest Month	ET crop (AF/Ac)*	Cultural Practices (AF/Ac)*	Leaching Requirement (AF/Ac)*	Total Crop Water Needs (AF)*
Avocado, Wine grape, Citrus, and other Minor Crops	10,371	Drip / Micro sprinkler	Perennial Crops	Year round	2.12	0.12	0.25	25,811
TOTAL	10,371	-	-	-	-	-	-	25,811

Worksheet 21. Agricultural Crop Data For 2015								
Crop	Total Acreage	Irrigation Method	Planting Month	Harvest Month	ET crop (AF/Ac)*	Cultural Practices (AF/Ac)*	Leaching Requirement (AF/Ac)*	Total Crop Water Needs (AF)*
Avocado, Wine grape, Citrus, and other Minor Crops	10,371	Drip / Micro sprinkler	Perennial Crops	Year round	1.80	0.11	0.21	21,940
TOTAL	10,371	-	-	-	-	-	-	21,940

Worksheet 22. Irrigated Acres						
Total Irrigated Acres	2015	Projections				
		2020	2025	2030	2035	2040
	10,371	11,831	12,319	12,807	13,295	13,840

Worksheet 23. Multiple Crop Information						
Cropping System	2015	Planning Cycle				
		2020	2025	2030	2035	2040
Single-Cropped Acres	8,717	9,944	10,354	10,764	11,174	11,633
Inter-Cropping Acres	1,654	1,887	1,965	2,042	2,120	2,207
Double Cropping Acres	0	0	0	0	0	0
Total	10,371	11,831	12,319	12,807	13,295	13,840

Worksheet 24. Environmental Water Uses (AF)								
Environmental Resources	2013	2014	2015	Projections				
				2020	2025	2030	2035	2040
From Supplier								
Vernal pools	0	0	0	0	0	0	0	0
Streams	0	0	0	0	0	0	0	0
Lakes or reservoirs	0	0	0	0	0	0	0	0
Riparian Vegetation	0	0	0	0	0	0	0	0
Other [Identify]	0	0	0	2	0	0	0	0
TOTAL	0	0	0	2	0	0	0	0
All Sources								
Vernal pools	0	0	0	0	0	0	0	0
Streams	0	0	0	0	0	0	0	0
Lakes or reservoirs	0	0	0	0	0	0	0	0
Riparian Vegetation	0	0	0	0	0	0	0	0
Other [Identify]	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0

Worksheet 25. Recreational Water Uses (AF)								
Recreational Facility	2013	2014	2015	Projections				
				2020	2025	2030	2035	2040
Vail Lake	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0

Worksheet 26. Municipal/Industrial Water Uses (AF)								
Municipal/ Industrial Entity	2013	2014	2015	Projections				
				2020	2025	2030	2035	2040
Municipal Entity								
Single Family Homes	27,479	28,545	25,308	28,870	30062	31253	32443	33774
Multi-Family Housing	2,165	2,307	2,201	2,511	2615	2718	2822	2937
Institutional Governmental Entities	464	497	463	528	550	571	593	618
Dedicated Landscape Irrigation	6,191	6,621	5,601	6,389	6653	6916	7180	7474
SUBTOTAL	36,300	37,970	33,573	38,298	39880	41458	43038	44803
Industrial Entity								
Commercial Enterprises	3,560	3,653	3,468	3,956	4,120	4,283	4,446	4,629
SUBTOTAL	3,560	3,653	3,468	3,956	4,120	4,283	4,446	4,629
TOTAL	39,860	41,623	37,041	42,254	44,000	45,741	47,484	49,432

Worksheet 27. Groundwater Recharge Water Uses* (AF)									
Location/ Groundwater Basin	Method of Recharge	2013	2014	2015	Projections				
					2020	2025	2030	2035	2040
Temecula Valley Groundwater Basin	Percolation in VDC Spreading Basins	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0

*Groundwater recharge is a management practice employed by RCWD for delivering water for agricultural and municipal and industrial uses. The practice of groundwater recharge, however, does not represent a type of water demand.

Worksheet 28. Transfers and Exchanges Water Uses		
From What Agency	To What Agency	Volume (AF)
2013 (Actual)		
Rancho California Water District	Eastern Municipal Water District, Western Municipal Water District, Pechanga Indian Reservation & Santa Margarita River Discharge Water Transfer (Fallbrook Public Utilities District and US Marine Corps Base Camp Pendleton)	2,749
2014 (Actual)		
Rancho California Water District	Eastern Municipal Water District, Western Municipal Water District, Pechanga Indian Reservation & Santa Margarita River Discharge Water Transfer (Fallbrook Public Utilities District and US Marine Corps Base Camp Pendleton)	4,187
2015 (Actual)		
Rancho California Water District	Eastern Municipal Water District, Western Municipal Water District, Pechanga Indian Reservation & Santa Margarita River Discharge Water Transfer (Fallbrook Public Utilities District and US Marine Corps Base Camp Pendleton)	3,258
2020 (Projection)		
Rancho California Water District	Eastern Municipal Water District, Western Municipal Water District, Pechanga Indian Reservation & Santa Margarita River Discharge Water Transfer (Fallbrook Public Utilities District and US Marine Corps Base Camp Pendleton)	6,781
2025 (Projection)		
Rancho California Water District	Eastern Municipal Water District, Western Municipal Water District, Pechanga Indian Reservation & Santa Margarita River Discharge Water Transfer (Fallbrook Public Utilities District and US Marine Corps Base Camp Pendleton)	9,278

From What Agency	To What Agency	Volume (AF)
2030 (Projection)		
Rancho California Water District	Eastern Municipal Water District, Western Municipal Water District, Pechanga Indian Reservation & Santa Margarita River Discharge Water Transfer (Fallbrook Public Utilities District and US Marine Corps Base Camp Pendleton)	9,278
2035 (Projection)		
Rancho California Water District	Eastern Municipal Water District, Western Municipal Water District, Pechanga Indian Reservation & Santa Margarita River Discharge Water Transfer (Fallbrook Public Utilities District and US Marine Corps Base Camp Pendleton)	9,278
2040 (Projection)		
Rancho California Water District	Eastern Municipal Water District, Western Municipal Water District, Pechanga Indian Reservation & Santa Margarita River Discharge Water Transfer (Fallbrook Public Utilities District and US Marine Corps Base Camp Pendleton)	9,278

Worksheet 29. Other Water Uses (AF)

Water Use	2013	2014	2015	Projections				
				2020	2025	2030	2035	2040
Recycled Water Use	4,347	4,554	3,909	4,599	6,107	7,663	8,053	8,129
Water Loss	3,030	2,897	2,931	3,391	3,531	3,671	3,811	3,967

Worksheet 30. Surface Water Supplies (AF)										
Source	Diversion Restriction	2013	2014	2015	Projections					Anticipated Changes
					2020	2025	2030	2035	2040	
Pre-1914 water rights	N/A	0	0	0	0	0	0	0	0	None
CVP Class I Water Contract	N/A	0	0	0	0	0	0	0	0	None
SWP Water Contract	N/A	0	0	0	0	0	0	0	0	None
Other imported water surface water	N/A	0	0	0	0	0	0	0	0	None
Local surface water [Identify]	N/A	0	0	0	0	0	0	0	0	None
Upslope drain water	N/A	0	0	0	0	0	0	0	0	None
Transfers/Exchanges	N/A	0	0	0	0	0	0	0	0	None
TOTAL	N/A	0	0	0	0	0	0	0	0	None

Worksheet 31. Restrictions on Water Sources			
Source	Restrictions*	Name of Agency Imposing Restrictions	Operational Constraints
Imported Water	State Water Board has imposed required conservation standards for urban water use; Metropolitan Water District has imposed conservation requirements for all water use.	State Water Board & Metropolitan Water District of Southern California	None
Local Groundwater	A ground water production program restricting the operation of the groundwater basin within safe yield limits so not to create permanent overdraft or other undesirable conditions that could degrade water quality or violate legal restrictions.	The Temecula Valley Groundwater Basin, identified in California's Groundwater Bulletin as 118, is governed by a settlement agreement, "Cooperative Water Resource Management Agreement between Camp Pendleton and Rancho California Water District." Court appointed Santa Margarita River Watershed Watermaster oversees all rules.	Safe yield annual volume limits of both natural and artificial recharge.

Worksheet 32. Groundwater Basins			
Basin Name	**Size (Sq. Mi.)**	**Usable Capacity (AF)**	**Safe Yield (AF/Yr)**
Temecula Valley Groundwater Basin	137	253,000	Changes annually based on hydrological conditions; recommendation for fiscal year 2016/17 is 35,060 AF

Worksheet 33. Groundwater Management Plan	
Written By	Geoscience
Year	FY 2016/2017
Is Appendix Attached?	Yes; Appendix G

Worksheet 35. Drainage Discharge (AF)			
Surface/ Subsurface Drainage Path	**2015**	**End Use**	**Inside/ Outside Service Area**
N/A	-	N/A	N/A

Worksheet 36. Groundwater Supply Quality**		
Parameter	**Units**	**2015**
TDS	ppm	489
Se	ppm	ND
B	ppm	0.37
Mo	ppm	ND
As	ppb	3.2
Na	ppm	105
Cl	ppm	96
Pesticide	ppb	ND
Herbicide	ppb	ND
Fertilizer(NO_3)	ppm	7.9
Other [Identify]	N/A	N/A
Other [Identify]	N/A	N/A

Worksheet 36. Imported Water Supply Quality**		
Parameter	**Units**	**2015**
TDS	ppm	621
Se	ppm	NA
B	ppm	110
Mo	ppm	NA
As	ppb	ND
Na	ppm	98
Cl	ppm	102
Pesticide	ppb	ND
Herbicide	ppb	ND
Fertilizer(NO_3)	ppm	ND
Other [Identify]	N/A	N/A
Other [Identify]	N/A	N/A

Worksheet 36. Drainage Water Supply Quality**		
Parameter	**Units**	**2015**
TDS	N/A	N/A
Se	N/A	N/A
B	N/A	N/A
Mo	N/A	N/A
As	N/A	N/A
Na	N/A	N/A
Cl	N/A	N/A
Pesticide	N/A	N/A
Herbicide	N/A	N/A
Fertilizer(NO_3)	N/A	N/A
Other [Identify]	N/A	N/A
Other [Identify]	N/A	N/A

Worksheet 36. Recycled Water Supply Quality**		
Parameter	**Units**	**2015**
TDS	ppm	765
Se	N/A	N/A
B	ppm	0.55
Mo	N/A	N/A
As	N/A	N/A
Na	N/A	N/A
Cl	ppm	196
Pesticide	N/A	N/A
Herbicide	N/A	N/A
Fertilizer(NO_3)	ppm	7.73
Other [Identify]	N/A	N/A
Other [Identify]	N/A	N/A

Worksheet 37. Drainage Reuse Effects						
Analyte	**Detected**	**Drainage Reuse Limitations (*Check*)**				
		Increased Leaching	**Blending Supplies**	**Restricted Area of Use**	**Restricted Crops**	**Other**
TDS	N/A	N/A	N/A	N/A	N/A	N/A
Se	N/A	N/A	N/A	N/A	N/A	N/A
B	N/A	N/A	N/A	N/A	N/A	N/A
Mo	N/A	N/A	N/A	N/A	N/A	N/A
As	N/A	N/A	N/A	N/A	N/A	N/A
Na	N/A	N/A	N/A	N/A	N/A	N/A
Cl	N/A	N/A	N/A	N/A	N/A	N/A
Pesticide	N/A	N/A	N/A	N/A	N/A	N/A
Herbicide	N/A	N/A	N/A	N/A	N/A	N/A
Fertilizer(NO_3)	N/A	N/A	N/A	N/A	N/A	N/A
Other	N/A	N/A	N/A	N/A	N/A	N/A

Worksheet 38. Water Quality Monitoring Practices			
Water Source	**Monitoring Location**	**Measurement/ Monitoring Method or Practice**	**Frequency**
Surface Water	N/A	N/A	N/A
Groundwater	Well Sites	Inorganic Chemicals	3 years
		General Mineral	3 years
		General Physical	3 years
		Radiological	3, 6, or 9 years
		Bacterial	monthly or quarterly
		Aresenic	monthly or 3 years
		Volatile Organic Chemicals	3 years
		SOC Limited Testing (40 sites)	3 or 6 years
		SOC Complete Testing (5 sites)	3 years
Imported Water	Potable Distribution System	Total Trihalomethanes	Quarterly
		Haloacetic Acids	Quarterly
Recycled Water	Water Recycling Plant	BOD's	Annually
		TSS	Annually
		pH	Annually
		Total Coliform (7-day)	Annually
		Total Coliform (30-day)	Annually
		TDS	Annually
		Chloride	Annually
		Sulfate	Annually
		Percent Sodium	Annually
		Nitrate	Annually
		Total Nitrogen	Annually
		Iron	Annually
		Manganese	Annually
		MBAS	Annually
		Boron	Annually
		Turbidity	Annually
		Fluoride	Annually

Worksheet 39. Water Quality Monitoring Programs for Surface/Sub-Surface Drainage		
Monitoring Program	**Analyses Performed**	**Frequency of Analysis**
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Worksheet 40. Surface and Other Water Supplies For 2013 (AF)													
Source	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
CVP Class 1 Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-
Pre-1914 Rights	-	-	-	-	-	-	-	-	-	-	-	-	-
SWP*	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Surface Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Upslope Drain Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Transfers & Exchanges	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Groundwater	3,570	4,265	3,405	3,821	3,121	2,274	2,659	2,522	3,708	3,711	4,050	2,321	39,427
Imported Water	4,615	4,933	4,202	2,530	1,645	250	514	393	829	2,163	3,067	4,906	30,047
Recycled Water	347	312	348	359	370	382	373	345	345	352	360	364	4,257
Other [Identify]	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**8,532**	**9,510**	**7,955**	**6,710**	**5,136**	**2,906**	**3,546**	**3,260**	**4,882**	**6,226**	**7,477**	**7,591**	**73,731**

Worksheet 40. Surface and Other Water Supplies For 2014 (AF)													
Source	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
CVP Class 1 Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-
Pre-1914 Rights	-	-	-	-	-	-	-	-	-	-	-	-	-
SWP*	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Surface Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Upslope Drain Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Transfers & Exchanges	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Groundwater	3,573	3,331	3,620	3,664	3,308	3,263	3,289	3,233	3,155	2,991	3,219	3,139	39,785
Imported Water	4,543	4,580	4,295	2,485	1,351	792	2,094	1,374	1,279	3,144	4,563	4,830	35,330
Recycled Water	348	348	342	274	309	357	332	309	331	327	330	350	3,957
Other [Identify]	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**8,464**	**8,259**	**8,257**	**6,423**	**4,968**	**4,412**	**5,715**	**4,916**	**4,765**	**6,462**	**8,112**	**8,319**	**79,072**

Worksheet 40. Surface and Other Water Supplies For 2015 (AF)													
Source	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
CVP Class 1 Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-
Pre-1914 Rights	-	-	-	-	-	-	-	-	-	-	-	-	-
SWP*	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Surface Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Upslope Drain Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Transfers & Exchanges	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Groundwater	3,159	3,788	3,200	3,462	3,116	1,985	2,152	2,836	3,381	3,517	3,208	3,468	37,272
Imported Water	5,111	3,959	4,084	3,323	1,677	110	514	1,019	1,718	2,414	1,272	2,570	27,771
Recycled Water	346	341	346	342	342	342	341	277	333	342	366	318	4,036
Other [Identify]	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	8,616	8,088	7,630	7,127	5,135	2,437	3,007	4,132	5,432	6,273	4,846	6,356	**69,079**

Worksheet 41. Groundwater Supplies Summary For 2013 (AF)	
Month	Pumped by the Water Supplier
	Temecula Valley Basin
July	3,570
August	4,265
September	3,405
October	3,821
November	3,121
December	2,274
January	2,659
February	2,522
March	3,708
April	3,711
May	4,050
June	2,321
TOTAL	**39,427**

Worksheet 41. Groundwater Supplies Summary For FY 2014 (AF)	
Month	Pumped by the Water Supplier
	Temecula Valley Basin
July	3,573
August	3,331
September	3,620
October	3,664
November	3,308
December	3,263
January	3,289
February	3,233
March	3,155
April	2,991
May	3,219
June	3,139
TOTAL	**39,785**

Worksheet 41. Groundwater Supplies Summary For FY 2015 (AF)	
Month	Pumped by the Water Supplier
	Temecula Valley Basin
July	3,159
August	3,788
September	3,200
October	3,462
November	3,116
December	1,985
January	2,152
February	2,836
March	3,381
April	3,517
May	3,208
June	3,468
TOTAL	**37,272**

Worksheet 42. Effective Precipitation Summary* (AF)				
Month	Planning Cycle			Average
	2013	2014	2015	
January	0.00	0.00	0.00	0.00
February	0.00	0.00	0.00	0.00
March	0.00	0.00	0.00	0.00
April	0.00	0.00	0.00	0.00
May	0.00	0.00	0.00	0.00
June	0.00	0.00	0.00	0.00
July	0.00	0.00	0.00	0.00
August	0.00	0.00	0.00	0.00
September	0.00	0.00	0.00	0.00
October	0.00	0.00	0.00	0.00
November	0.00	0.00	0.00	0.00
December	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00

*Precipitation is minimal in the service area and is not considered a supply.

Worksheet 43. Applied Agricultural Water (AF)			
	Planning Cycle		
	2013	2014	2015
Applied Water* (from Worksheet 20)	23,745	25,811	21,940

Worksheet 44. Quantify Water Use (AF)			
	Planning Cycle		
Water Use	**2013**	**2014**	**2015**
Crop Water Use (from Worksheet 21)			
1 Crop Evapotranspiration	20,183.25	21,939.35	18,649.00
2 Leaching	2,374.50	2,581.10	2,194.00
3 Cultural practices	1,187.25	1,290.55	1,097.00
Conveyance & Storage System			
4 Conveyance seepage	0	0	0
5 Conveyance evaporation	0	0	0
6 Conveyance operational spills	0	0	0
7 Reservoir evaporation	0	0	0
8 Reservoir seepage	0	0	0
Environmental Use (Consumptive)			
9 Environmental use - wetlands (from Worksheet 24)	0	0	0
10 Environmental use - Other (from Worksheet 24)	0	0	0
11 Riparian vegetation (from Worksheet 24)	0	0	0
12 Recreational use (from Worksheet 25)	0	0	0
Municipal and Industrial			
13 Municipal (from Worksheet 26)	36,300	37,970	33,573
14 Industrial (from Worksheet 26)	3,560	3,653	3,468
Outside the District			
15 Transfers or Exchanges out of the service area (from Worksheet 28)	2,749	4,187	3,258
Conjunctive Use			
16 Groundwater recharge (from Worksheet 27)	0	0	0
Other (from Worksheet 29)			
Water Loss	3,030	2,897	2,931
Recycled	4,347	4,554	3,909
Total	73,731	79,072	69,079

Worksheet 45. Quantify Water Leaving the District (AF)			
	Planning Cycle		
	2013	2014	2015
Surface drain water leaving the service area	0	0	0
Subsurface drain water leaving the service area	0	0	0
Subtotal	0	0	0

Worksheet 46. Irrecoverable Water Losses* (AF)			
	Planning Cycle		
	2013	2014	2015
Flows to saline sink	0	0	0
Flows to perched water table	0	0	0
Subtotal	0	0	0

Worksheet 47. Quantify Water Supplies (AF)			
	Planning Cycle		
Water Supplies	**2013**	**2014**	**2015**
Surface Water* (summary total from Worksheet 40)	-	-	-
Groundwater (summary total from Worksheet 41)	39,427	39,785	37,272
Annual Effective Precipitation (summary total from Worksheet 42)	-	-	-
Recycled Water	4,257	3,957	4,036
Water purchases	30,047	35,330	27,771
Subtotal	**73,731**	**79,072**	**69,079**

Worksheet 48. Budget Summary (AF)			
	Planning Cycle		
Water Accounting	**2013**	**2014**	**2015**
1 Subtotal of Water Supplies (Worksheet 47)	73731	79072	69079
2 Subtotal of Water Uses (Worksheet 44)	73731	79072	69079
3 Drain Water Leaving Service Area (Worksheet 45)	0	0	0
Excess Deep Percolation*	0	0	0

*Calculated from lines 2 and 3 subtracted from line 1

AWMP Checklist

AWMP Location (Section)	Guidebook Location	Description	Water Code Section (or other, as identified)
1	1.4	AWMP Required?	10820, 10608.12 Executive Order B-29-15
1	1.4	At least 25,000 irrigated acres *At least 10,000 irrigated acres*	10853 *Executive Order B-29-15*
1	1.4	10,000 to 25,000 acres and funding provided	10853
1	1.4	December 31, 2015 update *July 1, 2016 2015 AWMP for agricultural water suppliers 10,000 to 25,000 irrigated acres*	10820 (a) *Executive Order B-29-15*
1	1.4	5-year cycle update	10820 (a)
N/A	1.4	New agricultural water supplier after December 31, 2012 - AWMP prepared and adopted within 1 year	10820 (b)
N/A	1.5, 5	USBR water management/conservation plan:	10828(a) *Executive Order B-29-15*
N/A	1.5, 5.1	Adopted and submitted to USBR within the previous four years, AND	10828(a)(1)
N/A	1.5, 5.1	The USBR has accepted the water management/conservation plan as adequate	10828(a)(2)

AWMP Location (Section)	Guidebook Location	Description	Water Code Section (or other, as identified)
1	1.4	UWMP or participation in area wide, regional, watershed, or basin wide water management planning: does the plan meet requirements of SB X7-7 2.8 (use checklist)	10829
1	3.1 A	Description of previous water management activities	10826(d)
1, 8	3.1 B.1	Was each city or county within which supplier provides water supplies	10821(a)

		notified that the agricultural water supplier will be preparing or amending a plan?	
1, 8	3.2 B.2	Was the proposed plan available for public inspection prior to plan adoption?	10841
1, 8	3.1 B.2	Publically-owned supplier: Prior to the hearing, was the notice of the time and place of hearing published within the jurisdiction of the publicly owned agricultural water supplier in accordance with Government Code 6066?	10841
1, 8	3.1 B.2	14 days notification for public hearing	GC 6066
1, 8	3.1 B.2	Two publications in newspaper within those 14 days	GC 6066
1, 8	3.1 B.2	At least 5 days between publications? (not including publication date)	GC 6066
N/A	3.1 B.2	Privately-owned supplier: was equivalent notice within its service area and reasonably equivalent opportunity that would otherwise be afforded through a public hearing process provided?	10841

AWMP Location (Section)	Guidebook Location	Description	Water Code Section (or other, as identified)
1, 8	3.1 C.1	After hearing/equivalent notice, was the plan adopted as prepared or as modified during or after the hearing?	10841
1, 8	3.1 C.2	Was a copy of the AWMP, amendments, or changes, submitted to the entities below, no later than 30 days after the adoption?	10843(a)
1, 8	3.1 C.2	The department.	10843(b)(1)

1, 8	3.1 C.2	Any city, county, or city and county within which the agricultural water supplier provides water supplies.	10843(b)(2)
1, 8	3.1 C.2	Any groundwater management entity within which jurisdiction the agricultural water supplier extracts or provides water supplies.	10843(b)(3)
1, 8	3.1 C.2	Any urban water supplier within which jurisdiction the agricultural water supplier provides water supplies.	10843(b)(4)
1, 8	3.1 C.2	Any city or county library within which jurisdiction the agricultural water supplier provides water supplies.	10843(b)(5)
1, 8	3.1 C.2	The California State Library.	10843(b)(6)
1, 8	3.1 C.2	Any local agency formation commission serving a county within which the agricultural water supplier provides water supplies.	10843(b)(7)
1, 8	3.1 C.3	Adopted AWMP availability	10844
1, 8	3.1 C.3	Was the AWMP available for public review on the agricultural water supplier's Internet Web site within 30 days of adoption?	10844(a)

AWMP Location (Section)	Guidebook Location	Description	Water Code Section (or other, as identified)
N/A	3.1 C.3	If no Internet Web site, was an electronic copy of the AWMP submitted to DWR within 30 days of adoption?	10844(b)
1, 7, 8	3.1 D.1	Implement the AWMP in accordance with the schedule set forth in its plan, as determined by the governing body of the agricultural water supplier.	10842

2	3.2	Description of the agricultural water supplier and service area including:	10826(a)
2	3.2 A.1	Size of the service area.	10826(a)(1)
2	3.2 A.2	Location of the service area and its water management facilities.	10826(a)(2)
2	3.2 A.3	Terrain and soils.	10826(a)(3)
2	3.2 A.4	Climate.	10826(a)(4)
2	3.2 B.1	Operating rules and regulations.	10826(a)(5)
2	3.2 B.2	Water delivery measurements or calculations.	10826(a)(6)
2	3.2 B.3	Water rate schedules and billing.	10826(a)(7)
2	3.2 B.4	Water shortage allocation policies. *Drought Management Plan*	10826(a)(8) *Executive Order B-29-15*
3	3.3	Water uses within the service area, including all of the following:	10826(b)(5)
3	3.3 A	Agricultural.	10826(b)(5)(A)
3	3.3 B	Environmental.	10826(b)(5)(B)
3	3.3 C	Recreational.	10826(b)(5)(C)
3	3.3 D	Municipal and industrial.	10826(b)(5)(D)
3	3.3 E	Groundwater recharge.	10826(b)(5)(E)
3	3.3 F	Transfers and exchanges.	10826(b)(5)(F)
3	3.3 G	Other water uses.	10826(b)(5)(G)
4	3.4 A	Description of the quantity of agricultural water supplier's supplies as:	10826(b)
4	3.4 A.1	Surface water supply.	10826(b)(1)
4	3.4 A.2	Groundwater supply.	10826(b)(2)
4	3.4 A.3	Other water supplies.	10826(b)(3)

AWMP Location (Section)	Guidebook Location	Description	Water Code Section (or other, as identified)
4	3.4 A.4	Drainage from the water supplier’s service area.	10826(b)(6)
4	3.4 B	Description of the quality of agricultural waters suppliers supplies as:	10826(b)
4	3.4 B.1	Surface water supply.	10826(b)(1)
4	3.4 B.2	Groundwater supply.	10826(b)(2)
4	3.4 B.3	Other water supplies.	10826(b)(3)
4	3.4 C	Source water quality monitoring practices.	10826(b)(4)
4	3.4 B.4	Drainage from the water supplier’s service area.	10826(b)(6)

5	3.5	Description of water accounting, including all of the following:	10826(b)(7)
5	3.5 A	Quantifying the water supplier's water supplies.	10826(b)(7)(A)
5	3.5 B	Tabulating water uses.	10826(b)(7)(B)
5	3.5 C	Overall water budget.	10826(b)(7)(C)
5	3.5 D	Description of water supply reliability.	10826(b)(8)
6	3.6	Analysis of climate change effect on future water supplies analysis	10826(c)
7	3.7	Water use efficiency information required pursuant to Section 10608.48.	10826(e)
7	3.7 A	Implement efficient water management practices (EWMPs)	10608.48(a)
7	3.7 A.1	Implement Critical EWMP: Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2).	10608.48(b)
7	3.7 A.1	Implement Critical EWMP: Adopt a pricing structure for water customers based at least in part on quantity delivered.	10608.48(b)
7	3.7 A.2	Implement additional locally cost-effective and technically feasible EWMPs	10608.48(c)

AWMP Location (Section)	Guidebook Location	Description	Water Code Section (or other, as identified)
7	3.7 B	If applicable, document (in the report) the determination that EWMPs are not locally cost-effective or technically feasible	10608.48(d)
7	3.7 A	Include a report on which EWMPs have been implemented and planned to be implemented	10608.48(d)
7	3.7 A	Include (in the report) an estimate of the water use	10608.48(d)

		efficiency improvements that have occurred since the last report, and an estimate of the water use efficiency improvements estimated to occur five and 10 years in the future.	
N/A	5	USBR water management/conservation plan may meet requirements for EWMPs	10608.48(f)
N/A	6 A	Lack of legal access certification (if water measuring not at farm gate or delivery point)	CCR §597.3(b)(2)(A)
N/A	6 B	Lack of technical feasibility (if water measuring not at farm gate or delivery point)	CCR §597.3(b)(1)(B), §597.3(b)(2)(B)
N/A	6 A, 6 B	Delivery apportioning methodology (if water measuring not at farm gate or delivery point)	CCR §597.3.b(2)(C),
N/A	6 C	Description of water measurement BPP	CCR §597.4(e)(2)
N/A	6 D	Conversion to measurement to volume	CCR §597.4(e)(3)
N/A	6 E	Existing water measurement device corrective action plan? (if applicable, including schedule, budget and finance plan)	CCR §597.4(e)(4))

Notices of Plan Preparation

50 YEARS – EST. 1965
RANCHO CALIFORNIA WATER DISTRICT

November 30, 2015

Board of Directors

John E. Hoagland
President

James "Stew" Stewart
Sr. Vice President

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Ben R. Drake

Lisa D. Herman

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Jeffrey D. Armstrong
General Manager

Fred F. Edgecomb, MPA
Director of Operations & Maintenance

Andrew L. Webster, P.E.
Chief Engineer

Kelli E. Garcia
District Secretary

James B. Gilpin
Best Best & Krieger LLP
General Counsel

Rick Dudley, City Manager
City of Murrieta
1 Town Square
24601 Jefferson Avenue
Murrieta, CA 92562

SUBJECT: RANCHO CALIFORNIA WATER DISTRICT 2015 URBAN WATER MANAGEMENT PLAN UPDATE

Dear Mr. Dudley:

Rancho California Water District (RCWD/District) is in the process of reviewing its 2010 Urban Water Management Plan (UWMP) and 2012 Agricultural Water Management Plan (AWMP). After this review, the District will consider if changes or amendments are needed in the preparation of its 2015 UWMP and/or 2015 AWMP Update.

The District is currently documenting its sources of available water, system demands and water use baseline and targets, water reliability, water shortage contingency planning, water quality, water use efficiency, and demand management measures.

We appreciate your collaboration in providing any data or information requested by RCWD for this effort. If you have received this letter and are not the person responsible for your agency's UWMP and/or AWMP, please let me know the appropriate contact at your agency for future correspondence.

RCWD's Draft 2015 UWMP and 2015 AWMP are anticipated to be available for review in late March 2016, with the District's Board of Directors' adoption planned for May 2016. If you should have any questions or concerns, please contact Principal Engineer Jeff Kirshberg by telephone at (951) 296-6900, or by email at kirshbergj@ranchowater.com.

Sincerely,

RANCHO CALIFORNIA WATER DISTRICT

Andrew Webster
Chief Engineer

cc: Corey Wallace, Engineering Manager-CIP & Development
Jeff Kirshberg, Principal Engineer

15\AW:JK:lm068\FEG

Rancho California Water District
42135 Winchester Road • Post Office Box 9017 •Temecula, California 92589-9017 • (951) 296-6900 •FAX (951) 296-6860

50 YEARS – EST. 1965
RANCHO CALIFORNIA WATER DISTRICT

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James B. Gilpin
Best Best & Krieger LLP
General Counsel

Tom Garcia, Director of Public Works
City of Temecula
Post Office Box 9033
Temecula, CA 92589-9033

SUBJECT: RANCHO CALIFORNIA WATER DISTRICT
2015 URBAN WATER MANAGEMENT PLAN UPDATE

Dear Mr. Garcia:

Rancho California Water District (RCWD/District) is in the process of reviewing its 2010 Urban Water Management Plan (UWMP) and 2012 Agricultural Water Management Plan (AWMP). After this review, the District will consider if changes or amendments are needed in the preparation of its 2015 UWMP and/or 2015 AWMP Update.

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Sincerely,

RANCHO CALIFORNIA WATER DISTRICT

Andrew Webster
Chief Engineer

cc: Corey Wallace, Engineering Manager-CIP & Development
Jeff Kirshberg, Principal Engineer

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Rancho California Water District
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James B. Gilpin
Best Best & Krieger LLP
General Counsel

Steve Horn
Senior Management Analyst
County of Riverside
4080 Lemon Street
Riverside, CA 92502

SUBJECT: RANCHO CALIFORNIA WATER DISTRICT 2015 URBAN WATER MANAGEMENT PLAN UPDATE

Dear Mr. Horn:

Rancho California Water District (RCWD/District) is in the process of reviewing its 2010 Urban Water Management Plan (UWMP) and 2012 Agricultural Water Management Plan (AWMP). After this review, the District will consider if changes or amendments are needed in the preparation of its 2015 UWMP and/or 2015 AWMP Update.

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Sincerely,

RANCHO CALIFORNIA WATER DISTRICT

Andrew Webster
Chief Engineer

cc: Corey Wallace, Engineering Manager-CIP & Development
Jeff Kirshberg, Principal Engineer

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Rancho California Water District
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50 YEARS – EST. 1965
RANCHO CALIFORNIA WATER DISTRICT

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Andrew L. Webster, P.E.
Chief Engineer

Kelli E. Garcia
District Secretary

James B. Gilpin
Best Best & Krieger LLP
General Counsel

Paul D. Jones II, General Manager
Eastern Municipal Water District
2270 Trumble Road
Perris, CA 92570

SUBJECT: RANCHO CALIFORNIA WATER DISTRICT
2015 URBAN WATER MANAGEMENT PLAN UPDATE

Dear Mr. Jones:

Rancho California Water District (RCWD/District) is in the process of reviewing its 2010 Urban Water Management Plan (UWMP) and 2012 Agricultural Water Management Plan (AWMP). After this review, the District will consider if changes or amendments are needed in the preparation of its 2015 UWMP and/or 2015 AWMP Update.

The District is currently documenting its sources of available water, system demands and water use baseline and targets, water reliability, water shortage contingency planning, water quality, water use efficiency, and demand management measures.

We appreciate your collaboration in providing any data or information requested by RCWD for this effort. If you have received this letter and are not the person responsible for your agency's UWMP and/or AWMP, please let me know the appropriate contact at your agency for future correspondence.

RCWD's Draft 2015 UWMP and 2015 AWMP are anticipated to be available for review in late March 2016, with the District's Board of Directors' adoption planned for May 2016. If you should have any questions or concerns, please contact Principal Engineer Jeff Kirshberg by telephone at (951) 296-6900, or by email at kirshbergj@ranchowater.com.

Sincerely,

RANCHO CALIFORNIA WATER DISTRICT

Andrew Webster
Chief Engineer

cc: Corey Wallace, Engineering Manager-CIP & Development
Jeff Kirshberg, Principal Engineer

15\AW:JK:lm066\FEG

Rancho California Water District
42135 Winchester Road • Post Office Box 9017 •Temecula, California 92589-9017 • (951) 296-6900 •FAX (951) 296-6860

50 YEARS – EST. 1965
RANCHO CALIFORNIA WATER DISTRICT

November 30, 2015

Board of Directors

John E. Hoagland
President

James "Stew" Stewart
Sr. Vice President

Stephen J. Corona

Ben R. Drake

Lisa D. Herman

William E. Plummer

Roger C. Ziemer

Officers

Jeffrey D. Armstrong
General Manager

Fred F. Edgecomb, MPA
Director of Operations & Maintenance

Andrew L. Webster, P.E.
Chief Engineer

Kelli E. Garcia
District Secretary

James B. Gilpin
Best Best & Krieger LLP
General Counsel

John Rossi, General Manager
Western Municipal Water District
14205 Meridian Parkway
Riverside, CA 92518

SUBJECT: RANCHO CALIFORNIA WATER DISTRICT 2015 URBAN WATER MANAGEMENT PLAN UPDATE

Dear Mr. Rossi:

Rancho California Water District (RCWD/District) is in the process of reviewing its 2010 Urban Water Management Plan (UWMP) and 2012 Agricultural Water Management Plan (AWMP). After this review, the District will consider if changes or amendments are needed in the preparation of its 2015 UWMP and/or 2015 AWMP Update.

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Sincerely,

RANCHO CALIFORNIA WATER DISTRICT

Andrew Webster
Chief Engineer

cc: Corey Wallace, Engineering Manager-CIP & Development
Jeff Kirshberg, Principal Engineer

15\AW:JK:lm069\FEG

Rancho California Water District
42135 Winchester Road • Post Office Box 9017 •Temecula, California 92589-9017 • (951) 296-6900 •FAX (951) 296-6860

Notification of Public Hearing

PROOF OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA
County of Riverside

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 or interested in the above-entitled matter. I am the principal clerk of the printer of

THE CALIFORNIAN
An Edition of The San Diego Union-Tribune

A newspaper of general circulation, published DAILY in the City of Temecula, California, 92590, County of Riverside, Three Lake Judicial District, and which newspaper has been adjudicated a newspaper of general circulation by the Superior Court of the County of Riverside, State of California, under the date of February 26, 1991, Case Number 209105; that the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof, on the following dates, to wit:

June 2ND, 8TH, 2016

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at TEMECULA, California, this
8TH day of **June, 2016**

Cathy Viars
Legal Advertising
The Californian

Proof of Publication of

PUBLIC NOTICE FOR PUBLIC HEARING AND ADOPTION OF THE RANCHO CALIFORNIA WATER DISTRICT 2015 URBAN WATER MANAGEMENT PLAN AND 2015 AGRICULTURAL WATER MANAGEMENT PLAN

Notice is hereby given that two public hearings will be conducted by the Board of Directors of the Rancho California Water District (District) on Thursday, June 9, 2016, at or after 8:30 a.m. at the District's Headquarters located at 42135 Winchester Road, Temecula, California 92590.

In accordance with the Urban Water Management Planning Act (California Water Code §10610 et seq.) and the Agricultural Water Management Planning Act (California Water Code §10608 et seq.), the District has prepared a 2015 Urban Water Management Plan (UWMP) and a 2015 Agricultural Water Management Plan (AWMP). The purpose of these public hearings is to receive public comment prior to formal adoption of the District's 2015 UWMP and 2015 AWMP. Copies of the draft 2015 UWMP and the draft 2015 AWMP are available for public review at the District's Headquarters located at 42135 Winchester Road, Temecula, California 92590, during regular business hours. The draft 2015 UWMP and draft 2015 AWMP are also available at the District's website at **www.ranchowater.com/2015AWMP_UWMPUpdate**

If you cannot attend, you are encouraged to submit written comments prior to the public hearing. Written comments may be mailed to: Jeffrey Kiehlberg, Principal Engineer, Engineering Division, Rancho California Water District, 42135 Winchester Road, Temecula, California 92590, or emailed to kiehlberg@ranchowater.com. Questions regarding the draft 2015 UWMP and the draft AWMP should be directed to Jeffrey Kiehlberg at (951) 296-6973.

Pub: 06/02/16, 06/08/16 4223081c

RCWD Resolution Adopting 2015 AWMP

RESOLUTION NO. 2016-6-7

RESOLUTION OF THE BOARD OF DIRECTORS OF THE RANCHO CALIFORNIA WATER DISTRICT, RIVERSIDE COUNTY, CALIFORNIA, ADOPTING THE RANCHO CALIFORNIA WATER DISTRICT 2015 AGRICULTURAL WATER MANAGEMENT PLAN

WHEREAS, the California Legislature enacted Senate Bill X7-7 during the 2009-2010 Extraordinary Session of the California Legislature, which includes Water Code Section 10800 et. seq., known as the Agricultural Water Management Planning Act of 2009 (Act); and

WHEREAS, California's Governor Edmund G. Brown Jr. signed Executive Order B-29-15 on April 1, 2015, which added legislative requirements governing agricultural water management plans; and

WHEREAS, the Rancho California Water District (the "District") has prepared a 2015 Agricultural Water Management Plan (AWMP) pursuant to the requirements of the Act and the Executive Order; and

WHEREAS, the purpose of the 2015 AWMP is to ensure the appropriate level of reliability in water service sufficient to meet the needs of the District's agricultural water customers during normal, single-dry, and multiple-dry years; and

WHEREAS, the District continues to develop and implement agricultural efficient water management practices and alternative water supplies that contribute toward the conservation and efficient use of water resources to ensure adequate water supplies now and in the future; and

WHEREAS, the 2015 AWMP will be periodically reviewed and updated, if determined appropriate, no less than every five years in the years ending in zero and five, to reflect changes in water supply trends and conservation policies and practices within the water service area of the District; and

WHEREAS, a public hearing was properly noticed and was held by the Board of Directors of the District on June 9, 2016 to receive public comments regarding the 2015 AWMP.

NOW THEREFORE, it is hereby resolved by the Board of Directors of the Rancho California Water District as follows:

Section 1. The Board of Directors of the Rancho California Water District approves and adopts the 2015 Agricultural Water Management Plan for the Rancho California Water District.

Section 2. The General Manager is hereby authorized and directed to file a copy of the 2015 AWMP with the California Department of Water Resources by July 1, 2016.

Section 3. The General Manager is hereby authorized and directed to implement the programs described in the 2015 AWMP.

ADOPTED, SIGNED, AND APPROVED this 9th day of June 2016.

William E. Plummer, President of the
Board of Directors of the
Rancho California Water District

ATTEST:

Kelli E. Garcia, Secretary of the
Board of Directors of the
Rancho California Water District

[Resolution No. 2016-6-7] 2

STATE OF CALIFORNIA)
)ss.
COUNTY OF RIVERSIDE)

I, KELLI E. GARCIA, Secretary of the Board of Directors of the Rancho California Water District, do hereby certify that the foregoing Resolution No. 2016-6-7 was duly adopted by the Board of Directors of said District at a regular meeting thereof held on the 9th day of June 2016, and that it was so adopted by the following vote:

AYES:	DIRECTORS:	Corona, Drake, Herman, Hoagland, Martin, Plummer, and Wilson
NOES:	DIRECTORS:	None
ABSENT:	DIRECTOR:	None
ABSTAIN:	DIRECTORS:	None

Kelli E. Garcia, Secretary of the
Board of Directors of the
Rancho California Water District

(SEAL)

STATE OF CALIFORNIA)
)ss.
COUNTY OF RIVERSIDE)

I, KELLI E. GARCIA, Secretary of the Board of Directors of the Rancho California Water District, do hereby certify that the above and foregoing is a full, true, and correct copy of Resolution No. 2016-6-7 of said Board, and that the same has not been amended or repealed.

DATED: June 9, 2016

Kelli E. Garcia, Secretary of the
Board of Directors of the
Rancho California Water District

(SEAL)

Aggregated Farm-Gate Delivery Report for Calendar Year 2015

State of California | The Natural Resources Agency | Department of Water Resources

Agricultural Aggregated Farm-Gate[1] Delivery Reporting Form for Article 2

Title 23, Division 2, Chapter 5.1, Article 2 of the CCR requires water supplier subject to the regulation to report to DWR the previous calendar year's aggregated farm gate delivery by July 31 of the subsequent year

1. Water Supplier Information

Name: Rancho California Water District

Address: 42135 Winchester Rd.
Temecula, CA 92589

Phone Number: 951-296-6900

Fax: 951-296-6860

Total Number of Farm-Gates: 1,644

Number of Measured Farm-Gates: 1,522

Irrigated Acreage for Reporting Period: 10,371

Total Service Area Acreage: 99,141

2. Contact information

Name: Justin Haessly

Title: Sr. Water Resources Planner

Address: 42135 Winchester Rd.
Temecula, CA 92589

Phone Number: 951-296-6942

Fax: 951-296-6860

E-mail: haesslyj@ranchowater.com

Submittal date: 5/15/2016

Reporting year: 2015

3. Aggregated Farm-Gate Delivery Data[2]: (*provide monthly or bimonthly data, acre-feet*)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	**Total**
Monthly Deliveries	448	1244	1052	1849	1977	1685	2363	2189	2304	1929	1785	1360	20185

	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec	**Total**
Bimonthly Deliveries							

4. Explanations, Comments and Best Professional Practices[3]:

The District meters every agricultural water service account in its service area through a variety of water meter types including nutating disk, turbine, high pressure turbines, and compound meters. All meters are read automatically through an AMI unit, which reports hourly consumption data to a fixed network for in-house analysis. In April of 2012, the District approved procedures for periodic testing, repair and replacement these water meters, including water meter accuracy validation by a registered professional engineer and a correction plan for substandard meters.

Note: An agricultural water supplier's total water use may be different from Aggregated Farm-Gate deliveries because measurement at these points may not account for other practices (such as groundwater recharge/conjunctive use, water transfers, wheeling to other agencies, urban use, etc).

1. "Farm-gate" means the point at which water is delivered from the agricultural water supplier's distribution system to each of its individual customers as specified in the Agricultural Water Measurement Regulation (Title 23, Division 2, Chapter 5.1, Article 2 of the CCR).
2. "Aggregated farm-gate delivery data" means information reflecting the total volume of water an agricultural water supplier provides to its customers and is calculated by totaling its deliveries to customers.
3. "Best Professional Practices" is defined in farm ga