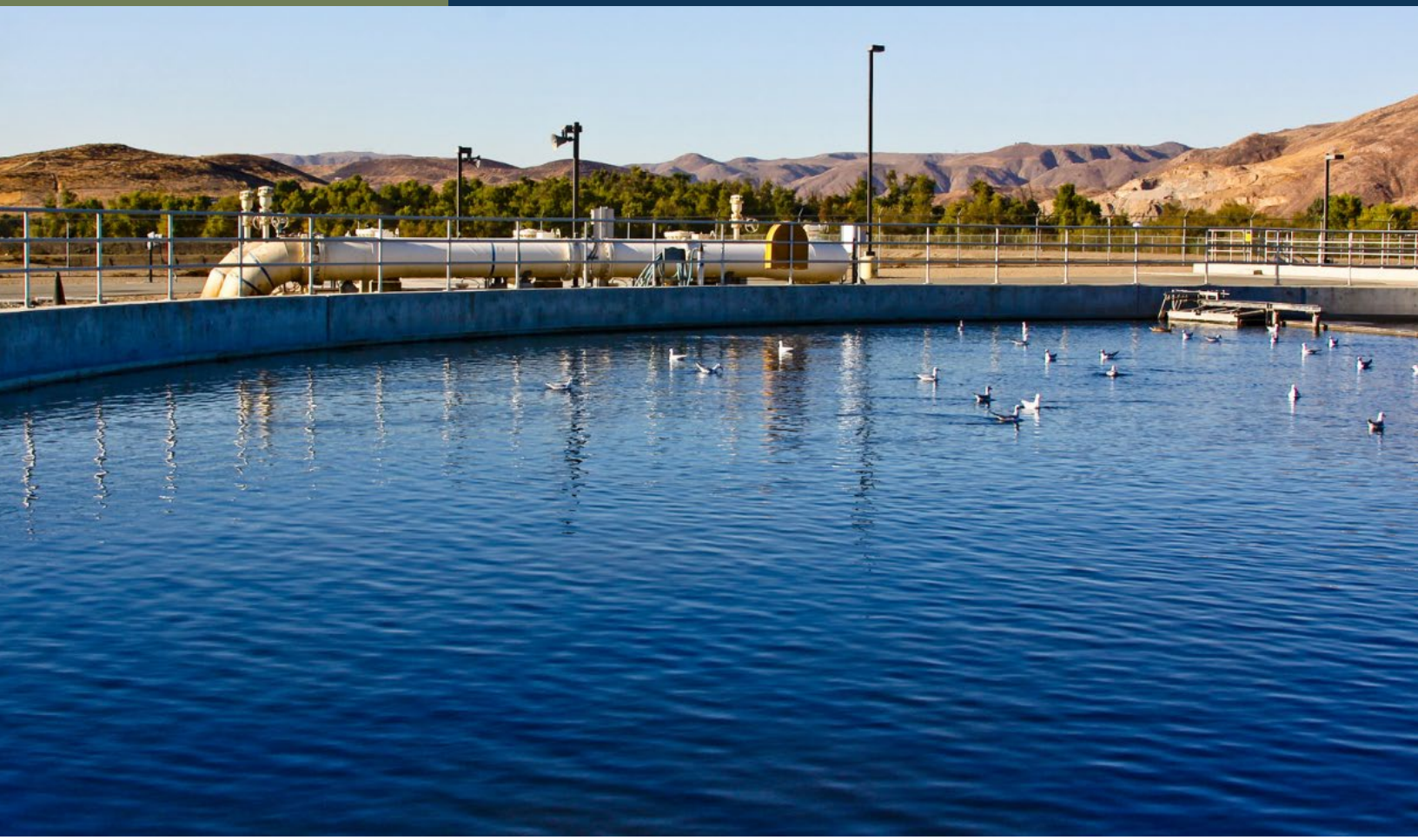
Elsinore Valley Municipal Water District

2020 Urban Water Management Plan

Final

JUNE 2021

ELSINORE VALLEY MUNICIPAL WATER DISTRICT



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ELSINORE VALLEY MUNICIPAL WATER DISTRICT

2020 Urban Water Management Plan

FINAL REPORT

JUNE 2021

Prepared by Water Systems Consulting, Inc.

WSC

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ACRONYMS & ABBREVIATIONS

◦F	Degrees Fahrenheit
AB	Assembly Bill
AF	Acre Foot
AFY	Acre Feet per Year
AMI	Automated Metering Infrastructure
AMR	Automatic Meter Reader
AVP	Auld Valley Pipeline
AWWA	American Water Works Association
BBGSA	Bedford-Coldwater Groundwater Sustainability Authority
BBGWTP	Back Basin Groundwater Treatment Plant
BMP	Best Management Practice
CCR	California Code of Regulations
CDP	Census-Designated Place
CEQA	California Environmental Quality Act
CFS	Cubic Feet per Second
CII	Commercial, Industrial, and Institutional
CIMIS	California Irrigation Management Irrigation System
CLGC	Canyon Lake Golf Course
CLWTP	Canyon Lake Water Treatment Plant
CPUC	California Public Utilities Commission
COVID-19	Coronavirus Disease 2019
CUP	Conjunctive Use Program
CWC	California Water Code
DD	Day
DMM	Demand Management Measure
DPC	Drought Contingency Plan
DRA	Drought Risk Assessment
DWR	California Department of Water Resources
EMWD	Eastern Municipal Water District
ES	Executive Summary
ET	Evapotranspiration

ETo	Reference Evapotranspiration
EVGSA	Elsinore Valley Subbasin Groundwater Sustainability Agency
EVMWD	Elsinore Valley Municipal Water District
FMWC	Farm Mutual Water Company
GAC	Granulated Activated Carbon
GIS	Geographic Information System
GPCD	Gallons per Capita per Day
GPM	Gallons per Minute
GSA	Groundwater Sustainability Agency
GW	Groundwater
GWMP	Groundwater Management Plan
HECW	High Efficiency Clothes Washer
HET	High Efficiency Toilet
IPR	Indirect Potable Reuse
IRP	Integrated Resources Plan
ITP	Independent Technical Panel
IX	Ion Exchange
kWh	Kilowatt-Hours
LAFCO	Local Agency Formation Commission
MAF	Million Acre-Feet
MCL	Maximum Contaminant Level
MF	Multi-family
MG	Million Gallons
MGD	Million Gallons per Day
MM	Month
MOU	Memorandum of Understanding
MSL	Mean Sea Level
MWH	Montgomery Watson Harza, Inc.
NL	Notification Levels
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
PFAS	Per- and Polyfluoroalkyl Substances
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonate
POA	Property Owners Association
RCFCWCD	Riverside County Flood Control and Water Conservation District

RCWD	Rancho California Water District
RDM	Robust Decision Making
RHNA	Regional Housing Need Allocation
RUWMP	Regional Urban Water Management Plan
RWQCB	Regional Water Quality Control Board
SARRCUP	Santa Ana River Regional Conjunctive Use Project
SAWPA	Santa Ana Watershed Project Authority
SBBA	San Bernardino Basin Area
SBX7-7	Senate Bill 7 of Special Extended Session 7
SCAG	Southern California Association of Governments
SGMA	Sustainable Groundwater Management Act
SOR	System Optimization Review
SRRRA	Santa Rosa Regional Resources Authority
SWP	State Water Project
SWRCB	State Water Resources Control Board
TAZ	Traffic Analysis Zone
TBD	To be Determined
TDS	Total Dissolved Solids
TDSA	Temescal Division Service Area
TVP	Temescal Valley Pipeline
TVWRF	Temecula Valley Water Reclamation Facility
TVRWP	Temecula Valley Recycled Water Pipeline
TVWD	Temescal Valley Water District
TWC	Temescal Water Company
ULFT	Ultra-Low Flush Toilet
USBR	United States Bureau of Reclamation
USEPA	United States Environmental Protection Agency
UTVSNMP	Upper Temescal Salt and Nutrient Management Plan
UV	Ultraviolet
UWMP	Urban Water Management Plan
UWMP Act	Urban Water Management Planning Act
VOC	Volatile Organic Compound
WBIC	Weather Based Irrigation Controller
WDR	Waste Discharge Requirement
WSAP	Water Supply Allocation Plan
WSCP	Water Shortage Contingency Plan

WSDM	Water Surplus and Drought Management Plan
WRF	Water Reclamation Facility
WUE	Water Use Efficiency
WWTP	Wastewater Treatment Plant

URBAN WATER MANAGEMENT PLAN

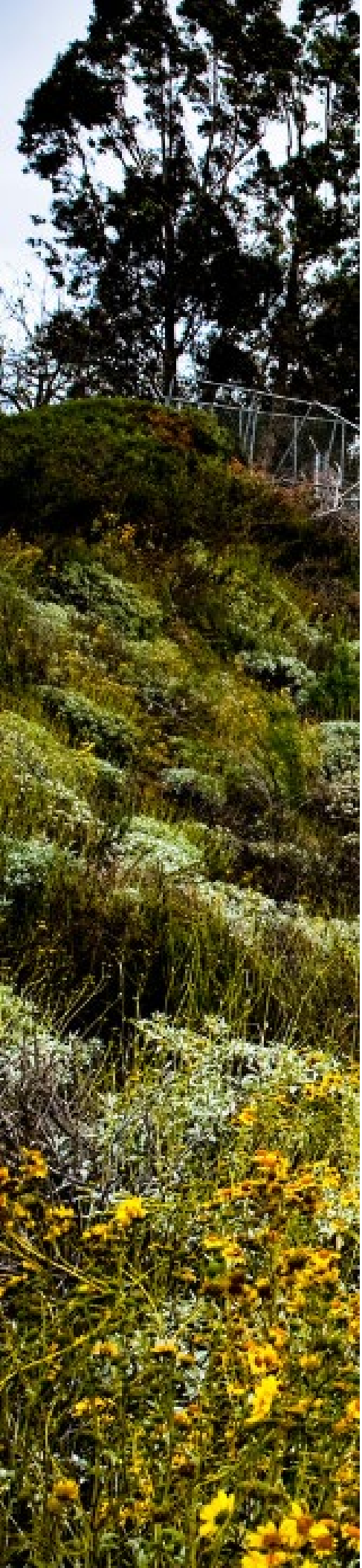
Executive Summary

This section summarizes the 2020 Urban Water Management Plan (UWMP) for the Elsinore Valley Municipal Water District (EVMWD). It describes the 2020 UWMP in a manner that is accessible to non-technical readers. This summary describes the fundamental purposes of the UWMP, including water service reliability, future challenges, and strategies for managing risks to water reliability.

IN THIS SECTION

EVMWD was created in 1950 to protect local water supplies and secure imported water from the Metropolitan Water District of Southern California (Metropolitan). In 1954, Western Municipal Water District (Western) was formed to bring supplemental water from Metropolitan to the growing western portion of Riverside County. Later that year, EVMWD was annexed into Western's service area and gained access to imported supplies. To further increase water supply reliability for its customers, EVMWD has invested in extensive conservation programs and in the production and distribution of groundwater and treated surface water for potable use and recycled water supplies for non-potable uses.

This UWMP was prepared in compliance with California Water Code (CWC) requirements for UWMPs following guidance from California Department of Water Resources (DWR) and is intended to guide long-term water resources planning for EVMWD.



Purpose and Organization of the Plan

This UWMP provides DWR with a detailed summary of present and future water resources and demands within EVMWD's service area and assesses EVMWD's water resource needs. Specifically, the UWMP provides water supply planning for a 25-year planning period in five-year increments and identifies water supplies needed to meet existing and future demands. The demand analysis identifies supply reliability under three hydrologic or rainfall conditions: an average (or normal) year, a single dry year, and multiple dry years (drought conditions). EVMWD prepared UWMPs for 2005, 2010, and 2015, according to the five-year planning cycle. This 2020 UWMP serves as an update to the 2015 UWMP and complies with new requirements and regulations.

New to the 2020 UWMP, water suppliers are required to prepare a standalone Water Shortage Contingency Plan (WSCP) that can be updated independently of the UWMP. The WSCP documents a supplier's plans to manage and mitigate an actual water shortage condition, should one occur because of drought or other impacts on water supplies. An overview of the WSCP is described in the body of this UWMP, and the standalone WSCP is attached as **Appendix A**.

The 2021 WSCP is being proposed for adoption in conjunction with the 2020 UWMP to meet CWC requirements.

Outreach and Engagement

EVMWD has closely coordinated with Western and Metropolitan during the preparation of its UWMP. Recognizing that coordinating among other relevant public agencies is key to the success for its UWMP, EVMWD worked closely with many other entities to develop and update this planning document. EVMWD also provided a public review period for the Draft UWMP and held a public hearing to solicit input from stakeholders and the public.

Service Area Description

Located in southwestern Riverside County and eastern Orange County, EVMWD provides water services to its Elsinore and Temescal Divisions, which comprise the cities of Lake Elsinore and Canyon Lake, portions of Wildomar and Murrieta, and unincorporated portions of Riverside County and Orange County. A map of EVMWD's service area is shown in **Figure ES-1-1**.

In 2020, EVMWD served a population of approximately 163,984 and provided potable water through 44,560 active domestic connections. The Elsinore Division makes up most of the service area, with approximately 43,849 active connections, encompassing an area of 96 square miles. The Temescal Division Service Area is located northwest of the EVMWD service area and is a self-sustained water division, hydraulically separated from EVMWD. It covers an area of approximately 2.5 square miles and has approximately 711 active connections.

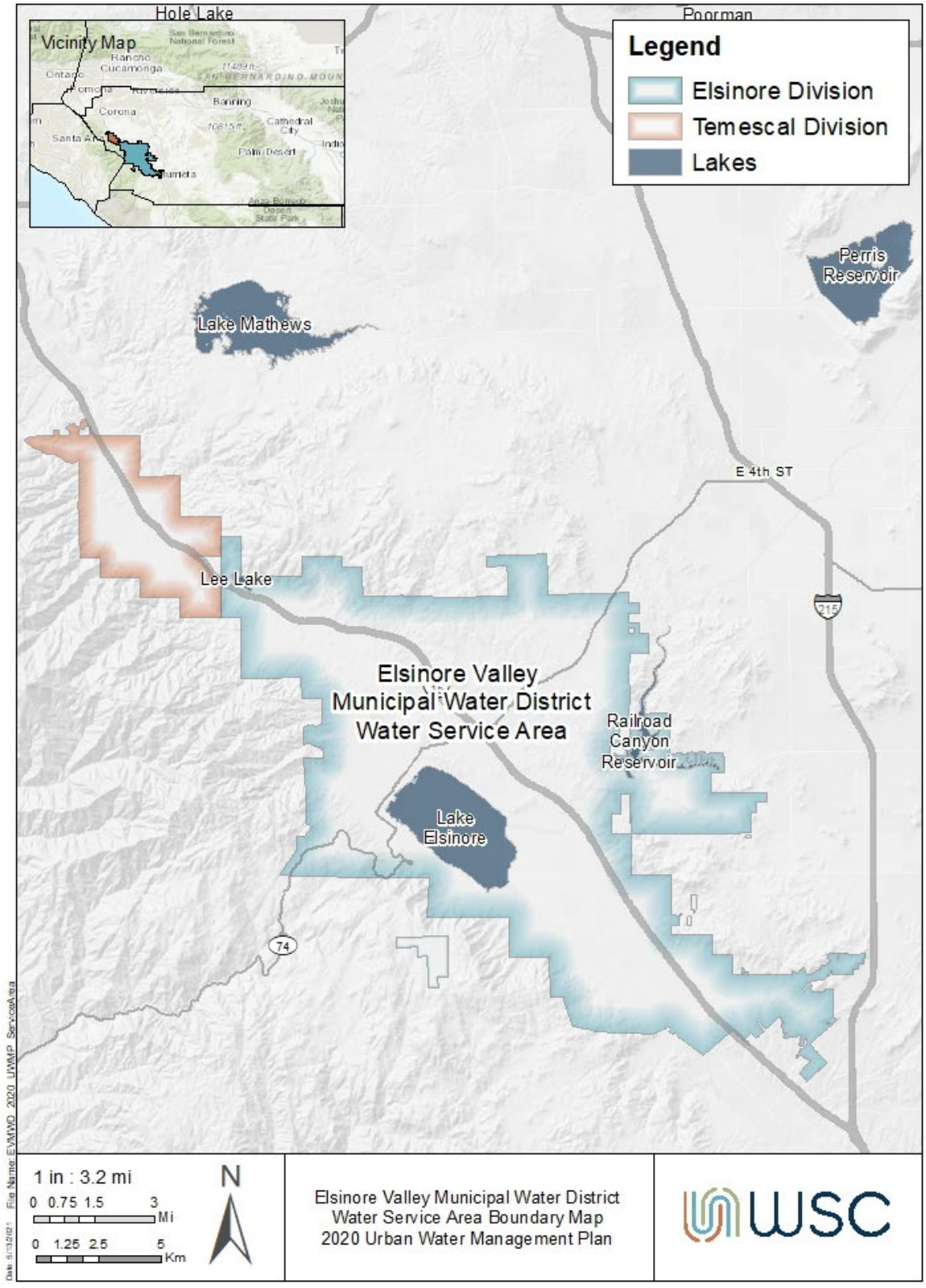


Figure ES-1-1. EVMWD Service Area

Water Sources and Uses

EVMWD serves potable drinking water and recycled water to its customers. Potable drinking water demand includes all municipal (residential, commercial, sales to other agencies) and industrial uses. Recycled water demand includes irrigation for parks, schools, golf courses, homeowners' associations, and roadway medians, as well as discharge to Lake Elsinore to maintain lake levels.

Over the last five years, EVMWD used an average of 23,200 acre-feet per year (AFY) of potable water. Residential demand accounts for about 71% of the total demand and has remained relatively constant since 2016. **Table ES-1** shows the historical and current water use by customer class.

Table ES-1. Historical and Current Water Use by Customer Class, AFY.

CUSTOMER CLASS	2016	2017	2018	2019	2020
Residential	15,425	16,130	16,964	15,769	17,162
Commercial	4,570	4,889	5,103	4,364	4,409
Institutional/Governmental	108	116	121	117	82
EVMWD	118	111	2,365	118	54
Hydrant	205	174	181	236	168
Sales/Transfers/Exchanges to Other Agencies – Farm Mutual Water Company	282	294	319	305	332
Losses[1]	1,659	1,183	-1,590	1,488	1,446
TOTAL CONSUMPTION	**22,367**	**22,898**	**23,462**	**22,397**	**23,653**

[1] In 2018, there were about 2,300 AF reported under the EVMWD at no charge. This is likely a system error, which caused the water loss to be negative.

The Water Conservation Bill of 2009 (SBX7-7) requires individual retail water suppliers to set water conservation targets for 2020 to support an overall State goal of reducing urban potable per capita water use by 20% by 2020. EVMWD's investments in water conservation have helped its customers achieve its 2020 SBX7-7 water use reduction target. EVMWD's 2020 per capita water use target is 188.6 gallons per capita per day (GPCD) while the actual consumption in 2020 was 129 GPCD. EVMWD is continuously implementing demand management measures to continue meeting its SBX7-7 water use target and position for future State-mandated water use efficiency standards that are currently under development by DWR.

EVMWD's service area population is expected to grow by an average of 1.5% per year. Assuming consistent per capita water use, the resulting demand projections are shown in **Table ES-2**.

Table ES-2. Projected Demands for Water, AFY

USE TYPE	PROJECTED WATER USE[1]				
	2025	2030	2035	2040	2045
Residential	20,594	22,300	24,137	26,114	28,247
Commercial	5,560	5,989	6,452	6,951	7,488
Institutional/Governmental	103	111	119	129	138
EVMWD	65	70	75	81	87
Hydrant	212	228	246	265	285
Sales/Transfers/Exchanges to Other Agencies – Farm Mutual Water Company[2]	1,464	1,464	1,464	1,464	1,464
Losses	1,827	1,968	2,120	2,284	2,461
TOTAL:	**29,825**	**32,130**	**34,613**	**37,288**	**40,170**

[1] Based on Method 1, which assumes a constant Gallons per Capita per Day (GPCD) of 137 with a constant growth rate of 1.5 percent per year and a 10% buffer.

[2] The FMWC projections include planned development within its service area.

Wastewater flows are projected to increase commensurate with increases in potable water demand. Therefore, EVMWD's production of recycled water is expected to increase in the future, providing a supply that can be delivered to current and future customers and further augment levels in Lake Elsinore. Recycled water demand projections are summarized in **Table ES-3**.

Table ES-3. Recycled Water Direct Beneficial Uses within Service Area, AFY

BENEFICIAL USES OF RECYCLED WATER	GENERAL DESCRIPTION	2020	2025	2030	2035	2040	2045
Metered Customers	Landscape irrigation	895	1,459	1,459	1,459	1,459	1,459
Canyon Lake and Summerly Golf Course	Golf Course irrigation	323	378	378	378	378	378
Groundwater Recharge	Indirect Potable Reuse (IPR)	0	0	0	0	940	1,970
Temescal Wash and Lake Elsinore	Environmental	6,585	7,270	8,027	8,863	8,960	8,960
	TOTAL:	**7,803**	**9,107**	**9,864**	**10,700**	**11,737**	**12,767**

Water Supplies

EVMWD's three primary sources of potable water supply are:

1. Local groundwater pumped from EVMWD-owned wells
2. Surface water from Canyon Lake Reservoir and treated at the Canyon Lake Water Treatment Plant (CLWTP)
3. Imported water purchased from Metropolitan through Western

EVMWD has a recycled water network that delivers non-potable, Title 22–compliant tertiary recycled water to customers in four service areas. Three of the service areas are supplied by EVMWD, and one recycled water service area is supplied from the Santa Rosa Water Reclamation Facility (WRF) owned and operated by Santa Rosa Regional Resources Authority (SRRRA).

EVMWD's historical production is shown in **Figure ES-1-2**, and its projected supply mix is shown in **Table ES-4**

Figure ES-1-2. EVMWD's Historical Water 2016–2020 Production, AFY

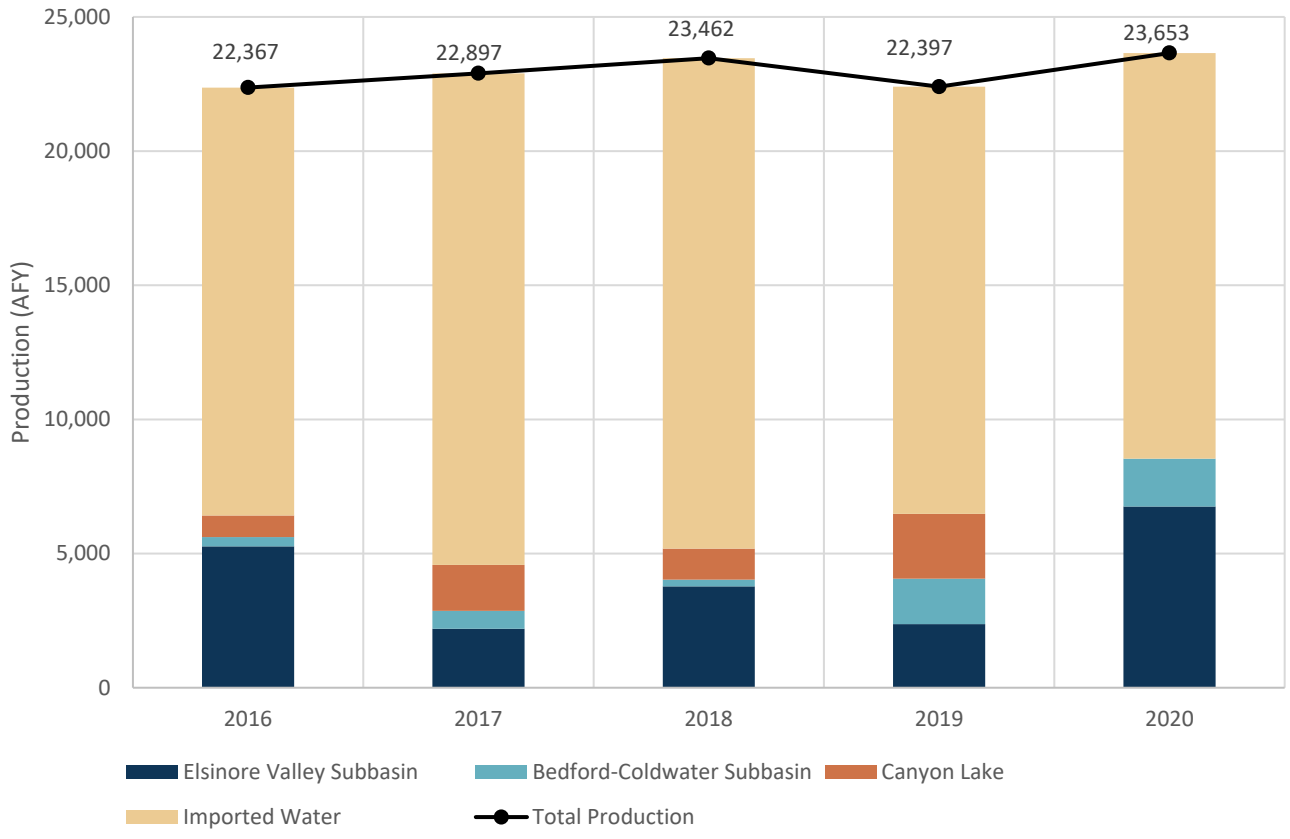


Table ES-4. Projected Water Supplies, AFY

Water Supply	Additional Detail on Water Supply	PROJECTED WATER SUPPLY, AFY				
		2025	2030	2035	2040	2045
		REASONABLY AVAILABLE VOLUME	REASONABLY AVAILABLE VOLUME	REASONABLY AVAILABLE VOLUME	REASONABLY AVAILABLE VOLUME	REASONABLY AVAILABLE VOLUME
Purchased or Imported Water	Western/Metropolitan[1]	26,286	26,286	26,286	26,286	26,286
Purchased or Imported Water	Raw Imported Water Western/Metropolitan[1,2]	0	3,700	3,700	3,700	3,700
Groundwater (not desalinated)	Elsinore Valley Subbasin[3]	5,500	5,500	5,500	5,500	5,500
Groundwater (not desalinated)	Coldwater Subbasin[3]	1,200	1,200	1,200	1,200	1,200
Groundwater (not desalinated)	Bedford Subbasin[3]	1,300	1,300	1,300	1,300	1,300
Groundwater (not desalinated)	Lee Lake Subbasin[3]	875	875	875	875	875
Groundwater (not desalinated)	Palomar Well Replacement[3]	450	450	450	450	450
Groundwater (not desalinated)	Temecula-Pauba GW[3]	0	0	750	750	750
Surface water (not desalinated)	Canyon Lake/CLWTP[4]	2,500	2,500	2,500	2,500	2,500
Other	IPR at Regional WRF[5]	0	0	0	940	1,970
Recycled Water	Temescal Wash and Lake Elsinore Replenishment[5]	7,270	8,027	8,863	8,960	8,960
Recycled Water	Metered Customers[6]	1,459	1,459	1,459	1,459	1,459
Recycled Water	Canyon Lake and Summerly Golf Course[6]	378	378	378	378	378
	TOTAL[7]	**47,219**	**51,675**	**53,261**	**54,298**	**55,328**

[1] Imported water will be used to fill the gaps will be based on the availability of local supplies. There is no total right or safe yield. EVMWD can purchase more water at an additional charge.

[2] Starting in 2026, EVMWD plans to start purchasing about 3,700 AFY of raw imported water from Western/Metropolitan for treatment at the CLWTP.

[3] The safe yield for the groundwater subbasins will be established with their respective GSPs.

[4] In settlement of litigation, EVMWD agreed not to treat more than 8,000 AFY of San Jacinto River flows in any water year at EVMWD's CLWTP. This 8,000 AFY limit applies only to San Jacinto River runoff and excludes any imported water conveyed in the river channel.

[5] In accordance with its NPDES permit, EVMWD is permitted to discharging 0.5 MGD to Temescal Wash and 7.5 MGD to Lake Elsinore. EVMWD is planning to use excess wastewater collected at the Regional WRF to implement an IPR project. It is anticipated that this water will be available between 2035 and 2040.

[6] Includes recycled water produced by the three EVMWD WRFs and recycled water from SRRRA and Eastern.

[7] The total right or safe yield were not calculated because the groundwater safe yields are being updated as part of the GSP projects.

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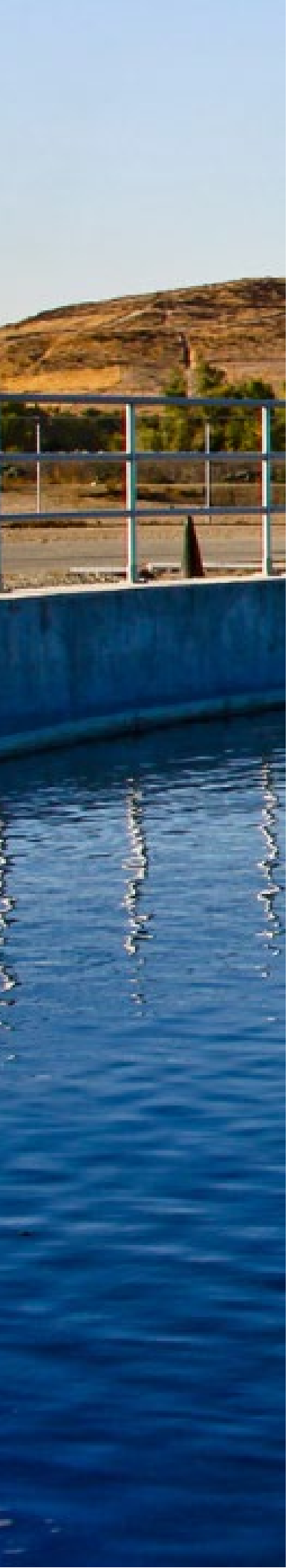
Water Supply Reliability

Every urban water supplier in California is required to assess the reliability of its water service under a normal year, a single dry year, and multiple dry years hydrologic conditions, and specifically to assess the drought risk over the next five years. Water service reliability depends on variability of supplies and availability of infrastructure to meet projected demand. Evaluating the water service reliability is critical for water management as it can help identify potential shortfalls before they occur. Water managers can then take proactive steps to mitigate shortages by encouraging water use efficiency, securing new water supplies, and/or investing in infrastructure.

For this 2020 UWMP, the supply reliability assessment considered factors that could limit the expected quantity of current and projected water sources through 2045. Multiple drought scenarios were considered, the quantitative impacts of the aforementioned factors on water supply and demand were evaluated, and possible methods for addressing these issues were identified.

EVMWD's water service reliability assessment and drought risk assessment results indicate that no water shortages are anticipated within the next 25 years under normal, single dry, and five consecutive dry years conditions, including a five-year drought extending through 2025. The implementation of local water projects is crucial to ensure EVMWD's water supplies are reliable, while reducing EVMWD's reliance on imported water.



Water Shortage Contingency Plan

EVMWD has developed a comprehensive WSCP to provide reliability during shortage situations. A water shortage occurs when water supply available is insufficient to meet the normally expected customer water use at a given point in time. A shortage may occur due to several reasons, such as water supply quality changes, climate change, drought, regional power outage, and catastrophic events (e.g., earthquakes). Additionally, the State may declare a statewide drought emergency and mandate that water suppliers reduce demands, as occurred in 2014. The purpose of the 2021 WSCP is to conserve the available water supply and protect the water supply's integrity while also protecting and preserving public health, welfare, and safety. Preparation provides the tools to maintain reliable supplies and reduce the impacts of supply interruptions during a water shortage.

The 2021 WSCP serves as the operating manual that EVMWD will use to respond through proactive, rather than reactive, mitigation strategies to address water shortages. The 2021 WSCP is used to provide guidance to EVMWD's Board of Directors, staff, and the public by identifying anticipated water shortages and response actions to manage any water shortage with predictability and accountability in an efficient manner. The 2021 WSCP is not intended to provide absolute direction; rather, it is intended to provide a working framework and options to help guide the EVMWD's response to water shortages.

EVMWD's 2021 WSCP is a standalone document that can be modified as needed, and it is included here as **Appendix A**. EVMWD is maintaining its current water shortage levels, as identified in Ordinance 225, with the intent to update them when Western updates its wholesale stages. EVMWD uses five shortage stages to identify and respond to water shortage emergencies. At a minimum, EVMWD encourages baseline conservation efforts year-round, regardless of a shortage emergency. Stages 3, 4, and 5 are further broken down into substages (3a, 3b, etc.) to allow for greater flexibility when implementing response actions. EVMWD's current Ordinance 225, adopted in 2015, provides EVMWD the authority to adopt and enforce the WSCP. Ordinance 225 outlines the shortage stages and response actions identified in this WSCP. **Table ES-5** shows the five WSCP shortage stages, which trigger a series of actions that may include measures to reduce demand, augment supply, change typical operations, or impose mandatory prohibitions. The actions are intended to increase supplies or reduce demand to mitigate the impact of a water shortage condition.

Table ES-5. Water Shortage Contingency Plan Levels

SHORTAGE LEVEL	PERCENT SHORTAGE RANGE[1] (NUMERICAL VALUE AS A PERCENT)	SHORTAGE RESPONSE ACTIONS
1	Up to 5%	Stage 1 response actions
2	Up to 10%	Stage 1 and 2 response actions
3	Up to 25%	Stage 1, 2, and 3 response actions
4	Up to 40%	Stage 1, 2, 3, and 4 response actions
5	Up to or greater than 50%	Stage 1, 2, 3, 4, and 5 response actions

[1]One stage in the WSCP must address a water shortage of 50%.

URBAN WATER MANAGEMENT PLAN

1 Introduction and Lay Description

This chapter provides a brief overview of Elsinore Valley Water District (EVMWD) and the purpose of this Urban Water Management Plan (UWMP). It also describes how the UWMP is organized and how it relates to other local and regional planning efforts that EVMWD is involved in.

IN THIS SECTION

- Introduction to EVMWD
- Summary of California Water Code UWMP requirements
- UWMP Organization
- UWMP Relation to Other Efforts

EVMWD, a public nonprofit agency, was created on December 23, 1950, under the Municipal Water District Act of 1911. As a special district, EVMWD's powers include provision of public water service, water supply development and planning, wastewater treatment and disposal, and recycling. Currently, EVMWD has over 44,560 water, wastewater, and agricultural service connections. Because it serves more than 3,000 customers or more than 3,000 acre-feet (AF) annually, EVMWD meets the definition of an urban water supplier and, therefore, must complete a UWMP every five years.

A board of directors sets governing policy for EVMWD and is the final authority for related appeals. The Board is authorized to set rates, fees, and charges for EVMWD services, operations, and debt financing of capital improvements.

EVMWD receives imported water from the Western Municipal Water District (Western), a member agency of the Metropolitan Water District of Southern California (Metropolitan).

1.1 The California Water Code

In 1983, the State of California Legislature (Legislature) enacted the Urban Water Management Planning (UWMP) Act. The law required an urban water supplier providing water for municipal purposes to more than 3,000 customers or serving more than 3,000 AF annually to adopt a UWMP every five years demonstrating water supply reliability under normal as well as drought conditions.

Since the original UWMP Act was passed, it has undergone significant expansion, particularly since the previous UWMPs were prepared for 2015. Prolonged droughts, groundwater overdraft, regulatory revisions, and changing climatic conditions affect the reliability of each water supplier as well as the statewide water reliability overseen by California Department of Water Resources (DWR), the State Water Resources Control Board (State Water Board), and the Legislature. Accordingly, the UWMP Act has grown to address changing conditions, and the current requirements are found in Sections 10610-10657 and 10608 of the California Water Code (CWC).

DWR provides guidance for urban water suppliers by preparing the Urban Water Management Plan Guidebook 2020 (State of California Department of Water Resources, March 2021) and conducts workshops, develops tools, and provides program staff to help water suppliers prepare comprehensive and useful water management plans, implement water conservation programs, and understand the requirements in the CWC. Suppliers prepare their own UWMPs in accordance with the requirements and submit them to DWR. DWR then reviews the plans to make sure they have addressed the requirements identified in the CWC and submits a report to the Legislature summarizing the status of the plans for each five-year cycle. The 2020 DWR UWMP Guidebook, finalized in March 2021, was used to complete this 2020 UWMP (State of California Department of Water Resources, March 2021).

The purpose of the UWMP is for water suppliers to evaluate their long-term resource planning and establish management measures to ensure adequate water supplies are available to meet existing and future demands. The UWMP provides a framework to help water suppliers maintain efficient use of urban water supplies, continue to promote conservation programs and policies, ensure that sufficient water supplies are available for future beneficial use, and provide a mechanism for response during drought conditions or other water supply interruptions.

The UWMP is a valuable planning tool used for multiple purposes, including:

- Providing a standardized methodology for water utilities to assess their water resource needs and availability
- Serving as a resource to the community and other interested parties regarding water supply and demand, conservation, and other water-related information
- Providing a key source of information for cities and counties when considering approval of proposed new developments and preparing regional long-range planning documents such as city and county General Plans
- Informing other regional and statewide water planning efforts, such as Integrated Regional Water Management Plans and the California Water Plan

CWC 10632 also includes updated requirements for suppliers to prepare a Water Shortage Contingency Plan (WSCP). The WSCP documents a supplier's plans to manage and mitigate an actual water shortage condition should one occur because of drought or other impacts on water supplies. In the 2015 UWMP cycle, the WSCP was part of the UWMP. For the 2020 update, the WSCP is required to be a standalone document so it can be updated independently of the UWMP, but it must be referenced in and attached to the 2020 UWMP. An overview of the WSCP is described in the body of this Plan and the standalone WSCP is attached as **Appendix A**.

This UWMP, which was prepared in compliance with the CWC and as set forth in the 2020 guidelines and format established by the DWR, constitutes the 2020 Urban Water Management Plan 2020 (Plan) for Elsinore Valley Water District (EVMWD).

1.2 UWMP Organization

EVMWD generally followed DWR's recommended organizational outline in the preparation of its 2020 UWMP.

Below is a summary of the information included in the various chapters of the 2020 UWMP:

Chapter 1 – Introduction and Overview.

This chapter provides background information on the UWMP process, new regulatory requirements, and an overview of the information covered throughout the remaining chapters.

Chapter 2 – Plan Preparation.

This chapter provides information on the processes used for developing the UWMP, including efforts in coordination and outreach.

Chapter 3 – System Description.

This chapter describes EVMWD's water system, service area, population demographics, local climate, and land uses.

Chapter 4 – System Water Use.

This chapter describes and quantifies the current and projected water uses through 2045 within the water service area.

Chapter 5 – Baselines and Targets.

This chapter describes the Water Conservation Act of 2009 (also known as SBX7-7), baseline, targets, and 2020 compliance.

Chapter 6 – System Supplies.

This chapter describes and quantifies the current and projected potable and non-potable water supplies.

Chapter 7 – Water Supply Reliability.

This chapter describes the water service reliability through 2045 and includes the Drought Risk Assessment (DRA) for the next five years.

Chapter 8 – Water Shortage Contingency Plan (WSCP).

This chapter is a standalone report that is a detailed plan for how EVMWD intends to predict and respond to foreseeable and unforeseeable water shortages.

Chapter 9 – Demand Management Measures.

This chapter describes EVMWD's efforts to promote conservation and reduce water demand, including discussions of specific demand management measures.

Chapter 10 – Plan Adoption, Submittal, and Implementation.

This chapter discusses the steps taken to prepare EVMWD's 2020 UWMP, hold a public hearing, adopt and submit the 2020 UWMP, and implement the adopted Plan.

1.3 UWMPs in Relation to Other Efforts

The UWMP characterizes water use, estimates future demands and supply sources, and evaluates supply reliability for normal, single-dry, and consecutive dry years. The UWMP also requires reevaluation of EVMWD's Water Shortage Contingency Plan (WSCP). Details on the WSCP are provided in **Appendix A** and summarized **Chapter 8**. Other documents that were used in preparation of this UWMP are identified in **Table 1-1**.

Table 1-1. UWMP in Relation to Other Planning Efforts.

PLANNING DOCUMENT	PREPARED BY	STATUS	PLAN TOPICS: SUPPLIES / RELIABILITY	DEMANDS / WATER USE EFFICIENCY	INFRA-STRUCTURE	CLIMATE CHANGE	RISK AND MITIGATION	WATER SHORTAGE & EMERGENCY RESPONSE
2020 UWMP	EVMWD	■■■□□ Under development	✓	✓		✓	✓	✓
Water Shortage Contingency Plan	EVMWD	■■■□□ Under Development as part of 2020 UWMP project	✓	✓		✓	✓	✓
Drought Contingency Plan	Western	■■■□□ Under development	✓		✓	✓	✓	✓
Draft GSPs Chapters for Elsinore Valley and Bedford-Coldwater Subbasins	Carollo and Todd Groundwater	■■■□□ Under development	✓			✓		
Seismic Vulnerability Study for EVMWD Water & Wastewater Facilities	InfraTerra, Inc.	■■■■■ Completed in 2019	✓		✓		✓	
Water Demand Projection Updated 2018 Technical Memorandum	Infrastructure Engineering Corporation	■■■■■ Completed in 2018		✓				
EVMWD Drought Contingency Plan	Civiltec	■■■■■ Completed in 2017	✓	✓		✓	✓	✓
Integrated Resources Plan	EVMWD	■■■■■ Completed in 2017	✓	✓	✓	✓		✓
2016 Water System Master Plan	MWH	■■■■■ Completed in 2016	✓	✓	✓			
2016 Recycled Water Master Plan	MWH	■■■■■ Completed in 2016	✓	✓	✓			
2016 Wastewater Master Plan	MWH	■■■■■ Completed in 2016	✓	✓	✓			

Plan elements with a direct link to this UWMP

1.4 UWMPs and Grant or Loan Eligibility

For a water supplier to be eligible for a grant or loan administered by DWR, and potentially other agencies, the supplier must have a current UWMP on file that meets the requirements set forth by the Water Code. A current UWMP must also be maintained by the supplier throughout the term of any grants or loans received. EVMWD has prepared the 2020 UWMP under guidance from DWR's 2020 UWMP Guidebook (State of California Department of Water Resources, March 2021).

1.5 Demonstration of Consistency with the Delta Plan for Participants in Covered Actions

The Delta Plan is a comprehensive, long-term, legally enforceable plan guiding how federal, state, and local agencies manage the Sacramento – San Joaquin Delta's (Delta's) water and environmental resources. The Delta Plan was adopted in 2013 by the Delta Stewardship Council. Delta Plan Policy WR P1 identifies UWMPs as the tool to demonstrate consistency with state policy to reduce reliance on the Delta for a supplier that carries out or takes part in a covered action. A covered action may include activities such as a multiyear water transfer, conveyance facility, or new diversion that involves transferring water through, exporting water from, or using water in the Delta. As a supplier that receives imported water from the Delta through its wholesale supplier, EVMWD is required to submit information as outlined in Appendix C of the DWR 2020 UWMP Guidebook (State of California Department of Water Resources, March 2021).

To document and quantify supplies contributing to reduced reliance on the Delta watershed and improved regional self-reliance, a number of steps must be taken, including:

- Setting a baseline
- Determining change in delivery of Delta water
- UWMP WR P1 consistency reporting

DWR does not review this analysis as part of the UWMP approval process; therefore, this information is attached as **Appendix B**.

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URBAN WATER MANAGEMENT PLAN

2 Plan Preparation

This plan was prepared using guidance from DWR's *Urban Water Management Plan Guidebook 2020* (DWR 2020 UWMP Guidebook). This chapter provides details regarding EVMWD's UWMP preparation and the coordination and outreach efforts EVMWD conducted. The 2020 UWMP must be submitted to the DWR by July 1, 2021.

This UWMP was prepared following guidance from DWR's 2020 UWMP Guidebook (State of California Department of Water Resources, March 2021), DWR UWMP public workshops and webinars, *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use* (SB7 Guidebook) (State of California Department of Water Resources, February 2016), and the 2020 DWR Review Sheet Checklist (**Appendix C**). EVMWD engaged stakeholders, cities, counties, water agencies, and the public to seek input on the 2020 UWMP development.

IN THIS SECTION

2.1 Plan Preparation

EVMWD prepared this 2020 UWMP in accordance with CWC Section 10617, which requires water suppliers with 3,000 or more service connections or those supplying **3,000 acre-feet per year** (AFY) or more to prepare a UWMP. Suppliers are required to update UWMPs at least once every five years on or before July 1, in years ending in six and one, incorporating updated and new information from the five years preceding each update. EVMWD's 2020 UWMP must be submitted to DWR by July 1, 2021.

2.2 Basis for Preparing a Plan

EVMWD prepared an individual UWMP and is not a member of a Regional UWMP or Regional Alliance. In 2020, EVMWD served approximately **21,872 AFY** of potable water to customers (excluding water losses) through 44,560 metered connections. EVMWD also serves as a wholesaler to Farm Mutual Water Company. Farm Mutual Water Company has fewer than 3,000 service connections, serves less than 3,000 AFY, and therefore does not have to complete a UWMP. Farm Mutual Water Company receives a portion of their water from EVMWD. Required DWR tables presenting this information are provided in **Table 2-1**, **Table 2-2**, and **Table 2-3**. Throughout this UWMP, water volume is represented in units of AFY, unless otherwise noted, and data are presented on a calendar year basis.

Table 2-1. Public Water Systems (This is the required DWR Table 2-1R)

PUBLIC WATER SYSTEM NUMBER	PUBLIC WATER SYSTEM NAME	NUMBER OF MUNICIPAL CONNECTIONS 2020	VOLUME OF WATER SUPPLIED 2020[1]
CA3310012	Elsinore Valley MWD	44,560	21,872
CA3310046	Farm Mutual W.C. (The)	1,220	333
-	**Total:**	**45,780**	**22,205**

[1] The volume supplied excludes water losses. In 2020, water losses were 1,446 AFY. The total production was 23,653 AFY. Minor discrepancies between the UWMP report and WUE Tables exist due to rounding.

Table 2-2. Plan Identification (This is the required DWR Table 2-2)

TYPE OF PLAN	MEMBER OF RUWMP	MEMBER OF REGIONAL ALLIANCE	NAME OF RUWMP OR REGIONAL ALLIANCE
Individual UWMP	No	No	Not Applicable

Table 2-3. Agency Identification (This is the required DWR Table 2-3)

TYPE OF SUPPLIER	YEAR TYPE	FIRST DAY OF YEAR		UNIT TYPE
		DD	MM	
Retailer	Calendar Years	1	1	Acre Feet (AF)

2.3 Coordination and Outreach

To prepare this UWMP, EVMWD coordinated with multiple neighboring and stakeholder agencies. The coordination efforts were conducted to (1) inform the agencies of EVMWD activities, (2) gather high-quality data for use in developing this UWMP, and (3) coordinate planning activities with other related regional plans and initiatives.

2.3.1 Wholesale and Retail Coordination

EVMWD receives imported water from Western Municipal Water District (Western) through the Temescal Valley Pipeline (TVP). In conjunction with development of Western's 2020 UWMP, Western is developing a Drought Contingency Plan (DCP). The DCP effort requires development of a regional task force that EVMWD is a member of. This effort allows continued coordination between EVMWD and Western as each agency develops their own UWMP. Table 2-4 presents the required DWR table for wholesale water suppliers.

Table 2-4. Water Supplier Information Exchange (This is DWR table 2-4)

WHOLESALE WATER SUPPLIER NAME
Western Municipal Water District of Riverside

2.3.2 Coordination with Other Agencies and the Community

CWC Section 10621 requires that suppliers notify cities and counties to which they serve water that the UWMP and WSCP are being updated and reviewed. The CWC specifies that this must be done at least 60 days prior to the public hearing. To fulfill this requirement, EVMWD notified local and regional stakeholders and adjacent agencies of preparation of EVMWD's 2020 UWMP, inviting these stakeholders and agencies to submit comments or consult with EVMWD during preparation. Details on drafts, public hearings, and final document availability are discussed in **Chapter 10**.

Notifications were sent to the following agencies, and copies of the 60-day notification letters are attached as Appendix D:

- California Regional Water Quality Control Board — Santa Ana Region (8)
- City of Canyon Lake
- City of Corona
- City of Lake Elsinore
- City of Murrieta
- City of Wildomar
- Eastern Municipal Water District
- Farm Mutual Water Company
- Letters to 34 homeowners associations and property owners associations
- Metropolitan Water District of Southern California
- Rancho California Water District
- Riverside County Flood Control and Water Conservation District
- Riverside County Planning Department
- Santa Ana Watershed Protection Authority
- Santa Margarita River Watershed
- Temescal Valley Water District
- Western Municipal Water District.

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URBAN WATER MANAGEMENT PLAN

3 System Description

This chapter describes EVMWD's water system, service area, population demographics, local climate, and land uses.

IN THIS SECTION

- Service Area
- Current and Projected Population
- Demographics
- Land Uses

EVMWD was formed in 1950 at a time when it had too low of an assessed valuation to become a member of the Metropolitan Water District of Southern California (Metropolitan), which was formed in 1928 to provide supplemental water for its member agencies in Southern California. In 1954, Western Municipal Water District (Western) was formed to bring supplemental water from Metropolitan to the growing western portion of Riverside County. In 1954, following Metropolitan's annexation of Western, EVMWD was annexed to Western's service area. A detailed EVMWD history can be found at https://www.evmwd.com/who-we-are/history.

Most recently, on January 22, 2015, the Local Agency Formation Commission (LAFCO) approved the annexation of the territory known as the County Water Company of Riverside into EVMWD's service boundary, adding approximately 120 new connections. Per the annexation, EVMWD now serves the western portion of this service area, while Eastern Municipal Water District (EMWD) serves the eastern portion. The annexation was completed in 2017. **Appendix E** contains more information about the annexed area.

Located within the EVMWD service area boundary is the Farm Mutual Water Company (FMWC), which serves 1,220 customer accounts. The FMWC's water is supplied with groundwater and wholesale purchases from EVMWD.

EVMWD also provides wastewater and recycled water service to customers. EVMWD is legally empowered but does not currently provide services for stormwater disposal facilities and fire protection facilities.

3.1 General Description

EVMWD's service area has two divisions: the Elsinore Division and the Temescal Division Service Area (TDSA). EVMWD provides water services to its Elsinore and Temescal Divisions, which comprises the cities of Lake Elsinore and Canyon Lake, portions of Wildomar and Murrieta, and unincorporated Riverside County and Orange County land. A map of the service area is shown in **Figure 3-1**.

The Elsinore Division makes up most of the service area, with approximately 43,849 domestic connections. encompassing an area of 96 square miles. The TDSA is located northwest of the EVMWD service area and is a self-sustained water division, hydraulically separate from EVMWD. It covers an area of approximately 2.5 square miles and has approximately 711 connections. For the TDSA, EVMWD owns two wells (Station 71 and Mayhew Well) that provide a sufficient water supply to meet the demand. In August 2013, the Coldwater pump station was completed to supply surplus groundwater from the TDSA to EVMWD. If available, surplus water pumped by the Coldwater pump station combines with the imported Temescal Valley Pipeline (TVP) water before it enters EVMWD's system. The TDSA is able to receive water from the TVP in emergencies.

Per the 2016 Water System Master Plan (MWH, 2016), the water system currently includes 41 pressure zones. Within these zones, there are approximately 685 miles of pipelines, ranging in diameter from 4 inches to 42 inches; 73 storage reservoirs, with an approximate total storage capacity of 93 million gallons (MG); and 51 booster pump stations. EVMWD currently obtains its water from 13 operating groundwater wells, the CLWTP, and imported water from Metropolitan through the Auld Valley Pipeline (AVP) and the TVP.

3.2 Service Area Boundary Maps

Figure 3-1 shows the EVMWD service area boundary map and surrounding area.

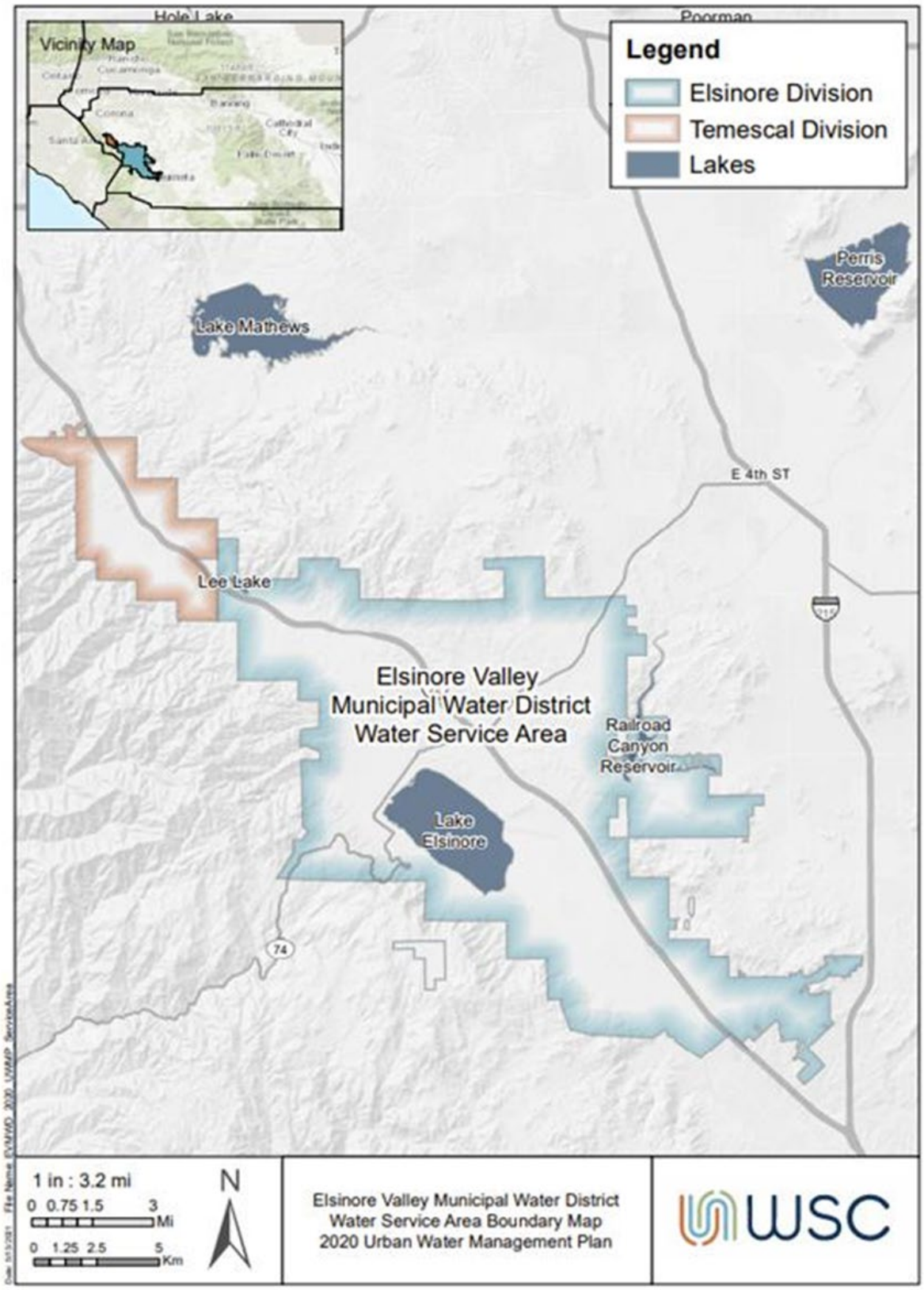


Figure 3-1. EVMWD Service Area

3.3 Service Area Climate

The area served by EVMWD generally experiences pleasant weather for most of the year. On average, the annual total precipitation is 7.6 inches, with most of the precipitation occurring between December and March. Records show that the monthly precipitation ranges from 0 to 6 inches. **Figure 3-2** shows the annual precipitation from 1999 through 2020 and illustrates which years fall above or below the annual average precipitation for this period. As shown by this figure, the area can experience multiple years with below average precipitation, making water management critical for ensuring communities are prepared for the next drought.

Temperatures within Lake Elsinore range from about 21°F to 119°F, with an average high temperature of 82°F. On average, July through September are the warmest months of the year. The highest recorded temperature in EVMWD's service area was 119°F in 2018. The lowest recorded temperature in EVMWD's service area was 21°F in 2007. **Table 3-1** shows the monthly averages for precipitation and temperature from 2006 through 2020.[1]

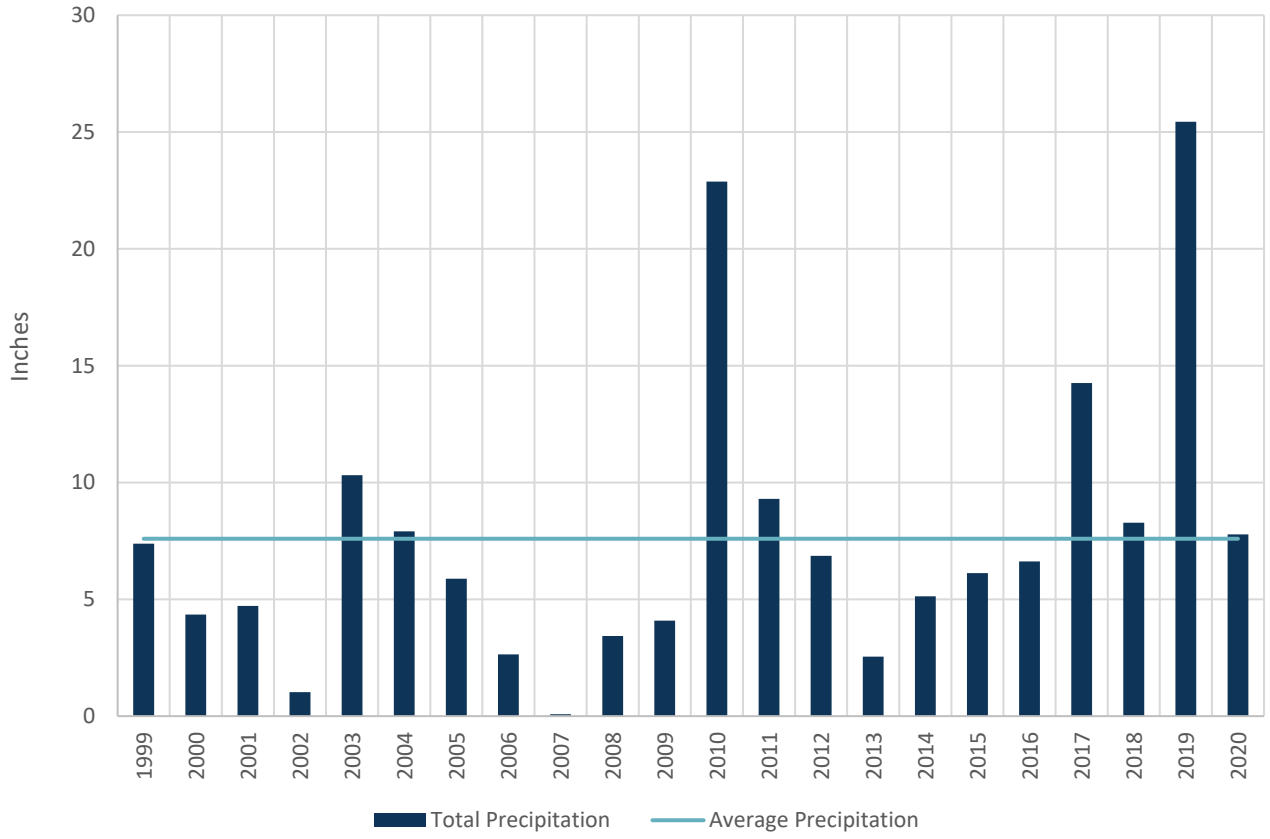


Figure 3-2. National Oceanic and Atmospheric Administration (NOAA) Elsinore Station Annual Precipitation, 1999-2020

[1] Climate data, including precipitation and temperature, from the National Oceanic and Atmospheric Administration (NOAA) collected from Elsinore from 1999 to 2020 was evaluated (National Oceanic and Atmospheric Administration, 2021). The 2007 total annual rainfall was 0.12 inches. There are no California Irrigation Management Information System stations near the service area, so the total evapotranspiration was not analyzed.

Table 3-1. NOAA Elsinore Station Average Monthly Climate Data

MONTH	AVERAGE PRECIPITATION (INCHES)	AVERAGE HIGH TEMP (°F)	AVERAGE LOW TEMP (°F)
January	1.6	68.4	41.1
February	1.9	68.9	41.3
March	1.0	73.3	45.2
April	0.4	78.0	48.6
May	0.2	83.4	53.4
June	0.0	91.7	58.1
July	0.1	98.3	63.4
August	0.0	99.5	63.8
September	0.1	94.9	60.8
October	0.4	84.9	53.4
November	0.4	75.7	45.2
December	1.4	67.0	40.3
AVERAGE	**0.6**	**82.4**	**51.5**

3.4 Service Area Population and Demographics

The EVMWD service area is comprised of the cities of Lake Elsinore (100% within EVMWD's service area) and Canyon Lake (88%) and portions of the cities of Wildomar (94%), Murrieta (16%), unincorporated Riverside County, and parts of Orange County (7%).

3.4.1 Service Area Population

For the 2020 UWMP, the DWR Population Tool, the Southern California Association of Governments' (SCAG) 2020–2045 Regional Transportation Plan, and staff input were considered for the current and projected population estimates. **Table 3-2** shows the current and projected populations for the EVMWD service area.

SCAG gathers and coordinates input from cities and counties throughout Southern California about expected growth and development for the next 25 years. SCAG's most recent transportation plan is referred to as "Connect SoCal"; more detailed information is available at https://scag.ca.gov/connect-socal. In general, Southern California has experienced slower growth than was projected in previous forecasts. For most jurisdictions, the expected growth is slower in the Connect SoCal plan than in SCAG's previous forecasts. As one example, the City of Lake Elsinore was previously projected to have a population of more than 128,000 by the year 2040. In the updated projection, the city's population is now

expected to reach 111,600 by the year 2045. The SCAG analysis[1] includes estimates of population, households, and employment in each Traffic Analysis Zone (TAZ) in the study area. Geographic Information System (GIS) software was used to intersect the TAZ data with the EVMWD service area boundary and estimate the population, households, and employment within EVMWD. For the 2020 calendar year, the SCAG EVMWD population estimate is 149,815.

The DWR Population Tool is recommended for water suppliers whose service area boundaries do not match to a city or census-designated place (CDP) and that cannot use California Department of Finance or American Community Survey population data. The DWR Population Tool combines U.S. Census data and service area maps from 1990, 2000, and 2010 to determines the percentage of the census block's land area that is within the service area boundary; it then applies that percentage to the census block population to estimate the total population within the service area. The tool can also incorporate the type of connection data for those U.S. Census years to estimate the person per connection (ppc) for single-family and multi-family connections separately, for all residential connections, or total service connections. The ppc is estimated by dividing the population estimated for the U.S. Census years by the number of connections for those years. The tool then calculates the ppc by creating a trend line of the ppc from the year 2000 to the year 2010 and continuing that trend to the compliance year (i.e., 2020).

Because the 2015 UWMP DWR Population Tool estimate did not include the annexed area, which added 120 new connections, revisions were needed to estimate new ppc factors. The 2020 DWR population analysis was performed using the total residential connections. Because a complete dataset for the County Water Company of Riverside had not previously been available, it was assumed that in 2010 there were an additional 120 residential connections, the same as in 2017. Information from the City of Wildomar indicates that the area annexed is zoned as Rural Residential and Rural Agriculture. The 2015 UWMP single-family and multifamily 2010 connections as reported in the DWR Population Tool were used to estimate the total 2010 connections. The total residential accounts in 2010 were estimated to be 35,444. Using the DWR Population Tool, the 2020 ppc is 4.16, resulting in a population of 180,469. The tables from the DWR Population tool are included in **Appendix F**.

Between the SCAG and DWR Population Tool analyses, there is a 30,654-person population difference. The DWR Population Tool allows a modification to calculate the 2020 population by multiplying the 2010 ppc by the number of connections in 2020. To comply with the SBX7-7 target and other state-mandated reporting, EVMWD has used a factor of 3.7 per connection, which was estimated by dividing the 2010 U.S. Census population by the 2010 residential connections. However, this factor did not include the annexed area. Therefore, moving forward, a factor of 3.78 will be used as the 2010 ppc. The number of residential connections in 2020 is 43,382. Based on this, the final 2020 population used for this report is 163,984.

Future service area population was estimated using the number of residential connections and the updated 3.78 ppc. The number of residential connections was estimated using a 1.5% growth rate. As mentioned above, the SCAG forecast for households was perceived as too low, so a growth rate of 1.5% was used based on the average growth rate for the past several years, which is expected to continue based on planned housing units, per EVMWD staff.

[1] SCAG Agreement: This modeling analysis was performed by Water Systems Consulting, Inc. based upon modeling information originally developed by the Southern California Association of Governments (SCAG). SCAG is not responsible for how the Model is applied or for any changes to the model scripts, model parameters, or model input data. The resulting modeling data does not necessarily reflect the official views or policies of SCAG. SCAG shall not be held responsible for the modeling results and the content of the documentation.

Table 3-2. Current and Projected Population (This is required DWR Table 3-1R)

POPULATION SERVED[1]	2020	2025	2030	2035	2040	2045
EVMWD	163,984	176,657	190,310	205,018	220,863	237,932
Total	**163,984**	**176,657**	**190,310**	**205,018**	**220,863**	**237,932**

[1] Based on DWR's online Population Tool and adjusting the tool to use the 2010 Persons per Connections values. The projected populations are based on 2010 census data and a connection annual growth rate of 1.5%.

3.4.2 Other Social, Economic, and Demographic Factors

Ninety-seven percent of the service connections within EVMWD are residential connections. There are no large commercial or industrial water consumers within EVMWD; therefore, the demand is almost entirely residential. EVMWD's population remains consistent throughout the year; it does not have a seasonal population.

The U.S. Census Bureau estimates median household income and poverty levels for the cities within EVMWD, as shown in **Table 3-3**.

Table 3-3. 2019 Median Household Income and Poverty Rate for Cities within EVMWD

CITY	MEDIUM HOUSEHOLD INCOME[1]	LEVEL OF POVERTY[1]
City of Canyon Lake	$100,682	7%
City of Wildomar	$74,991	12.4%
Lakeland Village CDP	$52,913	15.5%
City of Lake Elsinore	$71,476	14.5%

[1] Data obtained from the U.S. Census Bureau (U.S. Census Bureau, n.d.)

3.5 Land Uses within Service Area

SCAG prepares demographic forecasts based on land use data through an extensive process that emphasizes input from local planners in coordination with local or regional land use authorities, incorporating essential information to reflect anticipated future populations and land uses. SCAG's projections undergo extensive local review, incorporate zoning information from city and county general plans, and are supported by environmental impact reports. Current land use within the EVMWD service area obtained from SCAG is shown in **Table 3-4** (Southern California Association of Governments, 2020).

As mentioned, EVMWD serves portions of several cities and unincorporated county lands. The percentage of these cities and unincorporated areas that fall within the EVMWD service area is provided in **Table 3-5**.

Table 3-4. Land Uses within the EVMWD Service Area

LAND USE	ACRES	PERCENTAGE
Single Family Residential	23,009	37%
Multi-Family Residential	497	0.8%
Mixed Residential	357	0.6%
Rural Residential	3,593	6%
Commercial and Services	1,601	3%
General Office	28	0%
Facilities	612	1%
Industrial	1,310	2%
Transportation, Communications, and Utilities	348	0.6%
Mixed Commercial and Industrial	276	0.4%
Mixed Residential and Commercial	709	1%
Open Space and Recreation	7,414	12%
Water	981	2%
Specific Plan	13,328	21%
Other	8,048	13%
TOTAL	**62,110**	**100%**

Table 3-5. EVMWD Service Area Compositions per Jurisdiction

JURISDICTION	PERCENTAGE OF AREA WITHIN EVMWD
Lake Elsinore	100%
Canyon Lake	88%
Wildomar	94%
Murrieta	16%
Unincorporated	7%

URBAN WATER MANAGEMENT PLAN

4 Water Use Characterization

This chapter describes historical and current water use and presents projected future demands within EVMWD's service area. Water use is presented by customer class, such as residential, industrial, institutional, landscape, agricultural, and other purposes.

Demand projections are dynamic, often changing as a result of economic, political, and environmental pressures. Several factors can affect demand projections, including land use revisions, new regulations, consumer choice, economic conditions, transportation needs, environmental factors, conservation programs, and plumbing codes.

These factors can affect not only the amount of water needed but also the timing and location of when and where it is needed. Because EVMWD's service area includes primarily residential development, population growth is the most influential factor in determining water demand projections.

The projections presented in this UWMP do not attempt to forecast extreme economic or climatic changes. Likewise, no speculation was made regarding future plumbing codes or other regulatory changes.

IN THIS SECTION

- Non-Potable vs. Potable Water Use
- Past and Current Water Use
- Water Use Projections through 2045

4.1 Non-potable Versus Potable Water Use

EVMWD serves potable drinking water and recycled water to its customers. The potable water uses are discussed in this section, and supplies are described in **Chapter 6**.

EVMWD serves a limited number of customers tertiary treated recycled water for landscape and golf course irrigation. The recycled water demands are discussed in **Chapter 6.2.5**.

4.2 Past, Current, and Projected Water Use

4.2.1 Water Use Sectors Listed in the Water Code

Water suppliers are required to identify water uses, to the extent that records are available, for the 10 water use sectors identified in CWC Section 10631(d) to assist in water demand projections.

EVMVD has the following water uses:

Residential

Although EVMWD tracks several residential use types in its billing system (including mobile home park, residential, single, and multifamily), a clear separation of the customer water use billing could not be completed for this UWMP. As a result, all residential water use is reported in a single category. On average, residential demand accounts for about 71% of total uses.

Commercial

Commercial water users provide or distribute a product or service. On average, commercial water uses account for about 20% of total use.

Institutional/governmental

Institutional and governmental water use comes from users dedicated to public services, such as higher-education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions. Historically, this demand accounts for about 1% of the total demand, but in 2020, it accounted for less than 0.5%, which may be the result of the Coronavirus Disease 2019 (COVID-19) pandemic.

EVMWD Uses

EVMWD uses potable water for district uses, including augmenting its recycled water supply, as discussed in **Chapter 6.2.5**. On average, this use accounts for 0.4% of total use.

Hydrant

On average, hydrant use accounts for about 0.8% total water use.

Sales/transfers/exchanges to other agencies

On average, EVMWD sells about 1.3% of its water to the Farm Mutual Water Company (FMWC).

Losses

Distribution system water losses are the potable water losses from the point of water entry to the distribution system to the delivery point to the customer's system. Water losses are discussed in **Chapter 4.2.3**.

4.2.2 Past and Current Water Use

The past and current water use is presented in **Table 4-1**. Past water uses help suppliers understand water use trends, which are crucial for developing water use projections. Residential demand accounts for about 71% of the total demand and has remained relatively constant since 2016. In 2020, however, there was a 3% increase compared with 2019 and a 1% reduction in commercial water use.

Over the past five years, EVMWD used an average of 23,200 AFY of potable water. The most recent peak in demand occurred in 2020, with a total demand of 23,653 AFY, which is a 1,290 AFY increase since 2016. **Table 4-2** shows 2020 water use. Water use in 2020 was affected by the COVID-19 pandemic, government-mandated closures of schools and businesses, and extended stay-at-home orders. Total residential water consumption in 2020 was the highest in the five-year period 2016 through 2020. The use of recycled water is discussed in **Chapter 6**.

Table 4-1. Historical and Current Water Use by Customer Class, AFY

CUSTOMER CLASS	2016	2017	2018	2019	2020
Residential	15,425	16,130	16,964	15,769	17,162
Commercial	4,570	4,889	5,103	4,364	4,409
Institutional/Governmental	108	116	121	117	82
EVMWD	118	111	2,365	118	54
Hydrant	205	174	181	236	168
Sales/Transfers/Exchanges to Other Agencies – Farm Mutual Water Company	282	294	319	305	332
Losses[1]	1,659	1,183	-1,590	1,488	1,446
TOTAL CONSUMPTION	**22,367**	**22,898**	**23,462**	**22,397**	**23,653**

[1] In 2018, there were about 2,300 AF reported under the EVMWD at no charge. This is likely a system error, which caused the water loss to be negative.

Table 4-2. Department of Water Resources Actual Demands for Water, AFY (This is required DWR Table 4-1R)

USE TYPE	ADDITIONAL DESCRIPTION	LEVEL OF TREATMENT WHEN DELIVERED	2020 VOLUME
Residential	All Residential	Drinking Water	17,162
Commercial		Drinking Water	4,409
Institutional/Governmental		Drinking Water	82
Other	EVMWD Use	Drinking Water	54
Other	Hydrant	Drinking Water	168
Sales/Transfers/Exchanges to Other Agencies	FMWC	Drinking Water	332
Losses		Drinking Water	1,446
		TOTAL:	**23,653**

4.2.3 Distribution System Water Losses

Distribution system water losses are the potable water losses from the point of water entry to the distribution system to the point of delivery to the customer's system. Water loss can result from aging infrastructure, leaks, seepage, theft, meter inaccuracies, data-handling errors, and other causes. Addressing water losses can increase water supplies and recover revenue. **Chapter 9.2.5** discusses EVMWD's programs to assess and manage distribution system real loss.

Over the past five years, EVMWD water losses have ranged from 5% to 9% of production. Water losses were calculated as the difference between billed consumption and total production and are summarized in **Table 4-3**.

CWC Section 10631 (d)(3)(C) requires water suppliers to provide data to determine whether the supplier will meet its State Water Board water loss performance standard. Although the standard has not yet been implemented, the data needs to be included in the 2020 UWMP. Compliance with the future water loss performance standards will be determined in the next UWMP cycle.

More detailed assessments of water loss were completed using the American Water Works Association (AWWA) Water Audit Software. The results for the five most recent years are presented in **Table 4-4**. The AWWA water audits for these years are provided in **Appendix G**. The 2020 water audit report will not be available before UWMP submittal. Values in **Table 4-3** differ from **Table 4-4** because they were completed using different definitions, assumptions, and estimates for water loss. **Table** 4-4 includes estimates for unbilled, unmetered, and apparent losses, which differ from **Table 4-3**.

Table 4-3. Water Losses

	2016	2017	2018[1]	2019	2020
Losses, AFY	1,659	1,183	-1,590	1,488	1,446
Percentage of Production	7.4%	5.2%	-6.8%	6.6%	6.1%

[1] In 2018, there were about 2,300 AF reported under the EVMWD at no charge. This is likely a system error, which caused the water loss to be negative.

Table 4-4. 12-Month Water Loss Audit Reporting (This is required DWR Table 4-4R)

REPORT PERIOD START DATE		
MM	**YYYY**	VOLUME OF WATER LOSS, AFY[1]
1	2016	906
1	2017	1,190
1	2018	1,338
1	2019	1,751
1	2020	TBD

[1] Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.

4.2.4 Projected Water Use

As part of the 2020 UWMP, several demand approaches were evaluated to create demand projections through 2045.

Future demands were prepared using two alternative forecasts:

- EVMWD recently used an annual growth rate of 1.5%, which has been the observed growth rate for the past several years. This rate is expected to continue in the future given the amount of projected new residential development. One alternative forecast is a constant increase in new connections of 1.5% per year.
- The second alternative forecast was based on using the expected growth rate in population from the SCAG projection to calculate the annual increase in new connections.

Projections were prepared using two different methods for comparison. These methods were defined by EVMWD based on available data and previously used approaches.

- In **Method 1**, EVMWD's gross water use, in Gallons per Capita per Day (GPCD), was assumed to remain constant at 137 GPCD. This value of 137 GPCD is the highest annual average observed during the past four years and is considered to be a reasonable conservative estimate for future projections. Production for future years was calculated by multiplying the expected population by 137 GPCD.
- In **Method 2**, the consumption by different customer classes was calculated separately. The production for future years was calculated by summing the expected consumption within each customer class and adding an allowance for nonrevenue water. For **Method 2**, water consumption by customer type was estimated through 2045. The calculations were tailored for each customer type:
  - Future consumption by residential customers was estimated separately for existing and future residences. Based on 2020 data, the average consumption per residential connection was 0.40 AFY. This value of consumption per connection was assumed to remain constant for future years for existing customers. It was assumed that new construction would be more water efficient than for current residential customers because of water-saving fixtures and changing landscape preferences. These factors were assumed to reduce water use per connection by 5%. Therefore, new residential connections were assigned an annual consumption of 0.38 AFY.
  - Future consumption by commercial and institutional customers was assumed to increase from 2020 at the same rate that total employment in the EVMWD service area is projected to increase (based on SCAG data).
  - Future consumption by EVMWD and Hydrant accounts was assumed to increase from 2020 at the same rate that total population in the EVMWD service area is projected to increase.
  - Water use by current customers of FMWC was assumed to remain roughly constant at 333 AFY. FMWC provided information about two planned development projects in its service area and their anticipated demands:
    - Wildomar Meadows, with an estimated demand of 961 AFY
    - Oak Creek Canyon, with an estimated demand of 170 AFY
- Nonrevenue water, or the difference between production and metered consumption, was assumed to be 7% of metered consumption in future years. This value is close to the average observed value for 2016 through 2020.

A 10% buffer was added to the calculated production for future years to account for planning uncertainties. **Method 1** and **Method 2** results with the two alternative growth forecasts are shown in **Table** 4-5.

Table 4-5. Projected Production Values through 2045, AFY

	METHOD 1 PRODUCTION (GROWTH AT SCAG POP.)	METHOD 1, SCAG WITH 10% BUFFER	METHOD 2 PRODUCTION (GROWTH AT SCAG POP.)	METHOD 2, SCAG WITH 10% BUFFER	METHOD 1 PRODUCTION (GROWTH AT 1.5 PERCENT)	METHOD 1, 1.5% WITH 10% BUFFER	METHOD 2 PRODUCTION (GROWTH AT 1.5 PERCENT)	METHOD 2, 1.5% WITH 10% BUFFER
2025	26,690	29,359	26,743	29,418	27,114	29,825	27,044	29,749
2030	28,211	31,033	28,317	31,148	29,209	32,130	29,025	31,928
2035	29,733	32,706	29,890	32,879	31,467	34,613	31,121	34,233
2040	31,521	34,673	31,392	34,531	33,898	37,288	33,080	36,388
2045	33,309	36,640	32,897	36,187	36,518	40,170	35,176	38,694

Method 1 was selected because it provided a more conservative estimate of future system-wide demands than Method 2. The demands in this UWMP therefore include the projected demands for the planned development projects shown on the map in **Appendix H**.

The highest expected demand in 2045 was obtained using a constant GPCD, with a constant growth rate in connections and population of 1.5% per year. EVMWD's estimated total production in 2045 is approximately **36,520 AFY**, or **40,170 AFY** with the 10% planning buffer. This value is lower than projections that have been prepared for previous reports primarily because of slower anticipated growth and reduced water use by customers. To determine the amount of future demand used by each customer class, the percentage of 2020 water use was applied to the total demand for future years, with residential demand for developments planned within FMWC included in their demands. The projected demand by customer class is summarized in **Table 4-6**. The total overall customer water, including recycled water, is presented in Table 4-7.

Table 4-6. Projected Demands for Water, AFY (This is required DWR Table 4-2R)

USE TYPE	ADDITIONAL DESCRIPTION	PROJECTED WATER USE[1]				
		2025	2030	2035	2040	2045
Residential	All Residential	20,594	22,300	24,137	26,114	28,247
Commercial		5,560	5,989	6,452	6,951	7,488
Institutional/Governmental		103	111	119	129	138
EVMWD	EVMWD Use	65	70	75	81	87
Hydrant	Hydrant	212	228	246	265	285
Sales/Transfers/Exchanges to Other Agencies – Farm Mutual Water Company[2]	FMWC	1,464	1,464	1,464	1,464	1,464
Losses		1,827	1,968	2,120	2,284	2,461
	Total:	**29,825**	**32,130**	**34,613**	**37,288**	**40,170**

[1] Based on Method 1, which assumes a constant GPCD of 137 with a constant growth rate of 1.5 percent per year and a 10% buffer.

[2] The FMWC projections include planned development within its service area.

Table 4-7. Total Gross Water Use, AFY (This is required DWR Table 4-3R)

	2020	2025	2030	2035	2040	2045
Potable and Raw Water From DWR Table 4-1R and 4-2R	23,653	29,825	32,130	34,613	37,288	40,170
Recycled Water Demand From DWR Table 6-4R	7,803	9,107	9,864	10,700	10,797	10,797
TOTAL WATER USE:	**31,456**	**38,932**	**41,994**	**45,313**	**48,085**	**50,967**

The currently planned development projects being tracked by EVMWD were also included in the demand projections. The database included 215 projects that are at various stages of planning or review. The information included the acreage and the land use category, and for some projects, the number of equivalent dwelling units was estimated. The total estimated demand for planned developments was determined at approximately 12,800 AFY. This value is approximately equal to the projected growth in demand through 2045 based on the forecast (including the planning buffer). For each of these planned development projects, it is not known exactly when they will be completed or if they will exert the full demand currently estimated. At the same time, new development projects could be proposed for currently vacant parcels. In summary, the projected growth in demand through 2045 is not expected to exceed the available area for new development within the EVMWD's service area. **Appendix H** includes a map of the planned development projects that were considered in the demand projections.

New state guidelines are being developed for water use efficiency, including an estimate of residential indoor use in GPCD. These standards are expected to gradually reduce allowable residential indoor water use to **50 GPCD**, with additional allowances for outdoor use and commercial and institutional customers. These standards are still being finalized, and they may be further modified by proposed legislation.

4.2.5 Characteristic Five-Year Water Use

In addition to past and projected uses, the UWMP includes an analysis of anticipated conditions for the next five years (2021–2025). The demand projections established in this chapter assume typical, unconstrained demand (without demand reduction actions in place). In the next five years, EVMWD anticipates that potable demands may increase by approximately 6,172 AFY from current conditions. Details on an analysis for the next five years are provided in **Chapter 7**.

4.3 Water Use for Lower-Income Households

A "low-income household" is defined as a household that has an income lower than 80% of the county's median income. Low-income housing projections are developed by the SCAG Regional Housing Need Allocation (RHNA) Plan and used to forecast the number of low-income housing units for the 2020–2045 period.

Projected low-income households for each city and unincorporated areas within the EVMWD's service area were extracted from SCAG's sixth-cycle RHNA data (Southern California Association of Governments, 2021). The percentage of the population from each city within the EVMWD service area was then multiplied by the total number of low-income households identified by SCAG for each local jurisdiction to determine how many low-income households are within the EVMWD service area. The percentage of total low-income households compared with the total estimated number of households within EVMWD (also developed by SCAG) was determined to be 12%. This percentage was assumed to remain constant throughout the planning period and applied to the residential demand projections established above to determine the total low-income demands for 2025–2045, as shown in **Table 4-8**. The demands in **Table 4-8** are included in the systemwide demand projections presented in **Table 4-6**.

Table 4-9 is the required DWR Table 4-5R, which requires an indication of whether the demand projections included low-income households and conservation saving.

Table 4-8. Low-Income Demand Projections, AFY

	2025	2030	2035	2040	2045
Residential Demand	2,580	2,780	2,995	3,226	3,475

Table 4-9. Inclusion in Water Use Projections (This is required DWR Table 4-5R)

ARE FUTURE WATER SAVINGS INCLUDED IN PROJECTIONS? REFER TO APPENDIX K OF UWMP GUIDEBOOK.	No
Section or page number where the citations utilized in the demand projects can it be found:	
ARE LOWER INCOME RESIDENTIAL DEMANDS INCLUDED IN PROJECTIONS?	Yes

4.4 Climate Change Considerations

Climate change could have impacts on future demands in the EVMWD's service area. Changes in temperature and precipitation could lead to higher levels of outdoor water use. More information about potential climate change impacts is included in **Chapter 6.2.10** and **Chapter 7**.

URBAN WATER MANAGEMENT PLAN

5 SBX7-7 Baseline, Targets and 2020 Compliance

This chapter describes the Water Conservation Act of 2009, also known as Senate Bill X7-7, Baseline, Targets, and 2020 Compliance. The goal of this chapter is to demonstrate compliance with the 2020 targeted water-use reduction of 20%. EVMWD achieved its 2020 water use target of 188.6 gallons per capita per day (GPCD), with a calculated GPCD of 129 for 2020.

Senate Bill X7-7 (SBX7-7) was incorporated into the UWMP Act in 2009 and requires that all water suppliers increase water use efficiency, with the overall goal of decreasing per capita water consumption within the state by 20% by the year 2020. SBX7-7 required DWR to develop certain criteria, methods, and standard reporting forms through a public process that water suppliers could use to establish baseline water use and determine water conservation targets.

IN THIS SECTION

This chapter describes EVMWD's methods for calculating baseline and target water consumption, as presented in the 2015 UWMP, in accordance with the DWR's Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use (California Department of Water Resources, 2016). In addition, due to a small annexation in 2017, updated baseline and target calculations are presented. EVMWD recalculated its 2020 target to include about 120 connections from the annexed area. The SBX7-7 verification forms, which water suppliers are required to submit to the DWR to demonstrate compliance with the SBX7-7 2020 targets, are presented in **Appendix I.**

5.1 Guidance for Wholesale Suppliers

EVMWD is a wholesale supplier to Farm Mutual Water Company, which supplies approximately 332 AFY and serves about 1,220 accounts. This sale does not meet the urban wholesale water supplier definition of a wholesale agency because EVMWD does not provide more than 3,000 AFY.

5.2 Updated Calculations from 2015 UWMP to the 2020 UWMP

To comply with SBX7-7, EVMWD is required to calculate and report its baseline per capita water use, its 2020 water use target, and its 2020 GPCD. As discussed in **Chapter 3**, on January 22, 2015, LAFCO approved the annexation of the territory known as the County Water Company of Riverside into EVMWD's service boundary to address high nitrate levels in this drinking water supply. The annexation was completed in 2017 and added approximately 120 new connections, which is less than 0.28% of the total residential connections. **Appendix E** contains more information about the annexed area.

Suppliers that expanded between the baseline period and 2020 must calculate the baseline and target for the annexed area. The calculations can be done by using one of three options:

1. Calculate and report the baseline, target, and compliance separately for the annexed and pre-annexed area. The 2020 target for the annexed area must be prorated based on the years of the annexation per the DWR 2020 UWMP Guidebook Appendix P, Section P.3.5. The supplier must submit separate SBX7-7 verification forms and SBX7-7 compliance forms for each area.
2. Calculate and report the baseline and target separately, and then calculate a weighted average 2020 target. The 2020 target for the annexed area must be prorated based on the years of the annexation per the DWR 2020 UWMP Guidebook Section P.3.5. The supplier must submit separate SBX7-7 verification forms for each area.
3. Calculate and report the baseline, target, and compliance for the combined area. The supplier must submit a new SBX7-7 verification form for the combined area.

Because the annexed area is a small percentage of the total residential connections, option 2 was selected. EVMWD collected the information necessary to estimate the baseline, target, and compliance for the annexed area. However, the available information was limited and varied significantly. For example, between 2017 and 2018, the water consumption dropped from 54 AF to 25 AF.

The population for the annexed area was estimated using the DWR Population Tool, which estimated a 2010 population of 534 people. This population was assumed to be the same for 2020 because the number of connections remained constant.

Based on 2017 data, the baseline is 90 GPCD for the annexed area. Consistent with the pre-annexed baseline calculations, the annexed area target is based on SBX7-7 Method 1, which uses 80% of the 10-year base daily per capita average — in this case, the 2017 baseline, as historical data was not available. The target for the annexed area was prorated following the steps, outlined in the DWR 2020 UWMP Guidebook Appendix P.3.5, and is **72 GPCD**. Using a population-weighted average of the EVMWD service area (prior to annexation) and the annexed area, a single 2020 target is **188.6 GPCD**, compared to the 189 GPCD pre-annexed area target. The target proration and population-weighted calculations are shown in **Appendix I**.

5.3 SBX7-7 Forms and Summary Tables

EVMWD's calculated 2020 GCPD is 129, which is well below the 2020 SBX7-7 target. A summary of SBX7-7 forms is presented in **Table 5-1**. The SBX7-7 verification forms for each area are provided in **Appendix I**. The pre-annexed SBX7-7 verification form is the same as the 2015 UWMP.

As part of the 2020 UWMP, EVMWD must demonstrate compliance with its 2020 water use target by completing an SBX7-7 2020 compliance form. EVMWD is complying with the population-weighted target. This compliance form is an abbreviated version of the SBX7-7 verification form solely for 2020 compliance calculations. A summary of the 2020 SBX7-7 2020 compliance table is shown in **Table 5-4**. The updated target, which includes the annexed area, is provided in **Table 5-3**.

Table 5-1. EVMWD (without Annexed Area) Baselines and Targets Summary (This is Required Table DWR 5-1R)

BASELINE PERIOD	START YEAR	END YEAR	AVERAGE BASELINE GPCD	CONFIRMED 2020 TARGET
10-15 Year	1999	2008	236	188.6
5 Year	2003	2007	242	

Table 5-2. Annexed Area Baselines and Target Summary (This is Required DWR Table 5-1R)

BASELINE PERIOD	START YEAR	END YEAR	AVERAGE BASELINE GPCD	CONFIRMED 2020 TARGET
10-15 Year	2017	2017	90	72
5 Year	2017	2017	90	

Table 5-3. Revised 2020 Target after Annexation

	EVMWD (WITHOUT ANNEXATION)	ANNEXED AREA
Target GPCD	189	72
2020 Population	163,450	534
Population Weight	0.997	0.003
POPULATION WEIGHTED GPCD	**188.6**	

5.4 Methods for Calculating Population and Gross Water Use

To calculate baseline and compliance water use in GPCD, the population and gross water use must be correctly calculated for the baseline and compliance years. For the 2020 population estimate, EVMWD used the DWR Population Tool, as discussed in **Chapter 3**. The 2020 population is 163,984 for the combined area. The 2020 population for the annexed area is assumed to be 534, the same as the 2010 population.

The gross water used was estimated by adding the total water supplies production. The gross water use for 2020 was obtained from records maintained by EVMWD. The gross water use for the combined area was 23,653 AFY. The gross water for the annexed area was 28 AFY. EVMWD identified the water meters in the annexed area to estimate usage. For more information about historic gross water use, refer to **Chapter 4**.

5.5 2020 Compliance Daily Per-Capita Water Use (GPCD)

As part of the 2020 UWMP, EVMWD must demonstrate compliance with its 2020 water use target by completing the SBX7-7 2020 compliance form. This form is an abbreviated version of the SBX7-7 verification form solely for 2020 compliance calculations. A summary of the 2020 SBX7-7 2020 compliance table is shown in **Table 5-4**. There were no extreme cases that warranted an adjustment to the GPCD compliance calculation. The 2020 calculated GPCD for 2020 is 129 GPCD, which meets EVMWD's 2020 SBX7-7 population-weighted target of 188.6 GPCD. A copy of the completed SBX7-7 compliance form is included in **Appendix I**.

Table 5-4. 2020 Compliance (This is Required DWR Table 5-2R)

ACTUAL 2020 GPCD	2020 GPCD TOTAL ADJUSTMENTS	2020 GPCD (ADJUSTED IF APPLICABLE)	2020 CONFIRMED TARGET GPCD	SUPPLIER ACHIEVED TARGETED REDUCTION IN 2020
129	0	129	188.6	Yes

URBAN WATER MANAGEMENT PLAN

6 Water Supply Characterization

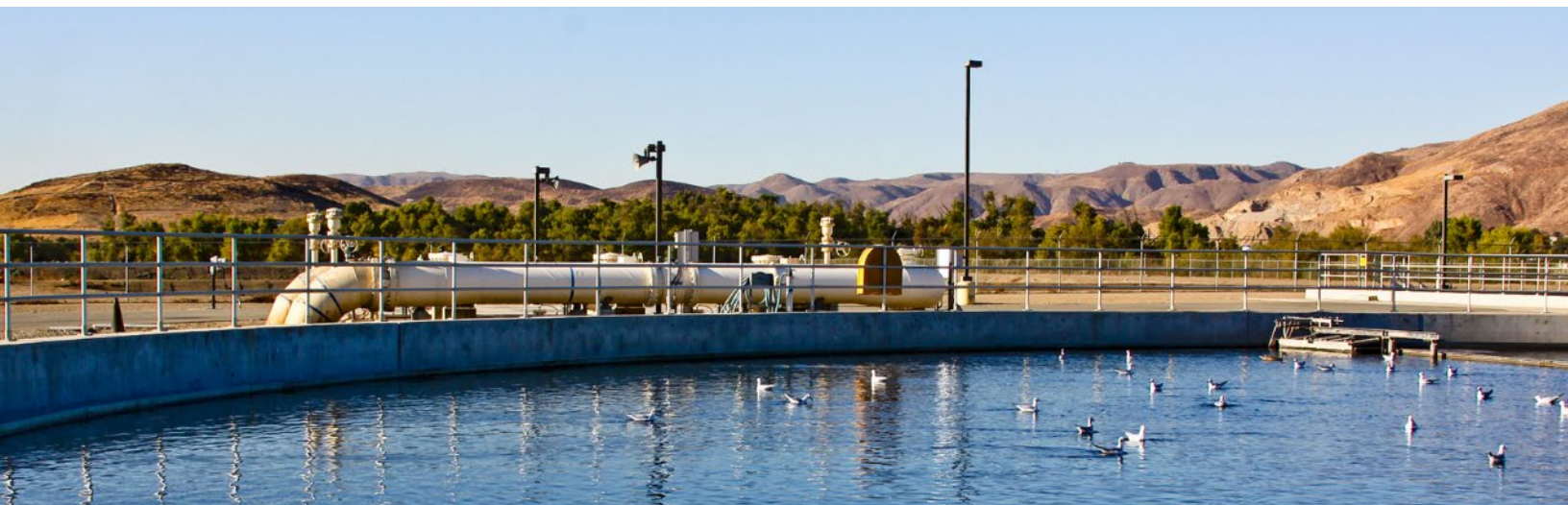
EVMWD has three primary water sources to meet potable demands: groundwater, surface water, and imported water. EVMWD also provides recycled water throughout its service area for landscape and golf course irrigation. This chapter identifies and quantifies, to the extent practicable, the existing and planned water supplies for EVMWD through 2045.

EVMWD's three primary sources of potable water supply are:

1. Local groundwater pumped from EVMWD-owned wells.
2. Surface water from Canyon Lake Reservoir treated at the CLWTP.
3. Imported water purchased from Metropolitan through the Western.

EVMWD has a recycled water network that delivers non-potable, Title 22–compliant tertiary recycled water to customers in four service areas. Three of the service areas are supplied by EVMWD, and one recycled water service area is supplied from the Santa Rosa Water Reclamation Facility (WRF), owned and operated by the Santa Rosa Regional Resources Authority (SRRRA).

IN THIS SECTION



6.1 Water Supply Analysis Overview

EVMWD's water sources include groundwater pumped from EVMWD-owned wells, local surface water treated at the CLWTP, and imported water from Metropolitan through Western. EVMWD plans to use these supplies to meet current and future demands under normal, single dry, and five consecutive dry years. EVMWD is also planning several local projects to increase the reliability of its local water supplies, which include adding or replacing groundwater wells, purchasing raw imported water, and pursuing an indirect potable reuse (IPR) project.

Figure 6-1 shows historical water production by source for 2016 through 2020. In 2020, EVMWD met customer demands using groundwater and imported water only because the CLWTP was taken offline in March 2020 following detection of per- and polyfluoroalkyl substances (PFAS). Until PFAS levels have been treated and reduced, EVMWD will use additional imported water. EVMWD has evaluated multiple treatment alternatives for PFAS in Canyon Lake and is pursuing a hybrid granular activated carbon and ion exchange (GAC/IX) treatment approach to lower levels of PFAS and address other water quality concerns, including taste and odor. As part of these upgrades, the CLWTP treatment capacity will be expanded to produce a total of 6,200 acre-feet per year (AFY) of water. It is anticipated that about 2,500 AFY will be produced using natural runoff entering Canyon Lake, and 3,700 AFY will be produced by purchasing raw imported water from Western. Upgrades at the CLWTP are anticipated to be completed in early/mid-2025.

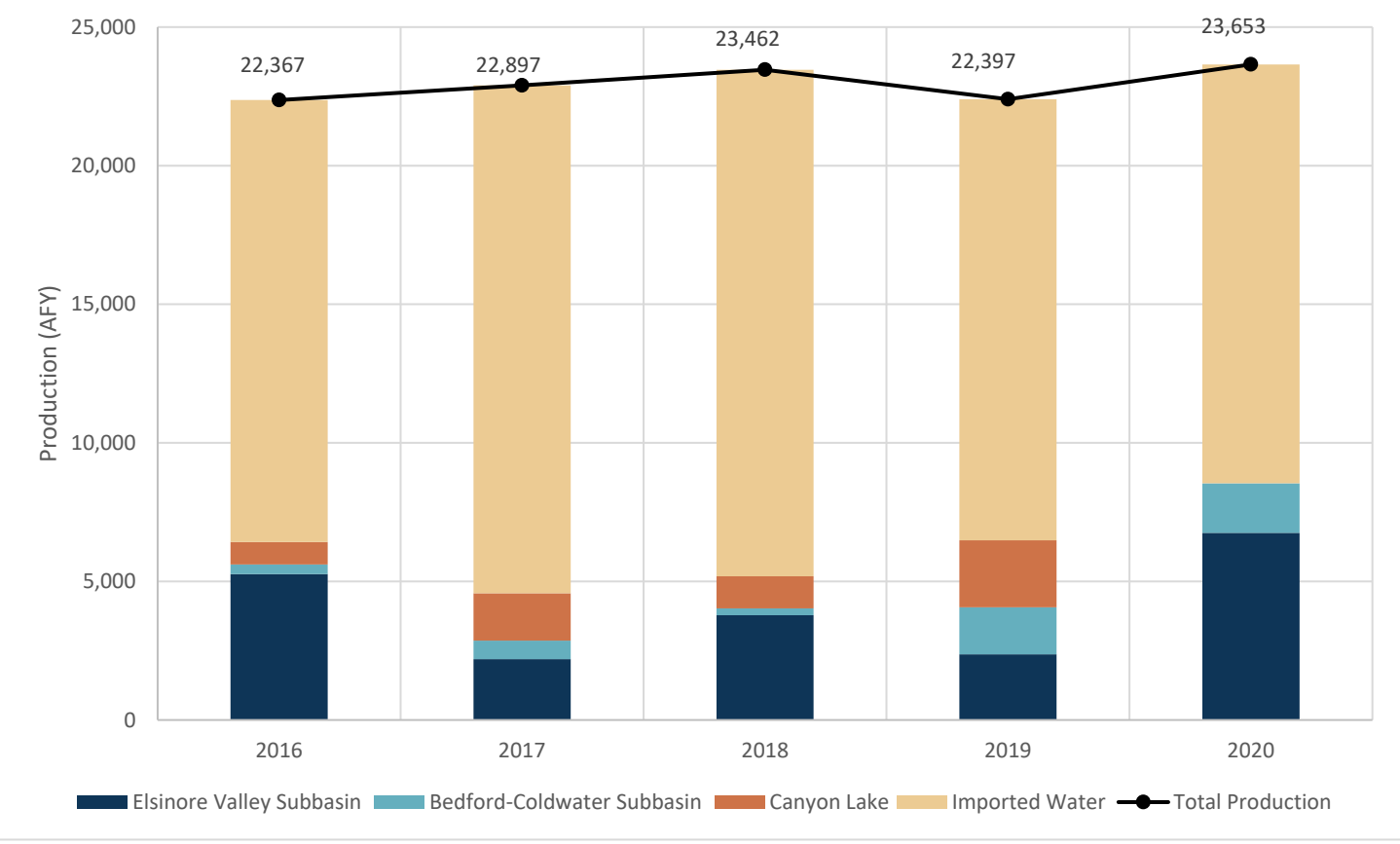


Figure 6-1. EVMWD's Historical Water 2016-2020 Production, AFY

6.2 Urban Water Management Plan Water Supply Characterization

6.2.1 Purchased or Imported Water

EVMWD first relies on local supplies before purchasing water from Western. EVMWD purchases water from Metropolitan through Western and receives the water at two locations. The first location provides water treated at Metropolitan's Robert A. Skinner Treatment Plant, which primarily blends Colorado River water with a small amount of State Water Project (SWP) water. This water is pumped through the Auld Valley Pipeline (AVP) and interconnection EM-17. EVMWD can receive or acquire a maximum flow rate of 20.2 million gallons per day (MGD) through the AVP. To reserve capacity for maximum day demand conditions, it is assumed that EVMWD will be able to obtain 16,256 AFY (or 14.5 MGD) from the AVP annually during average and wet years. This provides reserve capacity to meet maximum day demands. EVMWD also receives imported water from Western through the Temescal Valley Pipeline (TVP). The TVP delivers SWP water treated at Metropolitan's Mills Treatment Plant and conveyed through Western's Mills Gravity Pipeline. Through a series of transfers, the EVMWD has the capacity to receive 13.6 MGD (15,200 AFY) in the TVP. The TVP was designed to convey 26.5 MGD with the construction of a proposed booster pumping station. The current hydraulic capacity of the TVP is limited to 12.7 MGD (14,190 AFY) based on gravity flow from the Mills Gravity Pipeline. It is assumed that EVMWD can obtain 8.9 MGD (10,030 AFY) from the TVP annually. Therefore, EVMWD will be able to obtain 23.4 MGD (26,286 AFY) of treated imported water from the two connections during average and wet years.

In 2014, a study was conducted to analyze the feasibility of increasing the hydraulic capacity in the TVP (MWH, 2014). Some of the alternatives included partial and full replacement of the existing pipeline and installation of a pump station. The study recommended a partial upsizing of the 36- inch and 30-inch lines to a 48-inch line, which will increase the capacity of the pipeline to 37 cubic feet per second. This alternative does not require a pump station and consequently provides an economic benefit. EVMWD has retained a consulting firm to further evaluate the recommended alternatives in the 2014 TVP Feasibility Study by applying a comprehensive benefits/cost analysis approach. This feasibility study will analyze increasing TVP capacity by 12.9 MGD, bringing its total capacity to 25.9 MGD. The analysis will consider a detailed review of the uncertainties and components that could potentially affect the cost and constructability of the project, including geotechnical, traffic, utility separation, access to easements, and environmental constraints/compliance.

The total volume of purchased water from 2016 to 2020 is presented in **Table 6-1**. The highest purchased year was in 2017, toward the end of the drought period.

Table 6-1. 2016-2020 Purchased Water, AFY

YEAR	TVP	AVP	TOTAL
2016	6,598	9,347	15,945
2017	6,919	11,404	18,322
2018	5,774	12,503	18,276
2019	4,998	10,918	15,917
2020	5,338	9,777	15,115
AVERAGE	**5,961**	**9,897**	**15,858**

6.2.2 Groundwater

EVMWD relies on local groundwater basins, which is a significant source to meet current and future potable demands. Currently, EVMWD pumps water from the Elsinore Valley Subbasin and the Bedford-Coldwater Subbasin. EVMWD has been actively managing the groundwater subbasins and currently serves as the Groundwater Sustainability Agency (GSA) for the Elsinore Valley Subbasin, referred to as "EVGSA," and as a partner in the Bedford-Coldwater Groundwater Sustainability Authority (BCGSA), which serves as the GSA for the Bedford-Coldwater Subbasin. Both GSAs are in the process of developing groundwater sustainability plans (GSPs), which call for the basins to be sustainably managed. Detailed descriptions of the groundwater basins that supply EVMWD are presented in this section.

6.2.2.1 Elsinore Groundwater Basin

The Elsinore Groundwater Basin, designated by the Department of Water Resources (DWR) as basin 8-004, is a major source of potable groundwater supply for EVMWD and other private groundwater producers. Water rights for the Elsinore Basin are not adjudicated (MWH, 2005).

In 2005, EVMWD adopted the Groundwater Management Plan (GWMP) for portions of the DWR-designated Elsinore Groundwater Basin (MWH, 2006). The mapped boundaries of the basin, however, were not well aligned with the alluvial materials and did not cover the Bedford-Coldwater area. In 2016, as part of the Sustainable Groundwater Management Act (SGMA), EVMWD collaborated with the City of Corona and Temescal Valley Water District (TVWD) to formally modify the Elsinore Basin boundary. This update partitioned the Elsinore Basin into two subbasins: Elsinore Valley Subbasin, which includes the Elsinore Valley, Warm Springs, and Lee Lake groundwater basins, and the Bedford-Coldwater Subbasin. The Bedford-Coldwater area is within the Temescal Wash watershed. The revised basin boundaries are presented in **Figure 6-2** and the EVGSA and BCGSA boundaries is presented in **Figure 6-3** and **Figure 6-4**.

As part of the SGMA, the EVMWD, the City of Corona, and the TVWD formed two separate GSAs to manage the Elsinore Valley and the Bedford-Coldwater subbasins. The GSAs' authorizations are included in **Appendix J**. Both GSAs are currently developing separate GSPs to achieve long-term groundwater sustainability. The GSPs will determine the sustainable water budget for these subbasins, develop sustainable management criteria, establish minimum thresholds to evaluate groundwater conditions, and implement a monitoring network. In addition, projects to ensure that these basins are sustainable will be identified. Descriptions of these subbasins are provided in this section.

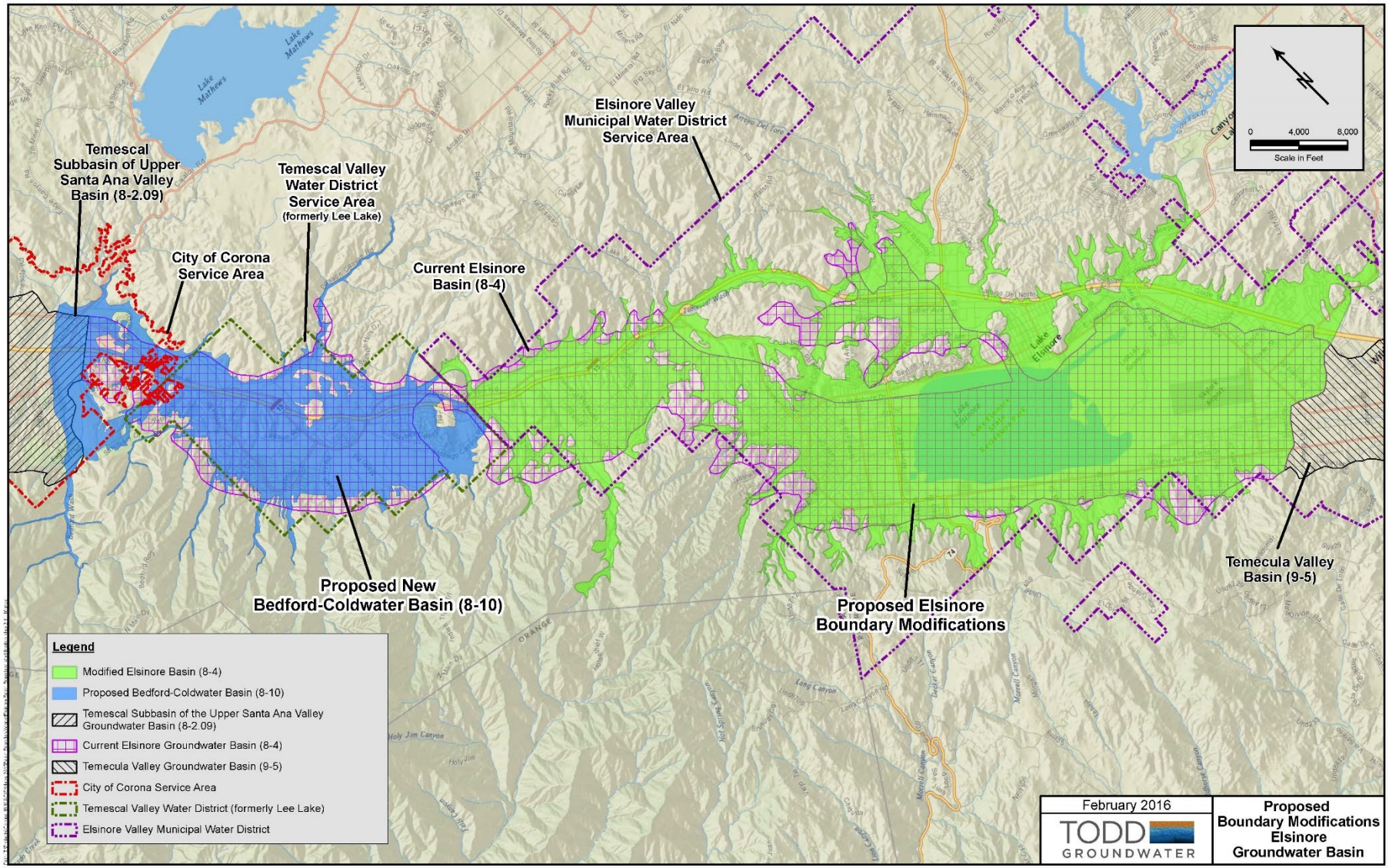


Figure 6-2. Revised Boundary Modifications Elsinore Groundwater Basin (Source: Todd Groundwater 2016)

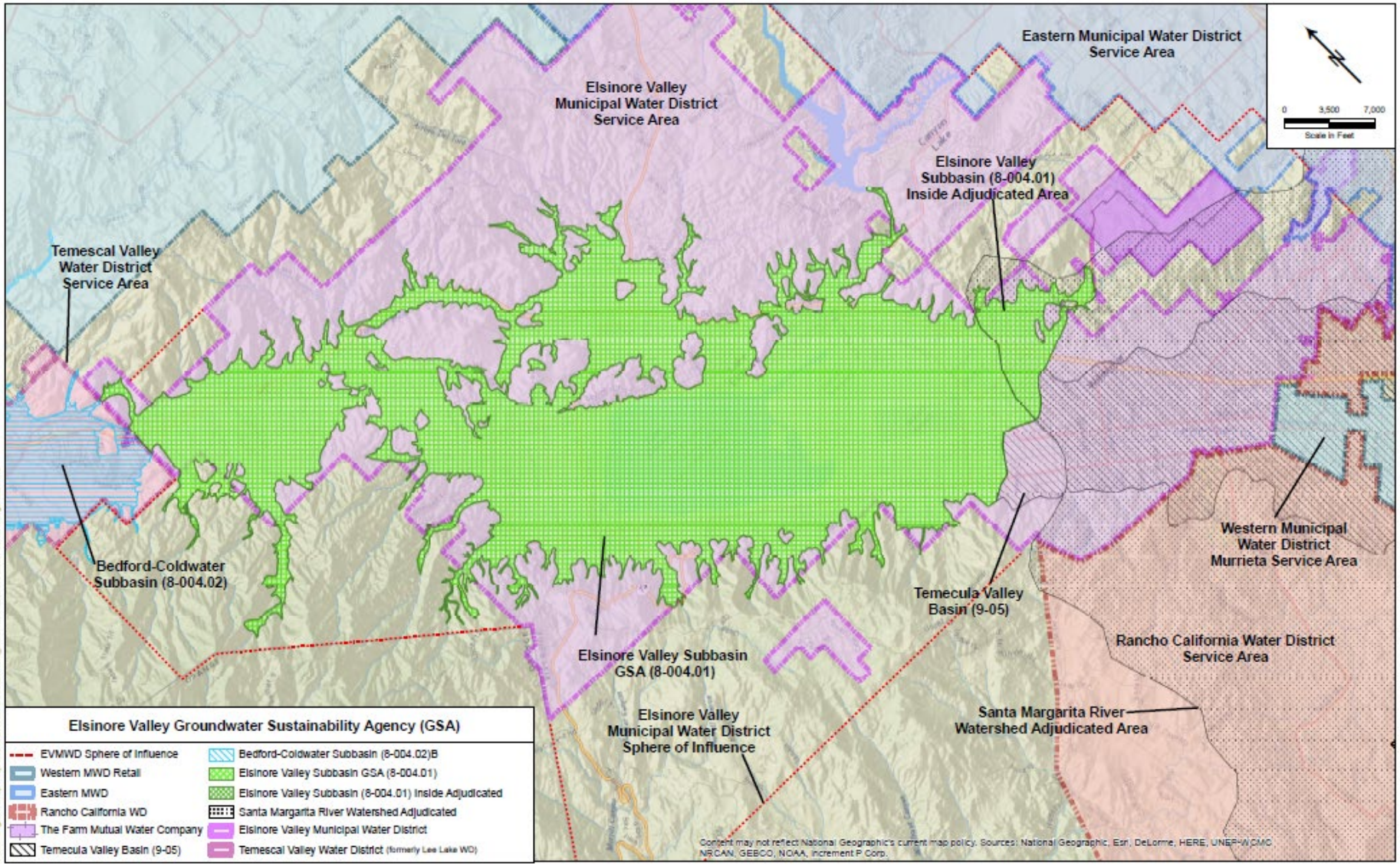


Figure 6-3. Elsinore Valley Groundwater Sustainability GSA Boundaries (Source: EVGSA Agreement)

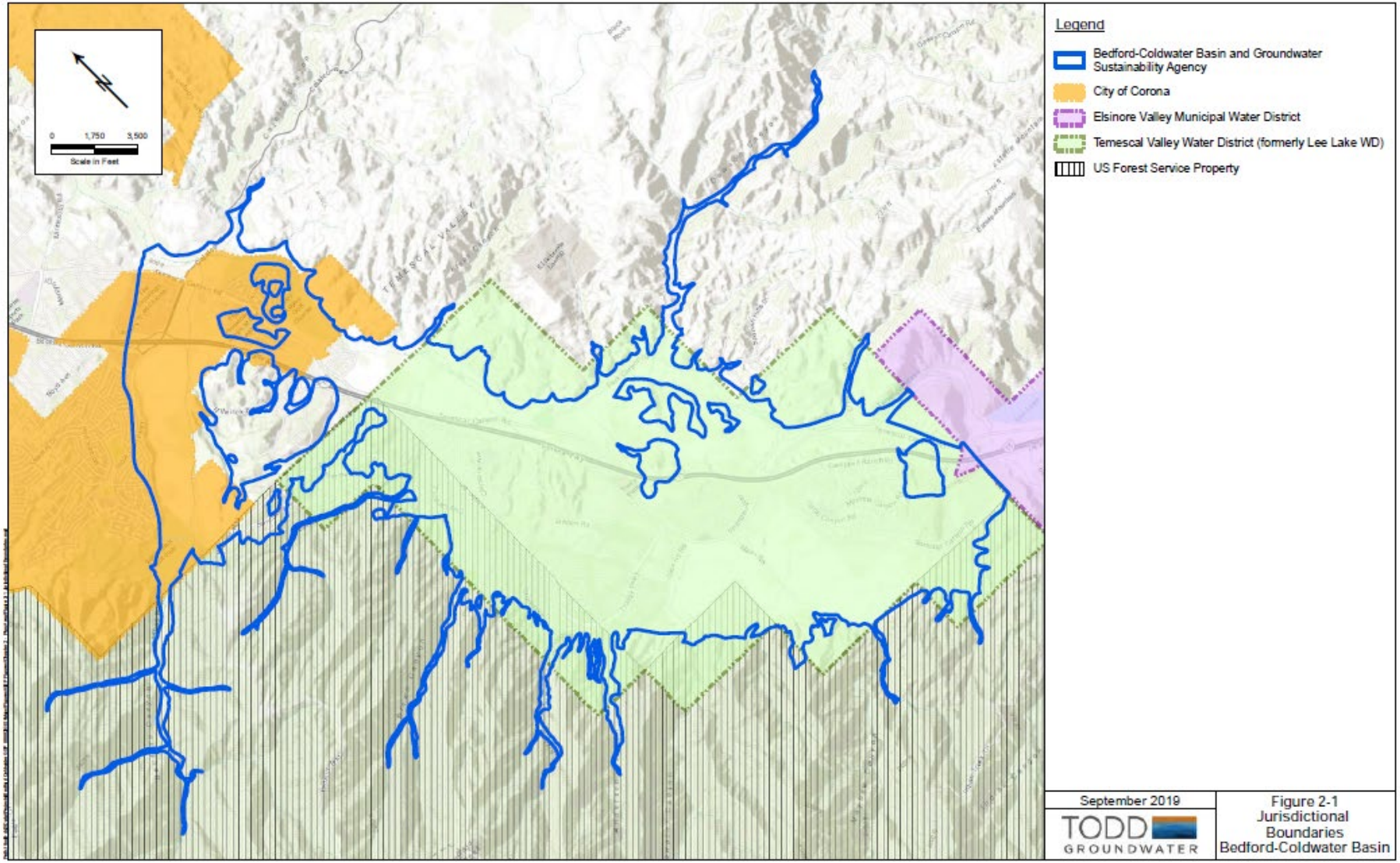


Figure 6-4. Bedford-Coldwater GSA Boundaries (Source: Todd Groundwater, 2021)

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Elsinore Valley Subbasin

The Elsinore Valley Subbasin (8-4.1) underlies a portion of the Elsinore Groundwater Basin (8.4) in southwestern Riverside County and covers approximately 200 square miles, or 23,600 acres. The Elsinore Valley Subbasin is classified as a medium-priority basin and required to complete a GSP by January 31, 2022. The final GSP is anticipated to be released in October 2021. Updates on the Elsinore Valley GSP are available at https://www.evmwd.com/who-we-are/water-resources.

The Elsinore Valley Subbasin is adjacent to two other groundwater basins/subbasins: the Bedford-Coldwater Subbasin of the Elsinore Groundwater Basin (8-4.2) to the north and the Temecula Valley Basin (9-5) to the south (Carollo, 2021) and consists of three general hydrologic areas: the Elsinore Hydrologic Area, the Lee Lake Hydrologic Area, and the Warm Springs Hydrologic Area, as shown in **Figure 6-3**. The Elsinore area is the largest area of the subbasins and provides most of the groundwater production. Since the adoption of the 2005 GWMP, EVMWD has limited its pumping (to approximately 5,550 AFY) to be consistent with the safe yield of the Elsinore Valley Basin. The sustainable yield for the Elsinore Valley, Lee Lake, and Warm Springs Hydrologic Areas will be confirmed in the GSP.

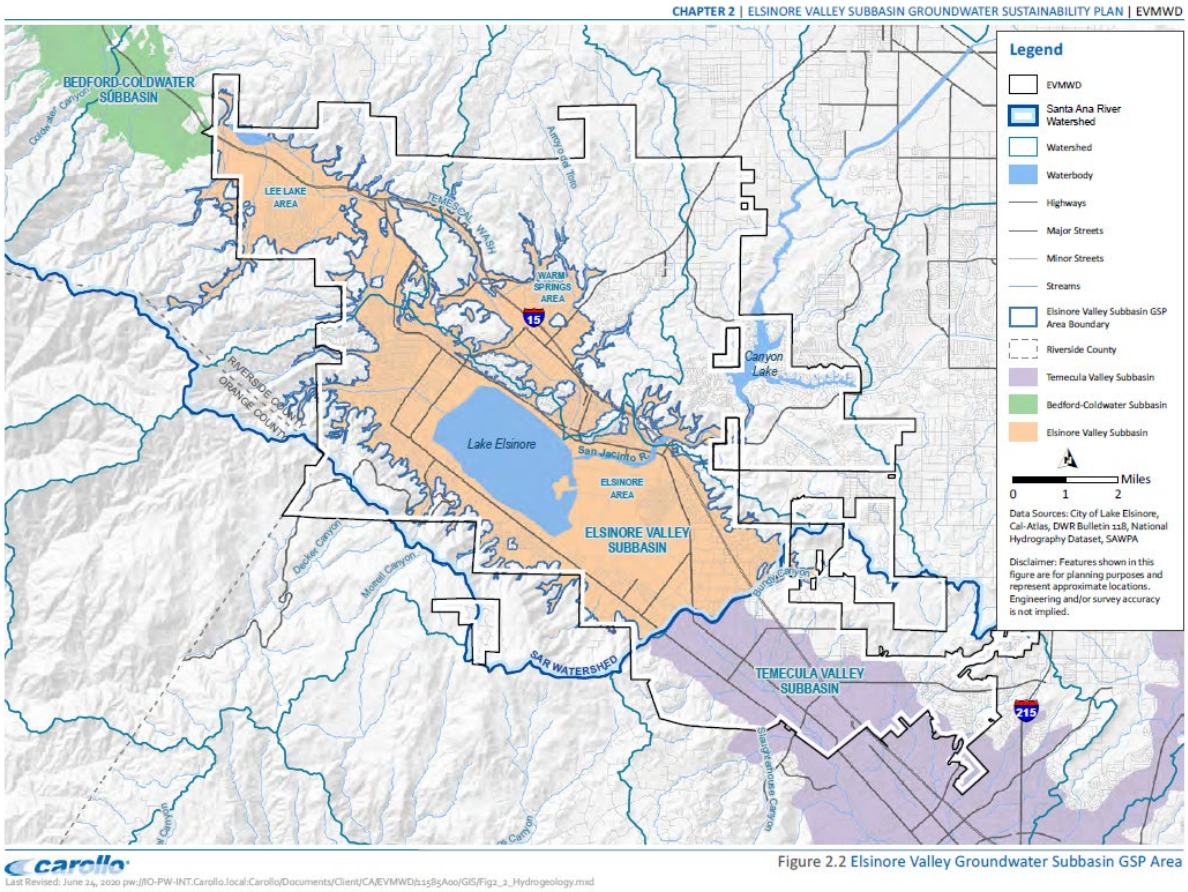

Figure 6-5. Elsinore Valley Groundwater Subbasin GSP Area (Source: Carollo 2021)

Bedford-Coldwater Subbasin

EVMWD currently has two production wells in the Bedford Subbasin and two wells in the Coldwater Subbasin. The Bedford-Coldwater Subbasin (8-4.2) is classified as a very low-priority basin and is not required to complete a GSP, but the BCGSA has elected to continue the GSP development process to gain a more comprehensive understanding of the groundwater basin and ensure that it is sustainably managed into the future.

More recent updates on the BCGSP are available at https://www.bedfordcoldwatergsa.com/.

The Bedford-Coldwater Subbasin (8-4.2) is located north of the Elsinore Valley Subbasin. To the northwest, the subbasin is bound by a groundwater divide near the Bedford Wash and bounded by consolidated rocks of the Estelle Mountains and Santa Ana Mountains on the east and west (California Department of Water Resources, n.d.). The subbasin is approximately 7,030 acres in size(Groundwater Exchange, n.d.). The sustainable yield for the Bedford and the Coldwater subbasins will be estimated in the GSP.

6.2.2.2 Other Considerations

Wells Production Capacity

EVMWD has 9 active production wells within the Elsinore Valley Subbasin and 2 active production wells within the Bedford Subbasin. Wells within the Bedford Subbasin serve the Elsinore Division area. There are 2 active production wells within the Coldwater Subbasin that primarily serve the Temescal Division Service Area. The combined total pump capacity from these wells is **20,027 AFY**, presented in **Table 6-2**.

Table 6-2. Existing Active EVMWD Groundwater Wells Production Capacity by Groundwater Basin

BASIN	GROUNDWATER WELL	CAPACITY, AFY
Elsinore Valley Subbasin	Cereal No. 1 Well	2330
	Cereal No. 3 Well	1730
	Cereal No. 4 Well	2720
	Corydon St Well	1630
	Diamond Well	2510
	Joy St Well	1000
	Machado St Well	1145
	Summerly Well	2742
	Terra Cotta Well	1250
Bedford Subbasin	Flagler 2A	810
	Flagler 3A	820
Coldwater Subbasin	Mayhew Well	930
	Station 71 Well	410
Total		**20,027**

EVMWD's groundwater treatment facilities include the Back Basin Groundwater Treatment Plant (BBGWTP), which treats water produced from the Cereal 3 and Cereal 4 wells. The BBGWTP was constructed in 2008 for arsenic treatment to reduce concentrations below the maximum contaminant level (MCL) of 10.0 µg/L in accordance with Division of Drinking Water standards. The BBGWTP includes a ferric chloride coagulation system and media filters. It has a plant capacity of 3,500 gallons per minute (GPM) (5.0 MGD, or 5,600 AFY) and the ability to expand to 7,000 GPM (approximately 11,300 AFY). If the plant were expanded, then groundwater extracted from other wells could also be treated for arsenic (MWH, 2011).

Water from the Lincoln Street, Joy Street, and Machado Wells is blended to comply with the arsenic MCL. Production from the Cereal 1 and Corydon Street wells was halted in October 2008 because of high arsenic, and in 2011, EVMWD constructed a pipeline from the Diamond and Summerly wells to blend with the Cereal 1 and Corydon Street wells and comply with the arsenic MCL. The Cereal 1 and Corydon Street wells began production again in May 2013.

In 2019, the Flagger Wells were completed. The project converted two wells that were used for agricultural irrigation into drinking water wells (Flagger 2A and Flagger 3A) and constructed the Flagger Water Treatment Plant and pump station.

EVMWD also has two non-potable wells that have been used to augment Lake Elsinore water levels. Since the development of the 2005 GWMP, the wells have only been used when there has been insufficient storm water and recycled water available to maintain the minimum lake elevation goal of 1,240 feet in Lake Elsinore (MWH, 2011).

Groundwater Storage Program

The 2005 GWMP estimated that the Elsinore Basin has significant storage capacity to support groundwater storage programs and identified conjunctive use projects as an important element of basin management. This storage capacity can be used to store water during wet years (when available) and perform extractions during dry-year conditions. The Metropolitan has funded recharge projects as part of a groundwater storage program.

Since 2005, EVMWD is a participant in the Metropolitan Conjunctive Use Program (CUP). Eight of EVMWD's groundwater wells were converted to dual-purpose injection/extraction (Carollo, 2021). The Elsinore Basin CUP agreement was issued in December 2006 and amended in May 2008. Typically, during any fiscal year (beginning on July 1 and ending on June 30), Metropolitan can deliver up to 3,000 AFY of water for storage in the Elsinore Basin. EVMWD's dual-purpose wells are used to inject these deliveries in the Elsinore Basin. The total maximum that can be stored in the groundwater basin is 12,000 AF. Metropolitan may also extract up to 4,000 AFY of water stored in the Elsinore Basin as part of this CUP program. During a dry year, when stored Metropolitan water is required from EVMWD, imported supply from Western is reduced rather than EVMWD extracting groundwater to deliver to Metropolitan. The program has been successfully implemented for the past 10 years, storing a total of 15,251 AF and extracting approximately 8,109 AF. More recently, in-lieu groundwater recharge has been implemented and is expected to continue given its advantages compared with using dual-purpose wells.

Santa Ana River Regional CUP

The Santa Ana River Regional CUP (SARRCUP) is a multiagency, watershed-wide program that develops dry-year supply by banking wet-year water; it integrates water-conservation measures and habitat enhancements efforts. The SARRCUP will develop a 180,000 AF groundwater bank storage program. This project will have the capacity to store 60,000 AFY during each of three wet years in a decade and extract 60,000 AFY during three dry years within a decade.

The SARCCUP component in the Elsinore Valley Subbasin would have a 4,500 AF storage capacity and facilitate average annual recharge of 1,500 AF over three years. As part of this project, the construction of two production wells in the Lee Lake Subbasin is anticipated to be completed in mid- to late 2023. The

groundwater storage will be achieved by using an in-lieu recharge program approach, which consists of EVMWD decreasing its annual pumping compared with the historical average value (safe yield) by 1,500 AFY during the three-year cycle to store delivered SARCCUP water in the Elsinore Valley Subbasin. The SARRCUP projects will supplement EVMWD's existing CUP with Metropolitan.

Other Water Rights

As mentioned previously, EVMWD acquired the Temescal Water Company (TWC) in 1989, making EVMWD the majority shareholder (57.85%) in the Meeks and Daley water rights. This stock provides EVMWD with water rights; production/conveyance capacity within the Gage Canal and Riverside Canal; and rights to the Palm Avenue Well, located in Grand Terrace, Riverside County. The basin is managed per the 1969 judgment in the case of Western Municipal Water District of Riverside County v East San Bernardino County Water District. The construction of Seven Oaks Dam in 1998 allowed for capture of "new conservation" water. Starting in 2013, based on the proportional share (3.38%) of the total new conservation water, the Meeks and Daley water rights increased to 8,091 AFY in the Bunker Hill Basin. Because EVMWD receives 57.85% of the Meeks and Daley water rights, this new water increases EVMWD's water right entitlement to 4,680.6 AFY from the Bunker Hill Basin (MWH, 2016b).

Also, as part of the 1969 judgment, Meeks and Daley has an annual base right of 836 AFY to extract water from the Colton Basin; 801 AF and 35 AF of the base right water volumes can be delivered for use in Riverside and San Bernardino counties, respectively. For the period 1989–2013, the total average yearly extraction was 551.5 AF from the Colton Basin, representing 66% of the base water right amount. For the cited period, the total amount of unused water was 8,289 AF. Because EVMWD receives 57.85% of the Meeks and Daley water rights, EVMWD receives 484.6 AFY from the Colton Basin. EVMWD can extract water from the Riverside Basin area at an annual base right of 1,263 AFY. The total water right amount can be delivered for use in Riverside County. For the period 1989–2013, total average yearly extraction was 849.6 AFY, representing 67% of the base right amount. For the cited period, the total amount of unused water was 13,100 AF.

In addition, Meeks and Daley has the right to a one-time amount of approximately 1,448 AF of water that was stored in the San Bernardino Basin Area (SBBA) during the 1998 to 2012 period.

In summary, EVMWD has a total of 6,428.2 AFY of water rights in San Bernardino/Riverside groundwater basins as a part of the acquisition of TWC, as shown in **Table 6-3**. Presently, EVMWD does not have the infrastructure available to deliver water available from Meeks and Daley groundwater basins to its service area in the Elsinore Division. In November 2020, EVMWD and Western extended their 20-year agreement allowing Western to lease EVMWD's water rights in the SBBA, totaling 4,680 AFY. Western will lease this water from EVMWD and use an existing agreement with the City of Riverside to produce, treat, and deliver the water to its Riverside retail service area at a lower cost than imported water. The lease agreement, which provides cost savings to Western customers and revenue to EVMWD of approximately $930,000 per year, also includes an optional 20-year extension.

Table 6-3. Adjudicated Groundwater Rights

WATER SUPPLIERS	QUANTITY, AFY	NOTES
Bunker Hill Basin	4,680.6	Based on the 1969 Judgment includes "new conservation"
Rialto-Colton Basin	484.6	Based on the 1969 Judgment
Riverside Basin	1,263	Based on the 1969 Judgment
Total	**6,428.2**	

6.2.2.3 Past Five Years

Between 2016 and 2020, groundwater accounted for an average of 22% of EVMWD's total supply. Over that same period, groundwater has accounted for as little as 13% and up to 36% of the total supply portfolio. In 2020, groundwater accounted for 36% because the CLWTP was not operating. EVMWD currently extracts groundwater from the Elsinore Valley Subbasin and the Bedford-Coldwater Subbasin.

Table 6-4 summarizes groundwater production from 2016 through 2020 by subbasin. As mentioned above, these subbasins are not adjudicated, and the completion of the GSPs will provide more guidance, such as revised safe yields, to better manage these groundwater basins.

Table 6-4. Groundwater Volume Pumped, AFY (This is DWR required Table 6-1R)

GROUNDWATER TYPE	LOCATION OR BASIN NAME	2016	2017	2018	2019	2020
Alluvial Basin	Bedford-Coldwater Subbasin[1]	348	668	248	1,697	1,786
Alluvial Basin	Elsinore Valley Subbasin	5,266	2,198	3,779	2,369	6,751
	Total:	**5,613**	**2,866**	**4,027**	**4,067**	**8,537**

[1] Includes Mayhew Well, Station 71, Flagler 2A, and Flagler 3A. The Flagler wells were completed in 2019 and draw from the Bedford Subbasin.

6.2.3 Surface Water

The CLWTP is an integral part of EVMWD's local water supply portfolio, but this water source is currently not in use because PFAS was detected above the established notification levels in March 2020. EVMWD evaluated improvements for the CLWTP to increase its treatment capacity and treat for PFAS in Canyon Lake. As part of this process, the EVMWD has selected reestablishing the treatment capacity of the CLWTP to 7 MGD (average operation, 6,200 AFY). Currently, during the winter months, Canyon Lake receives approximately 2,500 AFY of water via natural runoff. To reach a capacity of 6,200 AFY, EVMWD will need to purchase an additional 3,700 AFY of raw water from Western through WR-31 that will be delivered via the San Jacinto River into Canyon Lake. This water will be purchased over an 8-month period because most of the natural runoff occurs during the four winter months, when there is little need for purchased water. The water will discharge through a flow-control structure directly into the San Jacinto River.

The CLWTP was constructed in 1957 and designed to treat 9 MGD. The existing treatment processes include coagulation, clarification, filtration, and disinfection. In past years, the CLWTP operation was limited between April and September at a production rate between 3 and 5 MGD because of water quality issues. As part of the alternative to address PFAS as well as taste and odor, EVMWD is pursuing a hybrid GAC/IX process. This alternative includes the following improvements to the following components: intake pumps, static and rapid mix, flocculation and sedimentation, ultraviolet disinfection, chlorine contact tank, and PFAS with a control structure. Treatment for a maximum instantaneous flow of 7 MGD includes five 12-foot–diameter GAC vessels placed in the lead position, three IX vessels placed in the lag position, and a 50,000-gallon backwash tank. Upgrades at the CLWTP are anticipated to be completed in early/mid-2025.

The total volume of surface water from 2016 to 2020 is shown in **Table 6-5**.

Table 6-5. 2016-2020 Surface Water

YEAR	CANYON LAKE, AFY	% OF TOTAL SUPPLY
2016	808	4%
2017	1,709	7%
2018	1,158	5%
2019	2,414	11%
2020	0	0%

Through the acquisition of the TWC, EVMWD has the rights to divert up to 12,000 AFY of natural drainage from the San Jacinto River from approximately December 1 to June 1 and store water in Canyon Lake, also called the Railroad Canyon Reservoir, pursuant to Water Rights License 1533 (SDPW-DWR, 1935). A subsequent license allows the diversion of 2.4 cubic feet per second (CFS) of San Jacinto River water from approximately April 1 to May 31 of each season pursuant to Water Rights License 6327 (SWRB, 1961). As a part of this purchase, a River Lake Study was completed in October 2018 to assess the water balance in the San Jacinto. The study estimated a 10% water loss in the river.

In settlement of litigation regarding the release of water into Lake Elsinore, EVMWD and the City of Lake Elsinore agreed that EVMWD would not treat more than 8,000 AFY of San Jacinto River flows in any water year at EVMWD's CLWTP. This 8,000 AFY limit applies only to San Jacinto River runoff and excludes any imported water conveyed in the river channel. The Canyon Lake Property Owners Association (POA) leases the surface rights for Canyon Lake and land around the lake for recreational purposes under an agreement dating from 1968. The lease agreement between EVMWD and the Canyon Lake POA requires that the minimum lake elevation be kept at 1,372 feet above mean sea level. Historically, EVMWD discontinued the operation of its CLWTP if the lake level was expected to drop below 1,372 feet. If the level falls below 1,372 feet, EVMWD could purchase imported water to maintain the minimum lake elevation. Failure to maintain minimum lake levels costs EVMWD 1/365 of that year's annual costs to the Canyon Lake POA for each day the lake level drops below 1,372 feet.

6.2.4 Stormwater

Beneficial uses of stormwater could include blending with other water supplies for groundwater recharge, redirection to constructed wetlands or landscapes, or diversion to a treatment facility for subsequent reuse. EVMWD does not currently have a stormwater recovery system in place. Stormwater is currently diverted to Lake Elsinore or Canyon Lake. Stormwater management for the area is within the purview of the Riverside County Flood Control and Water Conservation District (RCFCWCD). EVMWD and RCFCWCD are actively evaluating opportunities to collaborate on stormwater management issues.

6.2.5 Wastewater and Recycled Water

EVMWD currently operates three WRFs: Regional WRF, Horsethief Canyon WRF, and Railroad Canyon WRF. In addition, wastewater flow in the southern part of EVMWD's service area is treated at the Santa Rosa WRF, operated by SRRRA. These four reclamation facilities serve four major service areas within EVMWD's wastewater collection system. Each service area consists of gravity collectors, trunk lines, lift stations, and force mains, which convey flow to the treatment plants. Effluent from all of these WRFs meets Title 22 disinfected tertiary standards and can be used for non-potable water supply to EVMWD's recycled water system. EVMWD's wastewater system is described in more detail in the 2015 EVMWD Sewer Master Plan (MWH, 2015). A general overview of the wastewater and recycled water systems is provided below.

Regional WRF

This facility currently has an 8 MGD average design flow capacity. The design of the 4.0-MGD expansion is nearly complete and expected to include a membrane bioreactor process for secondary/tertiary treatment. The biological processes at the existing Regional WRF and proposed expansion are designed to remove nutrients (nitrogen and phosphorus) to meet the stringent requirements of the National Pollutant Discharge Elimination System (NPDES) permit. The effluent from the Regional WRF is discharged to Temescal Wash and Lake Elsinore under CA Order No. R8-2013-0019, NPDES No. CA8000027. EVMWD is permitted to discharge up to 8 MGD: up to 7.5 MGD into Lake Elsinore for lake stabilization and 0.5 MGD to Temescal Wash for wetland enhancement. A small portion of the Regional WRF recycled water is used for irrigation at the Regional WRF facility and a few office buildings.

Horsethief Canyon WRF

This facility currently has a 0.5 MGD average design flow capacity and is operated under Waste Discharge Requirement (WDR) Order No. 96-63. The effluent from Horsethief Canyon WRF receives tertiary treatment and meets Title 22 requirements for recycled water use. The recycled water is used for landscape irrigation in the Horsethief Canyon recycled water service area. During low demand periods, excess recycled water is percolated into a pond. Upgrades are in progress to provide nitrification and denitrification at this plant to remove nitrogen to meet potential new permit requirements. The Horsethief WRF is a peaking plant that balances supply with demand. Excess effluent from the Horsethief WRF that cannot be used for recycled water irrigation is sent to local percolation ponds for disposal.

Railroad Canyon WRF: This facility currently has a 1.3 MGD average design flow capacity and is operated under WDR Order No. 96-34. The recycled water is used for landscape and golf course irrigation in the Railroad Canyon recycled water service area. Excess recycled water during low demand months is discharged into the sewer to be conveyed to the Regional WRF. EVMWD can also supplement the recycled water ponds with potable water to meet recycled water need during high demand periods.

To minimize the need for imported water, EVMWD plans to expand its recycled water system to provide recycled water for irrigation users and to maintain water levels in Lake Elsinore and Temescal Wash during normal and dry years.

6.2.5.1 Recycled Water Coordination

Currently, most wastewater flow within EVMWD service area is treated and used as some sort of recycled water source, whether it is delivered to customers as a non-potable supply or used as lake replenishment water.

EVMWD's recycled water service area consists of four hydraulically separate service areas: the Horsethief, Railroad Canyon, Regional, and Wildomar service areas. Each respective service area is served by the following sources:

- Wildomar service area is served by the EMWD's 48-inch Temecula Valley Recycled Water Pipeline (TVRWP) from the Temecula Valley WRF (TVWRF).
- Railroad Canyon is served by the Railroad Canyon WRF.
- The Horsethief service area is served by the Horsethief WRF.
- Regional is a small area served by the Regional WRF.

A detailed description of the four service areas is included in Chapter 6.2.5.3.

The Wildomar, Railroad Canyon, and Horsethief service areas provide recycled water to public and private customers for irrigation needs, such as in parks, schools, golf courses, homeowner associations, and roadway medians (MWH, 2016). The Regional service area uses a small portion of recycled water for irrigation at the Regional WRF and a few office buildings. The remaining recycled water is discharged to the Temescal Wash, and the remaining effluent is discharged to Lake Elsinore to maintain the lake level.

The only wastewater that is not treated within EVMWD service area is sent to the Santa Rosa WRF, but EVMWD can receive recycled water from the Santa Rosa WRF through the TVRWP. The TVRWP is a 48-inch pipeline owned by EMWD that connects the Temecula Valley Water Reclamation Facility and Santa Rosa WRF to Temescal Wash for disposal. This pipeline allows EMWD and SRRRA to avoid costly nutrient removal facilities required for discharge to the Santa Margarita River. The TVRWP passes through EVMWD's service area and has a connection to deliver high-quality recycled water for non-potable demands to the Wildomar area. Any excess EMWD Title 22 recycled water is ultimately disposed of discharged in the Temescal Wash at Wasson Sill, a topographic divide on Temescal Wash that separates flows between Lake Elsinore and the Santa Ana River.

In November 2015, EVMWD, EMWD, and Rancho California Water District (RCWD) formed the SRRRA, which is a Joint Powers Authority responsible for the collection, transmission, treatment, and disposal of wastewater from its member agencies relating to flows to the Santa Rosa WRF in Murrieta, California. This agreement is included in **Appendix K**. The Santa Rosa WRF was formerly owned and operated by the RCWD but was purchased by SRRRA in August 2017. RCWD continues to operate the Santa Rosa WRF and is also the administrator of the SRRRA.

In addition, EVMWD, EMWD, and RCWD entered into an agreement in March 2009 to establish wholesale recycled water prices for EVMWD and RCWD. This agreement describes EVMWD's recycled water rights and is included as **Appendix L**. EVMWD does not own or operate any WRFs in the Southern Sewershed area, and wastewater generated from this area is conveyed to four connection points in RCWD's system and conveyed to the Santa Rosa WRF for treatment. According to the agreement, in return for paying RCWD to treat the wastewater sent to the Santa Rosa WRF, EVMWD is allocated an equal amount of recycled water from the 48-inch TVRWP at no additional cost. EVMWD's recycled water allocation for each year is adjusted at the beginning of the fiscal year and depends on the amount of wastewater delivered to the Santa Rosa WRF. On average, this flow is approximately 0.8 MGD.

There are two operational supply constraints in the agreement with EMWD for the Wildomar system: the total instantaneous flow rate must be less than approximately 2.0 MGD (1,668 GPM), and the average daily volume for each month cannot exceed the wastewater flow to the RCWD from the previous fiscal

year. Because EVMWD supplies on average 0.8 MGD (896 AFY) of wastewater to Santa Rosa WRF, EVMWD receives in return 0.8 MGD of recycled water from the 48-inch TVRWP. The TVRWP has a metering device at the turnout that includes SCADA, telemetry capabilities, and pressure and flow monitoring capabilities to measure the inflow into the EVMWD's service area.

The average inflow into the Railroad Canyon WRF of 0.68 MGD is not sufficient to meet the Canyon Lake Golf Course (CLGC) demands during periods of high demand. Therefore, EVMWD has an agreement with EMWD to purchase supplemental recycled water from its Reach 4 pipeline. The 54-inch Reach 4 pipeline travels east to west through the Railroad Canyon service area. Reach 4 can supply the additional recycled water the CLGC requires during peak demand conditions. Reach 4 has metering devices at the turnout, including SCADA, telemetry capabilities, and pressure and flow monitoring capabilities, allowing EVMWD to quantify the amount of recycled water purchased from EMWD. Per the agreement, however, EMWD recycled water can provide recycled water supply to the CLGC only, not to the recycled water customers in the Canyon Hills area.

6.2.5.2 Wastewater Collection, Treatment, and Disposal

The wastewater received at EVMWD's three WRFs is predominantly residential, with some commercial, institutional, and light industrial flows. All three plants produce tertiary effluent that meets Title 22 recycled water requirements. **Table 6-6** shows the breakdown of the length of pipeline that collects flow for each of the four WRFs. As shown in this table, most pipes in EVMWD system are tributary to the Regional WRF. Approximately 90% of the wastewater from EVMWD service area is collected and treated in EVMWD facilities. The other 10% is sent to the Santa Rosa WRF, which is owned and operated by SRRRA. **Table 6-7** and **Table 6-8** show the volume of wastewater collected and treated within EVMWD service area and sent to the Santa Rosa WRF in 2020.

Table 6-6. EVMWD WRF Collection System Overview

WRF	LENGTH OF GRAVITY PIPE (FT)	LENGTH OF FORCE MAIN (FT)	TOTAL LENGTH (FT)	TOTAL LENGTH (MI)	PERCENTAGE OF SYSTEM (%)
REGIONAL WRF	1,511,325	70,887	1,582,212	300	74
HORSETHIEF CANYON WRF	95,800	2,941	98,741	20	4
RAILROAD CANYON WRF	246,678	23,796	270,474	50	13
SANTA ROSA WRF[1]	195,733	0	195,733	40	9
TOTAL	2,049,537	97,623	2,147,160	410	100

[1] SRRRA owns and operates the Santa Rosa WRF. A portion of EVMWD's Southern Division contributes to wastewater flows to the Santa Rosa WRF.

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Table 6-7. Wastewater Collected within the Service Area in 2020 (This is DWR required Table 6-2R)

WASTEWATER COLLECTION			RECIPIENT OF COLLECTED WASTEWATER			
NAME OF WASTEWATER COLLECTION AGENCY	WASTEWATER VOLUME METERED OR ESTIMATED	WASTEWATER VOLUME COLLECTED FROM UWMP SERVICE AREA IN 2020, AFY	NAME OF WASTEWATER AGENCY RECEIVING COLLECTED WASTEWATER	WASTEWATER TREATMENT PLANT NAME	WASTEWATER TREATMENT PLANT LOCATED WITHIN UWMP AREA	WWTP OPERATION CONTRACTED TO A THIRD PARTY
EVMWD	Metered	6,705	EVMWD	Regional WRF	Yes	No
EVMWD	Metered	783	EVMWD	Railroad Canyon WRF	Yes	No
EVMWD	Metered	444	EVMWD	Horsethief WRF	Yes	No
EVMWD	Estimated	1,082	SRRRA[1]	Santa Rosa WRF	No	No
	TOTAL:	**9,013**				

[1] In 2017, the RCWD transferred the ownership of this facility to the Santa Rosa Regional Resources Authority (SRRRA). The SRRRA now owns and operates the Santa Rosa WRF. A portion of the EVMWD's Southern Division contributes wastewater flows to the Santa Rosa WRF. EVMWD, Eastern, and RCWD entered into an agreement in March 2009 to establish wholesale recycled water prices for EVMWD and RCWD. According to the agreement, in return for paying RCWD to treat the wastewater sent to the Santa Rosa WRF, EVMWD is allocated an equal amount of recycled water from the 48-inch TVRWP at no additional cost. EVMWD's recycled water allocation for each year is adjusted at the beginning of the fiscal year and is dependent upon the amount of wastewater delivered to RCWD. On averages about 0.8 MGD of wastewater is sent to the Santa Rosa WRF.

Table 6-8. Wastewater Treatment and Discharge within the Service Area in 2020 (This is DWR required Table 6-3R)

WASTEWATER TREATMENT PLANT NAME	DISCHARGE LOCATION NAME OR IDENTIFIER	DISCHARGE LOCATION DESCRIPTION	WASTEWATER DISCHARGE ID NUMBER	METHOD OF DISPOSAL	PLANT TREATS WASTEWATER GENERATED OUTSIDE THE SERVICE AREA	TREATMENT LEVEL	2020 VOLUMES, AFY				
							WASTEWATER TREATED	DISCHARGED TREATED WASTEWATER	RECYCLED WITHIN SERVICE AREA	RECYCLED OUTSIDE OF SERVICE AREA	INSTREAM FLOW PERMIT REQUIREMENT
Regional WRF[1]	Lake Elsinore or Temescal Wash	Lake Elsinore or Temescal Wash	NPDES No. CA8000027	Lake outfall	No	Tertiary	6,705	0	4	0	6,585
Railroad Canyon WRF[2,3]	Lined Pond and/or pumped to recycled water customers	Lined Pond next to facility or delivered to recycled water customers	WDR 96-34	Other	No	Tertiary	783	0	533	0	0
Horsethief WRF	Effluent from plant pumped to a reservoir and then provided to recycled water customers; excess in low demand period percolated into an off-site Percolation Pond	Two percolation ponds next to facility or delivered to recycled water customers	WDR 96-63	Percolation ponds	No	Tertiary	444	180	217	0	0
Santa Rosa WRF[4]	Part of southern raw wastewater is sent to this plant for treatment	Via a 3-party agreement (RCWD, EMWD and EVMWD), treated recycle water by RCWD is returned thru EMWD recycled water line for EVMWD customers in Wildomar area.	WDR 94-92	Other	Yes	Tertiary	1,082	253	332	3,097	-
						TOTAL:	**9,013**	**433**	**1,086**	**3,097**	**6,585**

[1] In accordance with its NPDES permit, EVMWD is permitted to discharging 0.5 MGD to Temescal Wash and 7.5 MGD to Lake Elsinore. This discharge is tracked under instream flow permit requirements, only.

[2] The effluent from the Railroad Canyon WRF is disposed into a lined pond that is then pumped to recycled water customers in Canyon Hills or to the Canyon Hills Golf Course. Excess water from the pond is sent down to Regional WRF. This diversion is not considered a direct recycled water use because it is discharged into Lake Elsinore/Temescal Wash.

[3] EVMWD can also supplement the recycled water ponds with potable water to meet recycled water need during high demand periods. This table excludes the potable water used. The use of potable use to augment the recycled water supply is variable and could ranges from 3 AF to 70 AF. This use in accounted under Other -EVMWD as discussed in Chapter 4.

[4] EVMWD sent 1,082 AFY to the Santa Rosa WRF, which treated a total of 3,349 AFY in 2020. This WRF serves the Wildomar service area. EVMWD purchases additional recycled water from Eastern and RCWD as discussed in Table 6-6.

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6.2.5.3 Recycled Water System Description

EVMWD has four hydraulically separated recycled water systems: Wildomar service area, Regional service area, Horsethief service area, and Railroad Canyon service area. These service areas are described below and in EVMWD's 2016 Recycled Water Master Plan (MWH, 2016).

Wildomar Service Area

The Wildomar recycled water service area system consists of 9.5 miles of pipeline and is served by the EMWD TVRWP. The TVRWP is a 48-inch pipeline that connects the TVWRF and RCWD Santa Rosa WRF to EMWD's existing 54-inch Reach 4 pipeline. The 48-inch TVRWP passes through EVMWD's Wildomar service area and provides EVMWD with high-quality recycled water for non-potable demands. The recycled water is supplied to various EVMWD turnouts in the Wildomar area from the 48-inch pipeline. Any excess EMWD Title 22 water is ultimately discharged in the Temescal Wash at Wasson Sill. The Wildomar recycled water system was installed in 2008, although the system did not become operational until 2009. The area is served by four active turnouts from EMWD's recycled water lines. Three of the turnouts (Turnout No.1, No. 2A, and No. 2B) are located along the 48-inch TVRWP, while the fourth turnout (Turnout No. 5) is located on the 54-inch Reach 4 pipeline. The southernmost turnout (Turnout No. 1) is at the intersection of Gruwell St. and Orange St. and serves 15 customers. Turnout No. 2B is the next turnout north of Turnout No. 1 along the 48-inch TVRWP, and it is located on Orange St. and Canyon Dr., serving three customers. Turnout No. 2A is located at Lemon St. and Almond St. and serves one customer. Turnout No. 5 is on Auto Center Dr., northwest of Railroad Canyon Rd., and serves 24 customers (including the Summerly Golf Course). EVMWD is allocated on average 0.8 MGD of recycled water from the 48-inch TVRWP. The EVMWD's recycled water allocation for each year is adjusted at the beginning of the fiscal year and depends on the amount of wastewater delivered to the Santa Rosa WRF.

Regional Service Area

EVMWD owns and operates the Regional WRF. A small portion of the Regional WRF's recycled water is used for irrigation at the Regional WRF facility and a few office buildings. This demand is approximately 4 AFY. Recycled water from the Regional WRF will continue to be used to refill Lake Elsinore to meet lake level requirements. In its 2017 Integrated Resources Plan (IRP), EVMWD identified long-term implementation of an IPR project using treated water from the Regional WRF in excess of the water required to maintain water levels in Lake Elsinore. This project is anticipated to start in 2034 and expand as needed.

Horsethief Canyon Service Area

The Horsethief recycled water system consists of 4.4 miles of pipeline and is supplied by the Horsethief WRF. There are two pressure zones: the 1518 Zone and the 1844 Zone, each served by a storage tank. The Horsethief WRF is located in the northern part of the recycled water system; recycled water is pumped from its recycled water pond into the 1518 Zone. The recycled water is then pumped from the 1518 Zone to the 1844 Zone through the Horsethief Reclamation Pump Station 1, located on Horsethief Canyon Rd., north of Placid Hill Dr. The Horsethief Reclaimed Zone 2 tank, which provides storage for the 1844 Zone, is located at the southern portion of the Horsethief system and has a capacity of 0.17 MG. The Horsethief WRF receives wastewater from the surrounding areas and treats approximately 0.2 MGD on average, with a capacity to treat 0.5 MGD. The facility is located on Shotgun Trail Rd.

Railroad Canyon Service Area

The Railroad Canyon recycled water system consists of 10.6 miles of pipeline and is served by the Railroad Canyon WRF. The reclamation facility is located on Old Newport Rd., north of Railroad Canyon Rd. and Church Rd. The Railroad Canyon WRF has a lined pond that stores recycled water before it is

distributed to customers. EVMWD has the capability to pump to two different pressure zone areas: the Canyon Lake City/CLGC area and to the Canyon Hills recycled water use area, which has a hydraulic grade level of 1850. The 1850 Zone has two recycled water reservoirs located at the northern portion of the system. The CLGC area has two lined ponds at an elevation of 1,380 feet used for storing recycled water for irrigation purposes: recycled water Ponds No. 4 and No. 5. Railroad Canyon WRF produces recycled water at Title 22 quality, and all the treated water is stored in storage ponds located onsite before supplying the eight primary customers. The service area has a demand between 0.8 and 0.9 MGD during peak summer demand; recycled water from the EMWD Reach 4 Pipeline supplements the supply from the Railroad Canyon WRF. On some occasions, it is also necessary to supplement the CLGC with potable water supply to meet the peak summer demands for the CLGC. Canyon Hills recycled water customers include parks, the public (i.e., highway medians), and schools. The Railroad Canyon WRF has five pumps to distribute recycled water to the service area. Two pumps are used to distribute water into the 1850 Zone and fill the Canyon Hills recycled water reservoirs. Three pumps are used to deliver water to the CLGC. Both of these pump stations are located at the Railroad Canyon WRF site. The Canyon Hills recycled water tanks provide storage for the 1850 Zone. The recycled water tanks are located in the northern portion of the Railroad Canyon service area at Desert Rose Way. The two tanks are located next to Canyon Hills 1750A potable water tanks. The CLGC Ponds No. 4 and No. 5 are adjacent to each other and located south of the CLGC on Railroad Canyon Rd.

6.2.5.4 Potential, Current, and Projected Recycled Water Uses

In 2020, EVMWD collected and treated approximately 7,930 AFY of wastewater and sent 1,082 AFY to the Santa Rosa WRF for treatment. Of that, EVMWD recycled about 1,086 AF, as shown in **Table 6-7**. The total recycled water provided to users in 2020, which includes recycled water from EMWD and supplemental potable water to meet demands, is shown in **Table 6-9**. **Table 6-8** also presents the projected recycled water demands. **Table 6-10** presents the 2015 recycled water projection compared with actual 2020 use.

EVMWD produces approximately 6,700 AFY of recycled water at the Regional WRF that is used for purposes of environmental enhancement. Water levels in Lake Elsinore, a key natural and economic resource for the local community, are maintained by discharging tertiary treated recycled water into the lake. In addition, riparian habitat along the Temescal Wash is sustained by maintaining a steady discharge of tertiary treated recycled water along the wash. Flows at the Regional WRF are expected to increase to approximately 30 MGD (or 33,000 AFY) at build-out. Reserving approximately 8,960 AFY to protect riparian habitat and environmental enhancement, approximately 24,000 AFY of recycled water will be available for the purposes of IPR by build-out within the Elsinore Groundwater Basin (Elsinore Valley Municipal Water District, 2017). If this recycled water is not used for IPR, however, it would be released to the Temescal Wash or Lake Elsinore. EVMWD will implement additional feasibility studies and later a design analysis as part of the next stages to implement IPR.

Table 6-9. Recycled Water Direct Beneficial Uses within the Service Area, AFY (This is DWR required Table 6-4R)

BENEFICIAL USE TYPE	POTENTIAL BENEFICIAL USES OF RECYCLED WATER	AMOUNT OF POTENTIAL USES OF RECYCLED WATER	GENERAL DESCRIPTION OF 2020 USES	LEVEL OF TREATMENT	2020	2025	2030	2035	2040	2045
Landscape irrigation (excluding golf courses)[1]	Metered Customers	1,459	Landscape irrigation	Tertiary	895	1,459	1,459	1,459	1,459	1,459
Golf course irrigation[1]	Canyon Lake and Summerly Golf Course	378	Golf Course irrigation	Tertiary	323	378	378	378	378	378
Other[2]	Temescal Wash and Lake Elsinore	8,960	Environmental	Tertiary	6,585	7,270	8,027	8,863	8,960	8,960
				TOTAL:	**7,803**	**9,107**	**9,864**	**10,700**	**10,797**	**10,797**

[1] Includes recycled water produced by the three EVMWD WRFs and recycled water from SRRRA and Eastern.

[2] To maintain flow requirements, it is expected that 7.5 MGD tertiary treated effluent is needed to be discharged at Lake Elsinore and 0.5 MGD at the Temescal Wash for a total of 8 MGD. The 2020 discharge rate was assumed to increase by 2% each year until it reaches the expected rate to maintain the required flows.

Table 6-10. 2015 Recycled Water Use Projection Compared with 2020 Actual, AFY (This is DWR required Table 6-5R)

BENEFICIAL USE TYPE	2015 PROJECTION FOR 2020	2020 ACTUAL USE
Landscape Irrigation (excludes golf courses)	1,452	895
Golf Course Irrigation	353	323
Other - Temescal Wash and Lake Elsinore	8,065	6,585
TOTAL:	**9,870**	**7,803**

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6.2.5.5 Actions to Exchange and Optimize Future Recycled Water Use

To increase reliability to meet the long-term water needs, EVMWD developed the 2017 IRP, which identified several near-term and long-term water supply projects. IPR has been identified as a key component of EVMWD's long-term water supply strategy. By recharging the Elsinore Basin, IPR supports many of the evaluation objectives established by the IRP, most specifically the objectives of increasing water supply reliability during dry years and improving salinity management in the Elsinore Valley Subbasin.

EVMWD implemented a mandatory use ordinance that requires all new customers to use recycled water for areas in which facilities exist. To encourage the use of recycled water, EVMWD offers recycled water at rates lower than potable water to those customers willing to convert from potable water to recycled water. In addition, EVMWD is evaluating the potential of diverting more flow to the Santa Rosa WRF and Railroad Canyon WRF to increase the recycled water production because currently, there is a higher demand than available supply during the summer months for the Wildomar service area and CLGC. **Table 6-11** presents the expected increase in recycled water use from these actions.

Table 6-11. Methods to Expand Future Recycled Water Use (This is DWR required Table 6-6R)

NAME OF ACTION	DESCRIPTION	PLANNED IMPLEMENTATION YEAR	EXPECTED INCREASE OF RECYCLED WATER USE, AFY
Add additional customers	Increase number of customers in Wildomar, Horsethief, and Railroad Canyon service area	2021-2025	133
Divert Wastewater Flow	Divert more wastewater flow to Santa Rose WRF to increase allowable supply of recycled water to Wildomar area	2024	97
		TOTAL:	**230**

6.2.6 Desalinated Water Opportunities

As part of the 2017 IRP, a conceptual ocean desalination plant at San Onofre was evaluated. The significant capital costs and the environmental requirements to move water to EVMWD's service area, however, significantly affect the feasibility of this project.

Currently, there are no economically feasible desalination opportunities for water desalination projects. Therefore, DWR Table 6-8DS is not included.

6.2.7 Water Exchanges and Transfers

6.2.7.1 Exchanges

EVMWD does not have any current potable water exchanges with other water agencies. An agreement between EVMWD and EMWD exists to exchange wastewater for recycled water, as mentioned in **Section 6.2.5.**

6.2.7.2 Transfers

In November 2020, EVMWD and Western finalized agreements to maintain the long-term availability of imported water. In exchange for EVMWD-owned Meeks and Daley water rights, EVMWD can purchase up to 9 CFS of imported water from Western's Mills Gravity Line and reserve an additional 12 CFS of capacity within the Mills Gravity Line through 2024. These transfers do not represent additional supplies available to EVMWD via the Mills Gravity Pipeline and are included in the imported water supply description in **Section 6.2.1**.

6.2.8 Future Water Projects

As part of the 2017 IRP, EVMWD evaluated 44 long-term supply alternatives to increase supply reliability. Alternatives were assigned a score based on set criteria and a weighting factor for each criterion. Evaluation criteria included average year yield, dry year yield, source availability, water quality, cost, supply reliability, environmental impacts, and potential for implementation. The IRP then identified seven alternative scenarios, each targeting a specific goal of the IRP, to determine the best combination of future projects to meet EVMWD's future demands. Scenario 7, the Hybrid Scenario, was the recommended alternative because it optimized local water supply assets, achieved a reasonable unit cost relative to the current and forecasted costs for imported water, and exhibited one of the lowest values for total dissolved solids (TDS), a critical issue for EVMWD given the regulatory and financial implications of TDS management in groundwater basins. The projects from this scenario and an additional 10% supply buffer against uncertainties, such as climate change, make up EVMWD Core Resources Strategy. EVMWD envisions implementing the Core Resources Strategy as a multifaceted approach that includes supply development strategies that can adapt to changing conditions.

In general, the Core Resources Strategy consists of three phases:

Phase 1: Implement near-term local supply projects to increase total supplies.

Phase 2: Maximize local assets, such as EVMWD's stored water within Canyon Lake and groundwater.

Phase 3: Consider the implementation of two main projects beyond 2030: the Temecula-Pauba Well in 2032 and IPR in 2035.

Since the completion of the 2017 IRP, EVMWD has made a few modifications to the original Core Resources Strategy projects to meet the changing needs of EVMWD's customers. All short- and long-term future projects that will be used to meet demands under normal, single dry, and multiple dry years are presented in **Table 6-12**. These projects have the potential to increase the water supply by **7,745 AFY** by 2045.

EVMWD is constructing two Lee Lake Wells and replacing the Palomar well, which will allow EVMWD to extract groundwater from Lee Lake and the Temecula-Pauba groundwater basins, respectively. In 2023, EVMWD is planning to complete the Palomar Well 2 replacement project, which will pump about 450 AFY of water from the Temecula-Pauba Subbasin. The Palomar Well 2 replacement is located in an area known as "Palomar Area." This well is a replacement of the original Palomar well, which has been abandoned and was in operation from 1967 to 2006.

Table 6-12. Expected Future Water Supply Projects or Programs (This is DWR required Table 6-7R)

NAME OF FUTURE PROJECTS OR PROGRAMS	JOINT PROJECT WITH OTHER SUPPLIERS	AGENCY NAME	DESCRIPTION	PLANNED IMPLEMENTATION YEAR	PLANNED FOR USE IN YEAR TYPE	EXPECTED INCREASE IN WATER SUPPLY TO SUPPLIER, AFY
Palomar Well Replacement	No	EVMWD	Groundwater Project	2023	All Year Types	450
Pump Lee Lake Basin GW	No	EVMWD	Groundwater Project	2024	All Year Types	875
Canyon Lake WTP[1]	No	EVMWD	Raw Imported Water	2025	All Year Types	3,700
Temecula-Pauba GW	No	EVMWD	Groundwater Project	2032	All Year Types	750
IPR at Regional WRF[2]	No	EVMWD	Indirect Potable Reuse	2040	All Year Types	0 - 1,970

1 The CLWTP treatment capacity will be expanded to produce a total of 6,200 AFY of water. It is anticipated that about 2,500 AFY will be produced using natural runoff entering Canyon Lake, and 3,700 AFY will be produced by purchasing raw imported water from Western. Upgrades at the CLWTP are anticipated to be completed in early/mid 2025.

2 EVMWD is planning to use excess wastewater collected at the Regional WRF to implement an IPR project. It is anticipated that this water will be available between 2035 and 2040.

6.2.9 Summary of Existing and Planned Sources of Water

EVMWD plans to continue to use existing water sources to meet customer demands and expand current sources and their recycled water systems. EVMWD continues to evaluate additional local projects to decrease dependence on imported water and increase local reliability. A summary of the supply sources used in 2020 is provided in **Table 6-13.**

Table 6-13. Actual Water Supplies (This is DWR required Table 6-8R)

WATER SUPPLY	ADDITIONAL DETAIL ON WATER SUPPLY	2020		
		ACTUAL VOLUME, AFY	WATER QUALITY	TOTAL RIGHT OR SAFE YIELD, AFY
Purchased or Imported Water	Western/Metropolitan[1]	15,115	Drinking Water	None
Groundwater (not desalinated)	Bedford-Coldwater Subbasin[2]	1,786	Drinking Water	TBD
Groundwater (not desalinated)	Elsinore Valley Subbasin[2]	6,751	Drinking Water	TBD
Surface water (not desalinated)	CLWTP [3,4]	-	Drinking Water	8,000
Recycled Water	Recycled Water[5]	1,218	Recycled Water	None
Recycled Water	Temescal Wash and Lake Elsinore Replenishment[6]			
	TOTAL:	**24,871**		

[1] Imported water will be used to fill the gaps will be based on the availability of local supplies. There is no total right or safe yield. EVMWD can purchase more water at an additional charge.

[2] The safe yield for the groundwater subbasins will be established with their respective GSPs.

[3] In 2020, this plant was taken offline for treatment and capacity upgrades.

[4] In settlement of litigation, EVMWD agreed not to treat more than 8,000 AFY of San Jacinto River flows in any water year at EVMWD's CLWTP. This 8,000 AFY limit applies only to San Jacinto River runoff and excludes any imported water conveyed in the river channel.

[5] Includes recycled water produced by the three EVMWD WRFs and recycled water from SRRRA and Eastern.

[6] In accordance with its NPDES permit, EVMWD is permitted to discharging 0.5 MGD to Temescal Wash and 7.5 MGD to Lake Elsinore.

In 2020, EVMWD obtained nearly 64% of its supply from Western. For purposes of Western's 2020 UWMP supply analysis, Western coordinated with EVMWD to obtain projections for imported water needs. Western's supply reliability indicates that imported water should be available to meet customer needs in normal, single dry, and multiple dry year scenarios. A summary of future supply is provided in **Table 6-14**.

Table 6-14. Projected Water Supplies (This is DWR required Table 6-9R)

Water Supply	Additional Detail on Water Supply	Projected Water Supply, AFY									
		2025		2030		2035		2040		2045	
		Reasonably Available Volume	Total Right or Safe Yield	Reasonably Available Volume	Total Right or Safe Yield	Reasonably Available Volume	Total Right or Safe Yield	Reasonably Available Volume	Total Right or Safe Yield	Reasonably Available Volume	Total Right or Safe Yield
Purchased or Imported Water	Western/Metropolitan[1]	26,286	None	26,286	None	26,286	None	26,286	None	26,286	None
Purchased or Imported Water	Raw Imported Water Western/Metropolitan[1,2]	0	None	3,700	None	3,700	None	3,700	None	3,700	None
Groundwater (not desalinated)	Elsinore Valley Subbasin[3]	5,500	TBD	5,500	TBD	5,500	TBD	5,500	TBD	5,500	TBD
Groundwater (not desalinated)	Coldwater Subbasin[3]	1,200	TBD	1,200	TBD	1,200	TBD	1,200	TBD	1,200	TBD
Groundwater (not desalinated)	Bedford Subbasin[3]	1,300	TBD	1,300	TBD	1,300	TBD	1,300	TBD	1,300	TBD
Groundwater (not desalinated)	Lee Lake Subbasin[3]	875	TBD	875	TBD	875	TBD	875	TBD	875	TBD
Groundwater (not desalinated)	Palomar Well Replacement[3]	450	TBD	450	TBD	450	TBD	450	TBD	450	TBD
Groundwater (not desalinated)	Temecula-Pauba GW[3]	0	TBD	0	TBD	750	TBD	750	TBD	750	TBD
Surface water (not desalinated)	Canyon Lake/CLWTP[4]	2,500	8,000	2,500	8,000	2,500	8,000	2,500	8,000	2,500	8,000
Other	IPR at Regional WRF[5]	0	None	0	None	0	None	940	None	1,970	None
Recycled Water	Temescal Wash and Lake Elsinore Replenishment[5]	7,270	8,960	8,027	8,960	8,863	8,960	8,960	8,960	8,960	8,960
Recycled Water	Metered Customers[6]	1,459	None	1,459	None	1,459	None	1,459	None	1,459	None
Recycled Water	Canyon Lake and Summerly Golf Course[6]	378	None	378	None	378	None	378	None	378	None
	TOTAL[7]	**47,219**		**51,675**		**53,261**		**54,298**		**55,328**	

[1] Imported water will be used to fill the gaps will be based on the availability of local supplies. There is no total right or safe yield. EVMWD can purchase more water at an additional charge.

[2] Starting in 2026, EVMWD plans to start purchasing about 3,700 AFY of raw imported water from Western/Metropolitan for treatment at the CLWTP.

[3] The safe yield for the groundwater subbasins will be established with their respective GSPs.

[4] In settlement of litigation, EVMWD agreed not to treat more than 8,000 AFY of San Jacinto River flows in any water year at EVMWD's CLWTP. This 8,000 AFY limit applies only to San Jacinto River runoff and excludes any imported water conveyed in the river channel.

[5] In accordance with its NPDES permit, EVMWD is permitted to discharging 0.5 MGD to Temescal Wash and 7.5 MGD to Lake Elsinore. EVMWD is planning to use excess wastewater collected at the Regional WRF to implement an IPR project. It is anticipated that this water will be available between 2035 and 2040.

[6] Includes recycled water produced by the three EVMWD WRFs and recycled water from SRRRA and Eastern.

[7] The total right or safe yield were not calculated because the groundwater safe yields are being updated as part of the GSP projects.

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6.2.10 Climate Change Considerations

In 2018, EVMWD completed a drought contingency plan (DCP) to identify strategies to prepare for, respond to, and recover from droughts. As part of the DCP, a vulnerability assessment was completed that evaluated the risks and impacts of drought to critical resources within EVMWD, including climate change effects. The vulnerability assessment identified the serious impacts climate could have throughout EVMWD's service area and various supply sources, including imported water from outside EVMWD's service area. DWR has already accounted for climate change impacts within its SWP water supply reliability assessment.

The vulnerability assessment states that more frequent and longer droughts would reduce imported water supply availability and decrease local water quality and habitat. Local surface water supply may also decrease and affect water quality. Increased temperatures may result in lower dissolved oxygen levels within water bodies and increase chances for algal blooms. In addition, increased temperatures and decreased precipitation will result in less flow to lakes from tributary creeks, which may result in higher pollutant concentrations (Civiltec, 2018).

Western is also preparing a DCP (Western DCP) for its wholesale service area, which includes EVMWD's service area. As part of the Western DCP effort, EVMWD actively participates as a member of Western's Drought Task Force. EVMWD and other local stakeholders are coordinating with Western to ensure regional reliability and drought resilience through this effort. Details on this effort are provided in Western's 2020 UWMP.

Previously, the Santa Ana Watershed Project Authority (SAWPA) and the US Bureau of Reclamation (USBR) completed the Santa Ana Watershed Basin Study (Basin Study) in 2013 as a complementary study to SAWPA's Integrated Regional Water Management planning process.

The Basin Study identified potential for reducing climate change impacts. In its climate change vulnerability analysis, the Santa Ana River Watershed Integrated Regional Water Management Plan identified the key supply vulnerabilities to climate change as the following (U.S Department of the Interior Bureau of Reclamation, 2013):

- Insufficient local water supply
- Increased dependence on imported supply
- Inability to meet water demand during droughts
- Shortage in long-term operational water shortage capacity

The USBR Climate Change Analysis for the Santa Ana River Watershed indicates that there is likely to be an increase in average temperature and a decrease in average precipitation over the next century, leading to a decrease of up to 15% of the flow in the Santa Ana River (U.S Department of the Interior Bureau of Reclamation, 2013). The expected increase in temperature and decrease in precipitation may also lead to increased groundwater pumping and decreased groundwater recharge, leading to an overall decrease in groundwater levels, which further emphasizes the need for GSPs to ensure sustainable and reliable use of local groundwater basins.

6.3 Energy Intensity

New to the 2020 UWMP, EVMWD must include information that could be used to calculate the energy intensity of its water service. EVMWD monitors energy usage throughout its entire system. On average, EVMWD uses 916 kilowatt-hours (kWh) for every AF of water produced (916 kWh/AF). Energy use includes potable, non-potable, and environmental deliveries that include recycled water provided to customers. A summary of energy used to extract and divert, place into storage, convey, treat, and distribute EVMWD's supplies for October 1, 2019, through September 29, 2020, is provided in **Table 6-15** and **Table 6-16**.

Table 6-15. Recommended Energy Intensity—Multiple Water Delivery Products (This is DWR required Table O-1C)

ENTER START DATE FOR REPORTING PERIOD	10/1/2019								
END DATE	9/29/2020	URBAN WATER SUPPLIER OPERATIONAL CONTROL							
		WATER MANAGEMENT PROCESS						NON-CONSEQUENTIAL HYDROPOWER (IF APPLICABLE)	
		EXTRACT AND DIVERT	PLACE INTO STORAGE	CONVEYANCE	TREATMENT	DISTRIBUTION	TOTAL UTILITY	HYDROPOWER	NET UTILITY
Total Volume of Water Entering Process (AF)		5,875	23,541	15,705	10,778	24,070	N/A	0	N/A
Retail Potable Deliveries (%)		84%	100%	100%	22%	100%		0%	
Retail Non-Potable Deliveries (%)		6%	0%	0%	11%	0%		0%	
Wholesale Potable Deliveries (%)		5%	0%	0%	0%	0%		0%	
Wholesale Non-Potable Deliveries (%)		0%	0%	0%	0%	0%		0%	
Agricultural Deliveries (%)		0%	0%	0%	0%	0%		0%	
Environmental Deliveries (%)		5%	0%	0%	67%	0%		0%	
Other (%)		0%	0%	0%	0%	0%		0%	
TOTAL PERCENTAGE [MUST EQUAL 100%]		**100%**	**100%**	**100%**	**100%**	**100%**	**N/A**	**0%**	**N/A**
ENERGY CONSUMED (KWH)		**5,599,301**	**206,006**	**1,206,533**	**10,347,016**	**10,152,729**	**27,511,585**	**0**	**27,511,585**
ENERGY INTENSITY (KWH/AF)		**953.1**	**8.8**	**76.8**	**960.0**	**421.8**	**N/A**	**0.0**	**N/A**

Table 6-16. Recommended Energy Intensity by Water Delivery (This is DWR required Table O-1C)

WATER DELIVERY TYPE	PRODUCTION VOLUME (AF)	TOTAL UTILITY (KWH/AF)	NET UTILITY (KWH/AF)
Retail Potable Deliveries	21,254.56	869.7	869.7
Retail Non-Potable Deliveries	1,266.32	1,200.4	1,200.4
Wholesale Potable Deliveries	312.86	953.5	953.5
Wholesale Non-Potable Deliveries	0	0.0	0.0
Agricultural Deliveries	0	0.0	0.0
Environmental Deliveries	7,209.54	999.7	999.7
Other	0	0.0	0.0
ALL WATER DELIVERY TYPES	**30,043.28**	**915.7**	**915.7**

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URBAN WATER MANAGEMENT PLAN

7 Water Service Reliability and Drought Risk Assessment

This chapter describes EVMWD's water supply reliability during normal, single dry, and five consecutive dry years for at least the next 20 years, and specifically assesses the drought risk over the next five years. The supply reliability assessment discusses factors (i.e., climatic, environmental, water quality and legal) that could limit the expected quantity of water available from EVMWD's current water sources through 2045.

Water service reliability is dependent upon variability of supplies and availability of infrastructure to meet projected demand. Evaluating the water service reliability is critical for water management as it can help identify potential shortfalls before they occur. Water managers can then take proactive steps to mitigate shortages by encouraging water use efficiency, securing new water supplies and/or investing in infrastructure.

IN THIS SECTION

- Supply Constraints
- Water Service Reliability Assessment
- Drought Risk Assessment

For this 2020 UWMP, the supply reliability assessment considered factors that could limit the expected quantity of current and projected water sources through 2045. Multiple drought scenarios were considered, and the quantitative impacts of the aforementioned factors on water supply and demand are discussed and possible methods for addressing these issues.

EVMWD's water service reliability assessment and Drought Risk Assessment (DRA) results indicate that no water shortages are anticipated within the next 25-years under normal, single dry water years, and five consecutive dry years. The implementation of local water projects is crucial to ensure EVMWD's water supplies are reliable, while reducing EVMWD's reliance on imported water.

7.1 Water Service Reliability Assessment

EVMWD's 2020 UWMP water service reliability assessment compares total projected water supply and demands over the next 25 years in five-year increments under normal, single dry, and five consecutive dry years. The approach for the analysis and results are discussed in this section.

7.1.1 Supply Characterization

As described in Chapter 6, EVMWD's three primary sources of potable water supply are:

- Local groundwater pumped from EVMWD-owned wells
- Surface water from Canyon Lake Reservoir and treated by the Canyon Lake Water Treatment Plant (CLWTP). This source is offline until treatment upgrades are completed.
- Imported water purchased from Metropolitan through Western

EVMWD first relies on local supplies prior to importing water. EVMWD is planning to use these supplies to meet its future demands under normal, single-dry, and five-consecutive-year drought conditions. EVMWD is also planning to implement the following projects to increase the reliability of its supplies:

- **Palomar well replacement** — anticipated to be completed in 2023
- **Lee Lake Basin wells** — anticipated to be completed in 2024
- **Treatment upgrades at CLWTP** — anticipated to be completed in 2025
- **Temescal Pauba groundwater well** — anticipated to be completed in 2032
- **Indirect Potable Reuse (IPR) at the Regional Wastewater Reclamation Facility** — anticipated to be completed in 2034

The new projects have the potential to increase the water supply by 6,420 AFY by 2045. The implementation of these projects is critical to maintaining service reliability of potable water system. Supplies were added accordingly in the service reliability assessment and DRA based on the anticipated completion date.

7.1.2 Constraints on Water Sources

Table 7-1 summarizes the factors that can potentially impact supply deliveries from EVMWD's water sources, including legal, environmental, water quality, and climatic issues. These factors are further discussed in the next subsections.

Based on the Metropolitan and Western UWMPs, these agencies have diversified their water portfolios, increasing their resilience against drought and other limiting factors. To maintain a reliable source of imported water supply for its member agencies, Metropolitan has and will continue to contend with these considerable challenges. After learning from the droughts of 1977-78 and 1989-92, Metropolitan, in conjunction with its member agencies, instituted a resource planning process that is based on diversification of the region's water supply portfolio and continued efficient water use. This integrated resource planning process has recognized that only through a mix of imported and member agency local supplies, along with aggressive implementation of water conservation, can the Metropolitan service area attain overall reliability of water supply.

EVMWD's current and future groundwater sources are assumed to be reliable under normal, single dry, and five consecutive dry years conditions. EVMWD is collaborating with neighboring agencies, including

the EVGSA and BCGSA, to manage its local groundwater supplies in a sustainable manner to mitigate impacts attributed to over-pumping and drought.

Canyon Lake, the local surface water supply, is prone to climatic, legal, environmental, and water quality impacts. This water source is less reliable than imported and groundwater, and therefore is likely to be more impacted during single and multi-dry years conditions.

Table 7-1. Water Supply Constraints

WATER SUPPLY SOURCE	CLIMATIC	LEGAL	ENVIRONMENTAL	WATER QUALITY
Local Groundwater	X	X	X	X
Surface Water	X	X	X	X
Imported Water	X	X	X	X

7.1.2.1 Imported Water Supply Constraints

The majority of Western's supplies are imported water purchased from Metropolitan. Imported water is comprised of SWP supplies and Colorado River water. Western's supply reliability analysis follows the analysis and data developed by Metropolitan as presented in Metropolitan's 2020 UWMP. In the plan, Metropolitan described several challenges in providing adequate, reliable, and high-quality supplemental water supplies along with potential management measures.

Potential constraints to Metropolitan supplies and associated supply reliability include drought, environmental/ecological needs, climate change, threats to infrastructure, and water quality. Metropolitan's 2020 UWMP describes a variety of past and ongoing actions to address these water supply challenges to maintain water reliability within its service area. Metropolitan's proactive measures include continuing water conservation, increasing storage programs, increasing local resources, augmenting water supplies, modifying Metropolitan's distribution system, implementing shortage response actions (when needed), pursuing long-term solutions in the Bay-Delta, planning for climate change, and maintaining water quality. These constraints and mitigation actions are summarized in detail in Metropolitan's and Western's 2020 UWMPs, and briefly summarized below.

Metropolitan's and Western's potential constraints are:

Drought/Climate Change

Imported water supply from Metropolitan may be impacted substantially by climate change. Climate change is anticipated to increase the frequency and intensity of droughts and flooding, reduce Sierra Nevada snowpack, change runoff pattern and amount, raise average temperatures, and raise sea levels. These effects may reduce the availability of supplies in the Bay-Delta and Colorado River systems. The Colorado River Basin has historically experienced large swings in annual hydrologic conditions and has exhibited a drying trend over the last 21 years. At the close of 2020, system storage was at or near its lowest since 2000, so there is less water available to buffer future dry conditions. The Sacramento-San Joaquin Delta (Bay-Delta) has suffered reduced flows and rising temperatures and SWP supplies have been significantly reduced at times, with a record low allocation of 5 percent in 2014. Sea level rise poses a significant challenge to the salt balance in the Bay-Delta and could result in pumping restrictions. Sea level rise also increases the vulnerability of the Bay-Delta supply to seismic events.

Environmental/Ecological Needs (Operational Constraints)

Sensitive species in the Bay-Delta system require base flows for survival; these flows are threatened by drought and other factors, reducing the volume of water available for pumping to the SWP. As species become further stressed, environmental demands on Bay-Delta water may increase. Operational constraints will likely continue until a long-term solution to the problems in the Bay-Delta is identified and implemented.

Threats to Infrastructure

Metropolitan's imported supplies must travel across large distances to reach turnouts where local agencies are able to access the water. California is a seismically active state and prone to wildfires, which could damage imported water infrastructure anywhere along the SWP or Colorado River Aqueduct in such a manner as to disrupt supply availability. California is also a large state with a large economy, housing some major industries and defense installations. This makes it a potential target for acts of terrorism, including potential threats to its water supplies and infrastructure. For Western, only the catastrophic failure of Western's Mills Gravity Line, a critical piece of infrastructure that conveys imported water to EVMWD and other local agencies, or other infrastructure failure of similar magnitude was identify as a potential threat.

Water Quality

Water quality challenges, such as salinity, algae toxins, disinfection byproduct precursors, nutrients, and the identification of constituents of emerging concern, have the potential to impact imported water supplies. To date, Metropolitan has not identified any water quality risks that cannot be mitigated. Salinity, particularly Colorado River supplies, is a significant issue, but Metropolitan anticipates the only constraint will be the need to blend Colorado River water with SWP supplies to meet salinity needs.

Metropolitan's and Western's 2020 UWMPs describe a variety of past and ongoing actions to address these water supply challenges to maintain water reliability within its service area. These include:

Continuing Water Conservation

Metropolitan and Western support financial incentives, education, outreach programs and appliance/plumbing standards at both the regional and local level to promote conservation.

Proactive Management of Water Supplies

Metropolitan has invested in a number of programs to increase local supplies by storing groundwater and augmenting their core supplies via water transfer and exchanges. EVMWD specific information for such projects is discussed in Chapter 6 and in the next subsection.

Implementing Shortage Response Actions (when needed)

Metropolitan developed a Water Shortage Contingency Plan (WSCP) to be consistent with elements of the existing Metropolitan Water Surplus and Drought Management Plan (WSDM) and Water Supply Allocation Plan (WSAP). If needed, Metropolitan will implement shortage response actions to distribute limited imported supplies and preserve storage reserves. The WSAP includes the specific formula for calculating member agency supply allocations and the key implementation elements needed for administering the allocation. The need for the WSAP arose after the 2008 Bay-Delta biological opinions and rulings that limited SWP supplies to its contractors including Metropolitan. 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 Metropolitan supplies up to 50 percent. All these planning documents recognize that the reliability of the Metropolitan service area is dependent on improving the reliability of imported supplies from the Colorado River and SWP as well as the successful implementation of future local supplies and

conservation. This dependence on an integrated approach to water reliability and diversification of supplies has been the foundation of the DWR's State Water Plan, through its last several updates and is the cornerstone of Governor Newsom's California Water Resilience Portfolio. Some of the most significant factors affecting reliability for imported water supplies include legal, environmental, water quality and climatic changes. Successful implementation of Metropolitan's UWMP is dependent on the continued successful implementation of local supply projects by local agencies, including Western and their wholesale customers.

Pursuing Long-term Solutions in the Bay-Delta

Metropolitan adopted a Delta action plan in June 2007 that includes a long-term Delta Plan. The long-term action plan recognizes three basic elements that must be addressed: Delta ecosystem restoration, water supply conveyance, and flood control protection and storage development.

Maintaining Water Quality

Metropolitan responds to water quality concerns by protecting the quality of the source water, developing water management programs that maintain and enhance water quality, and changing water treatment protocols or blending.

Planning for Climate Change

In addition to many other activities related to climate change, Metropolitan is currently developing an updated 2020 Integrated Resources Plan (IRP), which recognizes risks and uncertainties from climate change and other sources. Metropolitan has established an intensive, comprehensive technical process to identify key vulnerabilities to regional reliability, including climate change. This Robust Decision Making (RDM) approach was used with both the 2015 and 2010 IRP Updates. This methodology can show how vulnerable the region's reliability is to longer-term risks such as climate change and can also establish "signposts" that can be monitored to see when critical changes may be happening.

7.1.2.2 Groundwater Supply Constraints

EVMWD pumps water from the Elsinore Valley Subbasin and Bedford-Coldwater Subbasin, previously the Elsinore Groundwater Basin (DWR 8-4). The Groundwater Sustainability Plans (GSPs) as required by the Sustainable Groundwater Management Act (SGMA) for these subbasins are under development, as discussed in **Chapter 6**, and are expected to be completed in 2021. The GSPs will determine the sustainable water budget for these subbasins, develop sustainable management criteria, establish minimum thresholds to evaluate groundwater conditions, and implement a monitoring network. In addition, projects to ensure these basins are sustainable will be identified. EVMWD is the lead Groundwater Sustainability Agency (GSA) in the development of the Elsinore Valley GSP. EVMWD, the City of Corona, and Temescal Valley Water District (TVWD) created the Bedford-Coldwater GSA, which is leading the preparation of the Bedford-Coldwater GSP.

In 2005, EVMWD adopted a Groundwater Management Plan (GWMP) for portions of the DWR-designated Elsinore Groundwater Basin (MWH, 2006), which estimated the safe yield of 5,500 AFY. Since the adoption of the 2005 GWMP, EVMWD has limited pumping to 5,500 AFY to be consistent with the safe yield of the Elsinore Groundwater Basin. As the GSPs are completed, the sustainable yields for the Elsinore Valley Subbasin, which includes the Elsinore Valley, Warm Springs and Lee Lake groundwater basins; and the Bedford-Coldwater Subbasin will be confirmed. EVMWD is planning to abide to the revised sustainability yields. Therefore, the groundwater supply in this analysis, is considered reliable.

In addition, EVMWD participates in conjunctive use programs to increase the reliability of the regional and local groundwater supply. The Metropolitan CUP, SARCCUP, IPR and GSP programs instituted by

EVMWD are expected to result in long term sustainable management of groundwater resources in the Elsinore Groundwater Basin. Metropolitan, Western, and EVMWD entered into construction and funding of the CUP agreement to store up to 12,000 AF in the Elsinore Groundwater Basin. During any fiscal year (beginning on July 1st and ending on June 30th) Metropolitan may deliver up to 3,000 AF of water for storage in the Elsinore Groundwater Basin. Initially, eight dual-purpose wells were used to inject these deliveries in the Elsinore Basin. More recently, In-Lieu recharge has been used to store water in the basin. In dry years, when imported water is limited, Metropolitan may extract up to 4,000 AF of water stored in the Elsinore Basin. During a fiscal year when stored Metropolitan deliveries are extracted, EVMWD uses this "local water" and reduces the total amount of imported water to conserve costs associated with delivering the "local water" back to Metropolitan.

Groundwater is negatively impacted by arsenic and perfluorooctanoic acid (PFOA) within the Elsinore Groundwater Basin and by nitrates and PFOA in Bedford Subbasin. The Maximum Contaminant Level (MCL) for nitrate (as N) and arsenic are 10 mg/L and 10 µg/L, respectively. The State Response Level (RL) for PFOA is currently 10 parts per trillion (ppt) or ng/L.

Nitrates are added to the groundwater via septic systems, agricultural activities, confined animal facilities, landscape fertilization, and wastewater treatment facility discharges. Groundwater from the Elsinore Division system and the Temescal Division system had an average nitrate (as N) level of 4.5 mg/L. The Nitrate level in the Bedford wells (Flagler Wells 2A and 3A) ranges from 6 – 12 mg/L. The production from Bedford wells (Flagler Wells) blends with imported supply from the TVP and with production from Coldwater Basin wells (Temescal Wells). Based on studies conducted by EVMWD, there is no conclusive evidence that nitrate concentrations have been increasing in the Elsinore Groundwater Basin over time. The nitrate trends for Bedford Basin are being studied as part of the Upper Temescal Valley Salt and Nutrient Management Plan (UTVSNMP) monitoring program.

Arsenic is a naturally occurring contaminant. Some of the Elsinore Groundwater Basin wells are above the MCL for arsenic. To mitigate any impacts from arsenic, EVMWD has constructed an arsenic removal treatment facility (Back Basin Groundwater Treatment Plant) and provides blending of sources to address water quality issues. A blending pipeline in the southern area blends production from Cereal 1 and Corydon wells with the production from the Summerly and Diamond wells along with treated water from Back Basin Groundwater Treatment Plant to reduce arsenic concentrations in water delivered to the distribution system. Similarly in the northern area, production from Joy Well is blended with production from Machado Well to mitigate water quality issues.

PFOA & perfluorooctane sulfonate (PFOS) are amongst the many emerging contaminants in the vast group of Per- and polyfluoroalkyl substances (PFAS) chemicals known for their persistence in the environment and in the human body. PFAS are human-made synthetic chemicals found in many consumer products. Many PFAS chemicals are being investigated by the State Water Resource Control Board (SWRCB) and United States Environmental Protection Agency (USEPA) for potential health impacts and future MCLs. There are many possible routes of PFAS contamination, including, airports, landfills, industrial activities, septic systems, and wastewater treatment facility discharges. While PFOS concentrations are above State Notification Levels (NL) but below RL, the PFOA concentrations in some sources exceed the RL requiring the sources to be removed form service or treated/blended to address water quality. The Bedford Basin Wells (Flagler Wells) are impacted by PFOA concentrations occurring above the current RL. Production from these wells is blended with imported supply from the TVP, and production from Coldwater Subbasin (Temescal) wells. One Temescal Well (Station 71) may also intermittently exceed the RL for PFOA and is blended with production from a second well (Mayhew) which has lower PFOA concentrations. One southern Elsinore Basin well (Summerly Well) exceeds the RL for PFOA. The production from Summerly Well may be blended with production from other southern wells including Cereal-1, Corydon, Diamond, and/or treated waters from Back Basin Groundwater Treatment Plant to reduce the PFOA concentrations.

7.1.2.3 Local Surface Water Supply Constraints

Surface water from Canyon Lake is currently not in use because per-and polyfluoroalkyl substances (PFAS) were detected in 2020. EVMWD is pursuing a hybrid Granular Activated Carbon and Ion Exchange (GAC/IX) to address PFAS and Taste and Odor (T&O). In addition, as part of the treatment upgrades, EVMWD has selected reestablishing the treatment capacity of the CLWTP to 7 MGD (average operation 6,200 AFY). Currently, during the winter months, Canyon Lake receives approximately 2,500 AFY of water via natural runoff. To reach a capacity 6,200 AFY, EVMWD will need to purchase an additional 3,700 AFY of raw water from Western via WR-31 and the San Jacinto River into Canyon Lake. Upgrades at the CLWTP are anticipated to be completed in early/mid 2025.

In addition, surface water from Canyon Lake is not always available as a supply. EVMWD has an agreement with the Canyon Lake Property Owners Association (POA) to keep the level of the lake at a minimum of 1,372 ft MSL at all times of the year. EVMWD typically discontinues operation of the CLWTP if the lake level is expected to drop below 1,372 ft. If the level falls below 1,372 ft, EVMWD could purchase imported water to maintain the minimum lake elevation. Failure to maintain minimum lake levels costs EVMWD 1/365 of that year's annual costs to the Canyon Lake POA per day for every day the lake level drops below 1,372 ft.

Historically, surface water availability from Canyon Lake has been reduced by up to 50 percent in dry years, indicating a susceptibility to climate change and drought. This supply is also impacted by water quality and environmental/ecological requirements. Due to these factors, this supply availability is assumed to change periodically based on the hydraulic conditions.

7.1.3 Year Type Characterization

In accordance with CWC Section 10635(a), urban water suppliers must provide their expected water service reliability for normal year, single dry year, and five consecutive dry years conditions for the planning period.

DWR defines these years as:

- **Normal Year:** This condition represents the water supplies a supplier considers available during normal conditions. This could be a single year or averaged range of years that most closely represents the average water supply available.
- **Single Dry Year:** The single dry year is recommended to be the year that represents the lowest water supply available within the historical record.
- **Five-Consecutive-Year Drought:** The five-year drought is based on the driest five-year historical sequence, which may be the lowest average water supply available for five years in a row.

For this 2020 UWMP, the water service reliability was evaluated for each water source and based on the existing and anticipated water supplies, as discussed in **Chapter 7**. **Table 7-2** summarizes the water year basis used for the reliability assessment. For imported water, the year type is based on the Metropolitan and Western year characterization, which are the same. The primary constraint on the available of water supplies has been in extreme drought conditions. As described above, Metropolitan has made substantial investments to increase imported water supply reliability during periods of extended drought. As a result, Metropolitan's 2020 UWMP projects the ability to meet projected Western imported water demands under normal, single dry year, and multiple dry year conditions.

The Groundwater Conjunctive Use Storage Program, which allows storage of up to 12,000 AF in the basin that can later be pulled out at 4,000 AFY for three years, creates a scenario where during multiple-year droughts, the EVMWD imported water supply decreases by 4,000 AFY, while the groundwater

supply increases by 4,000 AFY annually. The average treated imported water baseline of 26,286 AFY is based on the available capacity of the AVP and TVP pipelines, as discussed in **Chapter 6**.

EVMWD pumps and will continue to pump water from unadjudicated groundwater subbasins at the established sustainable yields (pending GSP confirmation). Because EVMWD is committed to managing the groundwater basins it relies on, it is assumed that the groundwater supply is sustainable even in dry years. EVMWD is pursuing several groundwater projects that will increase the groundwater supply from 8,000 AFY to 12,125 AFY by 2045.

As described in **Chapter 6**, the Canyon Lake local water supply is currently offline until 2025 as it is undergoing treatment updates. Starting in 2026, EVMWD is planning to purchase raw imported water for treatment at the CLWTP to produce an additional 3,700 AFY of water. For this 2020 UWMP, it is assumed that only natural runoff will fluctuate under single and multiple dry periods. The raw imported water will remain the same under normal, single, and five consecutive dry years conditions.

Table 7-3 shows existing and future potable and non-potable water supplies under normal, single dry, and five consecutive dry years conditions.

Table 7-2. Basis for Water Year Data (Reliability Assessment), AFY (This is DWR required Table 7-1R)

IMPORTED WATER			
YEAR TYPE	BASE YEAR	AVAILABLE SUPPLIES IF YEAR TYPE REPEATS	
		AGENCY MAY PROVIDE VOLUME ONLY, PERCENT ONLY, OR BOTH	
		VOLUME AVAILABLE[1]	% OF AVERAGE SUPPLY
Average Year	1922-2017	26,286	Not required
Single-Dry Year	1977	22,286	Not required
Consecutive Dry Years 1st Year	1988	26,286	Not required
Consecutive Dry Years 2nd Year	1989	26,286	Not required
Consecutive Dry Years 3rd Year	1990	22,286	Not required
Consecutive Dry Years 4th Year	1991	22,286	Not required
Consecutive Dry Years 5th Year	1992	22,286	Not required
Notes: Multiple versions of DWR Table 7-1: Imported Water [1]. During single dry and multiple dry years, the average capacity is decreased by 4,000 AFY as part of the Groundwater Conjunctive Use Storage Program. For this analysis, the decrease was applied to the last three years of the five consecutive dry years period.			
GROUNDWATER			
YEAR TYPE	BASE YEAR	AVAILABLE SUPPLIES IF YEAR TYPE REPEATS	
		AGENCY MAY PROVIDE VOLUME ONLY, PERCENT ONLY, OR BOTH	
		VOLUME AVAILABLE[1]	% OF AVERAGE SUPPLY
Average Year	2008-2020	8,000-10,075 AFY	Not required
Single-Dry Year	2008-2020	12,000-14,075 AFY	Not required
Consecutive Dry Years 1st Year	2008-2020	8,000-10,075 AFY	Not required
Consecutive Dry Years 2nd Year	2008-2020	8,000-10,075 AFY	Not required
Consecutive Dry Years 3rd Year	2008-2020	12,000-14,075 AFY	Not required
Consecutive Dry Years 4th Year	2008-2020	12,000-14,075 AFY	Not required
Consecutive Dry Years 5th Year	2008-2020	12,000-14,075 AFY	Not required
Notes: Multiple versions of DWR Table 7-1: Groundwater [1]. The average base year is based on sustainable rates for existing and future groundwater projects. During single dry and multiple dry years, the average capacity is increased by 4,000 AFY as part of the Groundwater Conjunctive Use Storage Program. For this analysis, the increase was applied to the last three years of the five consecutive dry years period.			
SURFACE WATER			
YEAR TYPE	BASE YEAR	AVAILABLE SUPPLIES IF YEAR TYPE REPEATS	
		AGENCY MAY PROVIDE VOLUME ONLY, PERCENT ONLY, OR BOTH	
		VOLUME AVAILABLE[1]	% OF AVERAGE SUPPLY
Average Year	1992-2020	2,500	Not required
Single-Dry Year	2012	178	Not required
Consecutive Dry Years 1st Year	2012	178	Not required
Consecutive Dry Years 2nd Year	2013	932	Not required
Consecutive Dry Years 3rd Year	2014	1,167	Not required
Consecutive Dry Years 4th Year	2015	1,964	Not required
Consecutive Dry Years 5th Year	2016	808	Not required

Notes: Multiple versions of DWR Table 7-1: Surface Water

[1] Surface water is offline until early/mid 2025. Therefore, it is assumed that in the future the natural runoff to be treated at the CLWTP would remain around 2,500 AFY. Starting in 2026, EVMWD will purchase raw imported water to produce 3,700 AFY of additional water at CLWTP for a total of 6,200 AFY. This analysis assumes that only natural runoff will fluctuate under single and multiple dry periods and that the raw imported water will remain the same. The historical normal, single dry, and Five Consecutive dry years CLWTP protection is shown in this table.

Table 7-3. Summary of the Existing and Future Water Supplies Under Normal, Single Dry, and Five Consecutive dry years, AFY

Water Supply	Additional Detail on Water Supply	Projected Water Supply				
		2025	2030	2035	2040	2045
Purchased or Imported Water[1]	Skinner WTP via AVP	16,256	16,256	16,256	16,256	16,256
	Mills WTP via TVP	10,030	10,030	10,030	10,030	10,030
	Normal	26,286	26,286	26,286	26,286	26,286
	Single Dry	22,286	22,286	22,286	22,286	22,286
	Consecutive Dry Years 1st Year	26,286	26,286	26,286	26,286	26,286
	Consecutive Dry Years 2nd Year	26,286	26,286	26,286	26,286	26,286
	Consecutive Dry Years 3rd Year	22,286	22,286	22,286	22,286	22,286
	Consecutive Dry Years 4th Year	22,286	22,286	22,286	22,286	22,286
	Consecutive Dry Years 5th Year	22,286	22,286	22,286	22,286	22,286
Groundwater[2]	Elsinore Valley Subbasin	5,500	5,500	5,500	5,500	5,500
	Coldwater Subbasin	1,200	1,200	1,200	1,200	1,200
	Bedford Subbasin	1,300	1,300	1,300	1,300	1,300
	Lee Lake Subbasin	875	875	875	875	875
	Palomar Well Replacement	450	450	450	450	450
	Temecula-Pauba GW	0	0	750	750	750
	Normal	9,325	9,325	10,075	10,075	10,075
	Single Dry	13,325	13,325	14,075	14,075	14,075
	Consecutive Dry Years 1st Year	9,325	9,325	10,075	10,075	10,075
	Consecutive Dry Years 2nd Year	9,325	9,325	10,075	10,075	10,075
	Consecutive Dry Years 3rd Year	13,325	13,325	14,075	14,075	14,075
	Consecutive Dry Years 4th Year	13,325	13,325	14,075	14,075	14,075
	Consecutive Dry Years 5th Year	13,325	13,325	14,075	14,075	14,075
Surface Water[3]	Local Supply	2,500	2,500	2,500	2,500	2,500
	Raw imported Water	0	3,700	3,700	3,700	3,700
	Normal	2,500	6,200	6,200	6,200	6,200
	Single Dry	178	3,878	3,878	3,878	3,878
	Consecutive Dry Years 1st Year	178	3,878	3,878	3,878	3,878
	Consecutive Dry Years 2nd Year	4,632	4,632	4,632	4,632	4,632
	Consecutive Dry Years 3rd Year	4,867	4,867	4,867	4,867	4,867
	Consecutive Dry Years 4th Year	5,664	5,664	5,664	5,664	5,664
	Consecutive Dry Years 5th Year	4,508	4,508	4,508	4,508	4,508
Potable Recycled Water[4]	IPR at Regional WRF	0	0	0	940	1970
	Normal, Single and Consecutive Dry Years	0	0	0	940	1970

Non-Potable Recycled Water[5]	Temescal Wash and Lake Elsinore Replenishment	7,270	8,027	8,863	8,960	8,960
	Metered Customers	1,459	1,459	1,459	1,459	1,459
	Canyon Lake and Summerly Golf Course	378	378	378	378	378
	Normal, Single and Consecutive Dry Years	9,107	9,864	10,700	10,797	10,797

1 For this analysis, a reduction of 4,000 AF was applied to single dry year and the last three years of the five consecutive dry years period.

2 For this analysis, an increase of 4,000 AF was applied to single dry year and the last three years of the five consecutive dry years period.

3 Surface water is offline until early/mid 2025. It is assumed that in the future the natural runoff to be treated at the CLWTP would remain around 2,500 AFY. Starting in 2026, EVMWD will purchase raw imported water to produce 3,700 AFY of additional water at CLWTP for a total of 6,200 AFY. This analysis assumes that only natural runoff will fluctuate under single and multiple dry periods and that the raw imported water will remain the same. The historical normal, single dry, and Five Consecutive dry years CLWTP production is shown in Table 7-2.

4 EVMWD identified long term implementation of an IPR project using treated water from Regional WRF in excess of the water required to maintain water levels in Lake Elsinore. This project is anticipated to start in 2034 and expand as needed. This is assumed to be reliable under all hydrological conditions.

5 EVMWD also provides recycled water throughout its service area for landscape and golf course irrigation. In accordance with its NPDES permit, EVMWD is permitted to discharging 0.5 MGD to Temescal Wash and 7.5 MGD to Lake Elsinore to maintain flow requirements. The 2020 Regional WRF discharge rate was assumed to increase by 2% each year until it reaches the expected rate to maintain the required flows. Excess wastewater will be used for the IPR. Refer to Chapter 6 for more information.

7.1.4 Supply and Demand Comparison

Results of the water supply and demand analysis for normal, single dry, and five-year consecutive droughts are shown in the following sections. EVMWD expects to meet demands under all water year scenarios. EVMWD is committed to continuing water conservation efforts to ensure reliability and resiliency in the future.

7.1.4.1 Water Service Reliability – Normal Year

Table 7-4 compares the total potable and non-potable supply and demand for the 25-year projection under normal (average) conditions, and **Table 7-5** compares the potable supply and demand only. Under normal conditions, EVMWD will have a surplus of water and will be able to meet the potable and non-potable demands. As the planning horizon is extended, the total potable and non-potable surplus is reduced. The non-potable demand is mainly attributed to maintaining the Temescal Wash and Lake Elsinore requirements. It is expected that any excess recycled water will be used for the IPR project.

Table 7-4. Normal Year Supply and Demand Comparison (Potable and Non-Potable), AFY (This is DWR required Table 7-2R)

	2025	2030	2035	2040	2045
Supply Totals	47,218	51,675	53,261	54,298	55,328
Demand Totals	38,932	41,994	45,313	48,085	50,967
DIFFERENCE:	**8,286**	**9,681**	**7,948**	**6,213**	**4,361**

Table 7-5. Normal Year (Potable System Only) Water Supply and Demand Comparison, AFY

	2025	2030	2035	2040	2045
SUPPLY TOTALS	38,111	41,811	42,561	43,501	44,531
DEMAND TOTALS	29,825	32,130	34,613	37,288	40,170
DIFFERENCE:	**8,286**	**9,681**	**7,948**	**6,213**	**4,361**

7.1.4.2 Water Service Reliability – Single Dry Year

Table 7-6 compares the total potable and non-potable supply and demand for the 25-year projection under a single dry year, and **Table 7-7** compares the potable supply and demand only. Under single dry conditions, EVMWD will have a surplus of water and will be able to meet the potable and non-potable demands. As the planning horizon is extended, the surplus is reduced. The single dry year scenario is the worst-case scenario, as it assumes that natural runoff from Canyon Lake would be 178 AFY. If needed, EVMWD could meet additional demands by purchasing more treated or untreated imported water to mitigate this impact.

Table 7-6. Single Dry Year Supply and Demand Comparison (Potable and Non-Potable), AFY (This is DWR required Table 7-3R)

	2025	2030	2035	2040	2045
Supply Totals	44,896	49,353	50,939	51,976	53,006
Demand Totals	38,932	41,994	45,313	48,085	50,967
DIFFERENCE:	**5,964**	**7,359**	**5,626**	**3,891**	**2,039**

Table 7-7. Single Dry Year Supply (Potable System Only) and Demand Comparison, AFY

	2025	2030	2035	2040	2045
SUPPLY TOTALS	35,789	39,489	40,239	41,179	42,209
DEMAND TOTALS	29,825	32,130	34,613	37,288	40,170
DIFFERENCE:	**5,964**	**7,359**	**5,626**	**3,891**	**2,039**

7.1.4.3 Water Service Reliability – Five Consecutive Dry Years

Table 7-8 compares the total potable and non-potable supply and demand under five consecutive dry years conditions for the 25-year planning horizon, and

Table 7-9 compares the potable supply and demand only. Under this scenario, EVMWD will have a surplus of water and will be able to meet the potable and non-potable demands. There is a surplus of potable water. During years of extreme drought, EVMWD could meet additional demands by purchasing more treated or untreated imported water to mitigate this impact.

Table 7-8. Multiple Dry Years Supply and Demand Comparison (Potable and Non-Potable), AFY (This is DWR required Table 7-4R)

		2025	2030	2035	2040	2045
First Year	Supply Totals	44,896	49,353	50,939	51,976	53,006
	Demand Totals	38,932	41,994	45,313	48,085	50,967
-	**DIFFERENCE:**	**5,964**	**7,359**	**5,626**	**3,891**	**2,039**
Second Year	Supply Totals	49,350	50,107	51,693	52,730	53,760
	Demand Totals	38,932	41,994	45,313	48,085	50,967

		2025	2030	2035	2040	2045
-	**DIFFERENCE:**	**10,418**	**8,113**	**6,380**	**4,645**	**2,793**
Third Year	Supply Totals	49,585	50,342	51,928	52,965	53,995
	Demand Totals	38,932	41,994	45,313	48,085	50,967
-	**DIFFERENCE:**	**10,653**	**8,348**	**6,615**	**4,880**	**3,028**
Fourth Year	Supply Totals	50,382	51,139	52,725	53,762	54,792
	Demand Totals	38,932	41,994	45,313	48,085	50,967
-	**DIFFERENCE:**	**11,450**	**9,145**	**7,412**	**5,677**	**3,825**
Fifth Year	Supply Totals	49,227	49,983	51,569	52,606	53,636
	Demand Totals	38,932	41,994	45,313	48,085	50,967
-	**DIFFERENCE:**	**10,294**	**7,989**	**6,256**	**4,521**	**2,669**

Table 7-9. Multiple Dry Years (Potable System Only) Supply and Demand Comparison, AFY

		2025	2030	2035	2040	2045
First Year	Supply Totals	35,789	39,489	40,239	41,179	42,209
	Demand Totals	29,825	32,130	34,613	37,288	40,170
	DIFFERENCE:	**5,964**	**7,359**	**5,626**	**3,891**	**2,039**
Second Year	Supply Totals	40,243	40,243	40,993	41,933	42,963
	Demand Totals	29,825	32,130	34,613	37,288	40,170
	DIFFERENCE:	**10,418**	**8,113**	**6,380**	**4,645**	**2,793**
Third Year	Supply Totals	40,478	40,478	41,228	42,168	43,198
	Demand Totals	29,825	32,130	34,613	37,288	40,170
	DIFFERENCE:	**10,653**	**8,348**	**6,615**	**4,880**	**3,028**
Fourth Year	Supply Totals	41,275	41,275	42,025	42,965	43,995
	Demand Totals	29,825	32,130	34,613	37,288	40,170
	DIFFERENCE:	**11,450**	**9,145**	**7,412**	**5,677**	**3,825**
Fifth Year	Supply Totals	40,119	40,119	40,869	41,809	42,839
	Demand Totals	29,825	32,130	34,613	37,288	40,170
	DIFFERENCE:	**10,294**	**7,989**	**6,256**	**4,521**	**2,669**

7.1.5 Descriptions of Management Tools and Options

EVMWD has a diverse supply portfolio that provides operational flexibility and reliability. In 2020, EVMWD relied on local groundwater to meet about 36% of the potable demands, promoted the use of recycled water to offset potable water needs, and imported water to meet any remaining demands. EVMWD intends to continue promoting conservation, evaluating supplemental supplies and participating in projects, when feasible, to ensure EVMWD's water supply sources are protected and sustainable throughout the future. To mitigate and adapt to unpredictable conditions, EVMWD will continue to diversify its local water portfolio.

7.2 Drought Risk Assessment

New to the 2020 UWMP, CWC Section 10635 (b) now requires a drought risk assessment (DRA). The DRA provides a quick snapshot of the anticipated surplus or deficit if a five-consecutive year drought were to occur in the next five years. The DRA can be modified or updated outside of the UWMP five-year plan cycle, so a description of the data, methodology, and basis for shortage conditions must be included in this 2020 UWMP. The DRA evaluates each water supply's reliability and compares available water supplies and projected demands during a five-consecutive dry years scenario. This short-term analysis can help water suppliers foresee undesired risks, such as upcoming shortages, and provide time to evaluate and implement the necessary response actions needed to mitigate shortages in a less impactful manner to the community and environment. If demands cannot be met by the expected available supply, shortage response actions from EVMWD's 2021 WSCP may be implemented. Details on EVMWD's 2021 WSCP are provided in **Appendix A**.

7.2.1 Data, Methods, and Basis for Water Shortage Condition

For this UWMP, the DRA considers five consecutive dry years from 2021 through 2025. To determine the appropriate potable 2021-2025 demands, a linear interpolation was applied from actual 2020 potable demand and the 2025 projected potable demand. Anticipated demands for the next five years are provided in **Table 7-10**. Additional information on how the long-term potable demand projections were estimated can be found in **Chapter 3** and **Chapter 4**.

Table 7-10. DRA Demands for 2021 through 2025, AFY

	2020	2021	2022	2023	2024	2025
Normal Year Demand	23,653	24,776	25,952	27,183	28,474	29,825

The supply is based on the water supplies available and are as follows:

- Existing groundwater projects are estimated to pump about 8,000 AFY.
- The imported water supply available is assumed to be 26,286 AFY.
- The Palomar Well Replacement project is anticipated to be completed in 2023 and will add about 450 AFY.
- The Lee Lake Wells are anticipated to be completed in 2024 and will add 875 AFY.
- The CLWTP is offline until 2025, so this source is not considered between 2021-2024. Assumed 2,500 AFY will be produced in 2025.

EVMWD continues to develop local projects to increase local reliability and decrease dependence on imported water. As a part of this effort, EVMWD is planning to update its IRP to further evaluate additional local water supply options, which could be implemented to enhance its local water supply portfolio, and further improve water supply reliability. It is important to note that the demand forecasts do not include reduction due to additional passive and active conservation that will take place in EVMWD's service area. EVMWD will continue to implement conservation programs that will further reduce water use and will further improve regional reliability in the future. If EVMWD needs additional water to meet demands, EVMWD may import additional water from Western/Metropolitan.

7.2.2 DRA Individual Water Source Reliability

EVMWD does not anticipate any supply shortages within the next five years as shown in **Table 7-11**. EVMWD will utilize local supply sources prior to importing water to conserve costs.

Table 7-11. DWR 7-5 Five-Year Drought Risk Assessment Tables to Address Water Code Section 10635(b), AFY

2021	Gross Water Use	24,776
	Total Supplies	34,286
	Surplus/Shortfall without WSCP Action	9,510
	PLANNED WSCP ACTIONS (USE REDUCTION AND SUPPLY AUGMENTATION)	
	WSCP (Supply Augmentation Benefit)	
	WSCP (Use Reduction Savings Benefit)	
	Revised Surplus/Shortfall	9,510
	Resulting Percent Use Reduction from WSCP Action	0%
2022	Gross Water Use	25,952
	Total Supplies	34,286
	Surplus/Shortfall without WSCP Action	8,334
	PLANNED WSCP ACTIONS (USE REDUCTION AND SUPPLY AUGMENTATION)	
	WSCP (Supply Augmentation Benefit)	
	WSCP (Use Reduction Savings Benefit)	
	Revised Surplus/Shortfall	8,334
	Resulting Percent Use Reduction from WSCP Action	0%

*Table continues on next page.

2023	Gross Water Use	27,183
	Total Supplies	34,736
	Surplus/Shortfall without WSCP Action	7,553
	PLANNED WSCP ACTIONS (USE REDUCTION AND SUPPLY AUGMENTATION)	
	WSCP (Supply Augmentation Benefit)	
	WSCP (Use Reduction Savings Benefit)	
	Revised Surplus/Shortfall	7,553
	Resulting Percent Use Reduction from WSCP Action	0%
2024	Gross Water Use	28,474
	Total Supplies	35,611
	Surplus/Shortfall without WSCP Action	7,137
	PLANNED WSCP ACTIONS (USE REDUCTION AND SUPPLY AUGMENTATION)	
	WSCP (Supply Augmentation Benefit)	
	WSCP (Use Reduction Savings Benefit)	
	Revised Surplus/Shortfall	7,137
	Resulting Percent Use Reduction from WSCP Action	0%
2025	Gross Water Use	29,825
	Total Supplies	38,111
	Surplus/Shortfall without WSCP Action	8,286
	PLANNED WSCP ACTIONS (USE REDUCTION AND SUPPLY AUGMENTATION)	
	WSCP (Supply Augmentation Benefit)	
	WSCP (Use Reduction Savings Benefit)	
	Revised Surplus/Shortfall	8,286
	Resulting Percent Use Reduction from WSCP Action	0%

Although EVMWD is expected to have a surplus of water, as described in Metropolitan's 2020 UWMP and DRA, Metropolitan's near-term assessment reveals that its supply capabilities are expected to exceed its projected water use for years 2022, 2024, and 2025. However, estimates of projected water supply and use reveals that there could be a possible shortfall of core supplies in 2021 and 2023. This shortfall is largely triggered by the assumed repeat of the historical 1988 and 1990 low supply conditions from the SWP to predict supply availability for 2021 and 2023. Actual supply conditions for 2021 and 2023 may prove different from historic supply conditions (Metropolitan Water District of Southern California, 2021).

Metropolitan's DRA illustrates its potential shortage response actions if such a shortfall were to happen. As detailed in Metropolitan's 2020 UWMP (Section 2.5 and Appendix 4), Metropolitan has in place a robust WSCP and comprehensive shortage response plan that includes demand reduction measures and supply augmentation actions. In Metropolitan's DRA, years 2021 and 2023 are estimated to have shortage levels within 10% of water use, corresponding to its WSCP Level 1 Shortage. Metropolitan has a range of response actions that it can take in a Level 1 Shortage, including take from Storage, execute Flexible Supplies, implement Voluntary Demand Reduction, and implement its WSAP. Metropolitan's DRA anticipates taking from its storage during these shortfall years to augment its supply and meet its demand. As of January 1, 2021, Metropolitan has 3.2 million AF in storage that may be used for dry-year needs within multiple reservoirs to mitigate any potential shortage in 2021 and 2023. In addition, Metropolitan may also take from its water banking programs in the Central Valley, draw from in-region conjunctive use programs, pursue additional supplies through SWP transfers, or exercise any combination of supply augmentation actions.

With a potential surplus estimated for years 2022, 2024, and 2025, no water service reliability concern is anticipated, and no shortfall mitigation measures are expected to be exercised. Metropolitan will periodically revisit its representation of both individual supply sources and of the gross water use estimated for each year and will revise its DRA if needed.

As describe in Western's 2020 UWMP and DRA, Western will be able to purchase sufficient supplies to meet demands based on the results of Metropolitan's DRA (Water Systems Consulting, Inc., 2021). Western's supplies are anticipated to be reliable, and no supply shortfalls are expected from 2021 to 2025 when assuming the next five years are similar to the driest five years. Western does not anticipate the need to implement shortage response actions in its wholesale WSCP in the next five years, unless Metropolitan implements a WSAP, which is not expected based on Metropolitan's DRA analysis.

To support EVMWD's water supply management and conservation efforts, EVMWD will monitor precipitation, groundwater levels, Canyon Lake inflows, and State standards for efficient water use. More details are provided in the WSCP in **Appendix A** about how these factors are established, monitored, and used to make water resources management decisions. If certain criteria are met for these factors, shortage response actions from the EVMWD's WSCP may be activated.

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URBAN WATER MANAGEMENT PLAN

8 Water Shortage Contingency Plan

The Water Shortage Contingency Plan (WSCP) is a strategic plan that EVMWD uses to prepare for and respond to foreseeable and unforeseeable water shortages. A water shortage occurs when the water supply available is not sufficient to meet the normally expected customer water use at a given time. A shortage may occur for many reasons, such as an extended drought, water pollution, a power outage, and/or a catastrophic event.

The WSCP provides guidance to EVMWD's Board of Directors (Board), staff, and the public by identifying anticipated water shortages and response actions to manage any water shortage with predictability and accountability in an efficient manner. This WSCP is not intended to provide absolute direction; rather, it is intended to provide a working framework and options to help guide the EVMWD's response to water shortages.

The purpose of the WSCP is to conserve the available water supply and protect the water supply's integrity while also protecting and preserving public health, welfare, and safety. Preparation provides the tools to maintain reliable supplies and reduce the impacts of supply interruptions during a water shortage.

IN THIS SECTION

Water shortages can be triggered by a hydrologic limitation in supply (i.e., a prolonged period of below-normal precipitation and runoff), limitations or failure of supply and treatment infrastructure, or both. Hydrologic or drought limitations tend to develop and abate more slowly, whereas infrastructure failure tends to happen quickly and relatively unpredictably.

Water supplies may be interrupted or reduced significantly in several ways, such as during a drought that limits supplies, an earthquake that damages water delivery or storage facilities, a regional power outage, or a toxic spill that affects water quality.

The WSCP describes the following:

Water Supply Reliability Analysis

Summarizes EVMWD's water supply analysis and reliability and identifies any key issues that may trigger a shortage condition. Details on the water supply reliability analysis are provided in **Chapter 7**.

Annual Water Supply and Demand Assessment Procedures

Describes the key data inputs, evaluation criteria, and methodology for assessing the system's reliability for the coming year and the steps to formally declare any water shortage levels and response actions.

Shortage Stages

Establishes water shortage levels to clearly identify and prepare for shortages.

Shortage Response Actions

Describes the response actions that may be implemented or considered for each stage to reduce gaps between supply and demand.

Communication Protocols

Describes communication protocols for each stage to ensure that customers, the public, and government agencies are informed of shortage conditions and requirements.

Compliance and Enforcement

Defines compliance and enforcement actions available to administer demand reductions.

Legal Authority

Summarizes the legal documents that grant EVMWD the authority to declare a water shortage and implement and enforce response actions.

Financial Consequences of WSCP Implementation

Describes the anticipated financial impact of water shortage stages and identifies mitigation strategies to offset financial burdens.

Monitoring and Reporting

Summarizes the monitoring and reporting techniques to evaluate the effectiveness of shortage response actions and overall WSCP implementation. Results are used to determine whether additional shortage response actions should be activated, whether efforts are successful, and whether response actions should be adjusted.

WSCP Refinement Procedures

Describes factors that may trigger updates to the WSCP and outlines how to complete an update.

Special Water Features Distinctions

Defines considerations and definitions for water use for decorative features versus pools and spas. Decorative features include ornamental fountains, ponds, and other aesthetic features.

Plan Adoption, Submittal, and Availability

Describes the WSCP adoption process, submittal, and availability after each revision.

The 2021 WSCP is a stand-alone document that can be modified as needed, and is included as **Appendix A**.

The WSCP addresses several types of water supply shortages that could potentially impact EVMWD and its customers:

- Short-term supply shortages caused by a decrease in surface water and groundwater levels, natural or man-made catastrophic emergencies, or production capacity limitations.
- Long-term supply shortages due to prolonged drought, groundwater over pumping, contamination, destruction of critical water supply facilities, etc.

EVMWD developed a Drought Contingency Plan (DCP) in 2018 that was used to develop the WSCP. The DCP includes information about drought monitoring, a drought vulnerability assessment, mitigation actions, response actions, and operational and administrative frameworks for the implementation of the DCP. The DCP was developed in response to significant droughts in California that resulted in severe impacts to water supplies. Under the DCP, EVMWD developed a drought monitoring framework, which it used to monitor near- and long-term water availability and also described steps for confirming existing droughts and predicting future droughts. Additional information about the drought monitoring framework is provided in the DCP.

A summary of key components of the WSCP is provided below.

8.1 Water Supply Reliability Summary

Understanding water supply reliability, factors that could contribute to water supply constraints, availability of alternative supplies, and what effect these have on meeting customer demands provides EVMWD with a solid basis on which to develop appropriate and feasible response actions in the event of a water shortage. In this 2020 UWMP, EVMWD conducted a Water Reliability Assessment to compare the total water supply sources available to long-term projected water use over the next 25 years, in five-year increments, for a normal water-year, a single dry water-year, and a drought lasting five consecutive water-years. EVMWD also conducted a Drought Risk Assessment to evaluate a drought period that lasts five consecutive water-years, starting from the year following when the assessment is conducted. An analysis of both assessments determined that EVMWD's supply is reliable and anticipates that a combination of local supplies and imported water is sufficient to meet demands, even in dry years.

8.2 Annual Water Supply and Demand Assessment Summary

To prepare for possible droughts, EVMWD will prepare an Annual Water Supply and Demand Assessment (Annual Assessment) in accordance with CWC Section 10632(a)(2). This Annual Assessment will evaluate near-term conditions pertaining to supply and demand. While performing the Annual Assessment, EVMWD will determine whether there could be a water supply shortage in the coming year and, if so, determine the severity and appropriate actions to implement to mitigate impacts. The Annual Assessment results must be submitted every year to the Department of Water Resources (DWR) prior to July 1st, starting in 2022.

8.3 Water Shortage Levels

As outlined in Ordinance 225, EVMWD evaluates water shortages based on five stages. These five stages range from 5% to 50% or greater, as shown in **Table 8-1**.

Table 8-1. Water Shortage Stages

SHORTAGE LEVEL	SUPPLY SHORTAGE
1	Up to 5%
2	Up to 10%
3	Up to 25%
4	Up to 40%
5	Up to or greater than 50%

The CWC outlines six standard water shortage levels that correspond to a gap in supply compared to with normal year availability. The six standard water shortage levels correspond to progressively increasing estimated shortage conditions (up to 10%, 20%, 30%, 40%, 50%, and greater than 50% shortage compared to the normal reliability condition) and align with the response actions that a water supplier would implement to meet the severity of the impending shortages.

The CWC allows suppliers with an existing water shortage contingency plan that uses different water shortage levels to comply with the six standard levels by developing and including a cross-reference relating its existing shortage categories to the six standard water shortage levels. A cross-reference to the six standard stages is shown in **Figure 8-1.**

Figure 8-1. EVMWD's Shortage Stages and Their Relationship to DWR's Six Standard Shortage Stages

8.4 Shortage Response Actions Summary

To mitigate water shortage emergencies, EVMWD may implement various shortage response actions. These actions may include measures to reduce demand, augment supply, change typical operations, or impose mandatory prohibitions. Specific actions that may be implemented are detailed in the WSCP, provided in **Appendix A**.

8.5 Legal Authorities Summary

EVMWD obtains the legal authority to declare a water shortage and implement the actions outlined in this WSCP through Ordinance 225. Ordinance 225 provides EVMWD with the authority to restrict water use and prohibit water waste for all uses that are not necessary to sustain public health, sanitation, and fire protection. Specifically, Ordinance 225 provides EVMWD with the authority to implement supply shortage response measures and prevent unreasonable use of water (Elsinore Valley Municipal Water District, 2015). Ordinance 225 will continue to serve as the legal authority for EVMWD and the WSCP.

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URBAN WATER MANAGEMENT PLAN

9 Demand Management Measures

This chapter describes EVMWD's efforts to promote water use efficiency, reduce demand on water supply, and prepare for future requirements.

This chapter describes the water conservation programs that EVMWD has implemented for the past five years, is currently implementing, and plans to implement to continue meeting its SBX7-7 water use target and position for future State-mandated water use efficiency standards that are currently under development.

IN THIS SECTION

- Demand Management Measures
- Reporting Implementation

The section of the CWC addressing Demand Management Measures (DMMs) was significantly modified in 2014 based on recommendations from the Independent Technical Panel (ITP) to the Legislature. The DWR formed the ITP to provide information and recommendations to the DWR and the Legislature on new DMMs, technologies, and approaches to water use efficiency. The ITP recommended, and the Legislature enacted, streamlining the requirements from the 14 specific measures reported in the 2010 UWMP to six more general requirements plus an "other" category for measures that agencies implemented in addition to the required elements. The required measures are summarized in **Table 9-1**. No changes to DMMs have been enacted since the 2015 UWMP.

Table 9-1. Demand Management Measures

MEASURE			
1	Water waste prevention ordinances	5	Programs to assess and manage distribution system real loss
2	Metering		
3	Conservation pricing	6	Water conservation program coordination and staffing
4	Public education and outreach	7	Other demand management measures

9.1 Demand Management Measures for Wholesale Suppliers

EVMWD serves as a wholesale agency to the FMWC. However, the FMWC has under 3,000 service connections and serves fewer than 3,000 AFY. Therefore, this section is not required.

9.2 Existing Demand Management Measures for Retail

Consistent with the requirements of the CWC, this section describes the DMMs from **Table 9-1** that have been implemented in the past five years and will continue to be implemented into the future to continue meeting EVMWD's SBX7-7 water use target and position itself for future State-mandated water use efficiency standards that are currently under development.

9.2.1 Water Waste Prevention Ordinances

According to the DWR 2020 UWMP Guidebook, a water waste ordinance explicitly states that the waste of water is prohibited. The ordinance may prohibit specific actions that waste water, such as excessive runoff from landscape irrigation or a hose outdoors without a shutoff nozzle. EVMWD and the cities it serves have ordinances to promote conservation and increase water use efficiency with its customers.

EVMWD's Ordinance 225 addresses water waste prevention measures and enforces administrative fines and penalties for water waste. Ordinance 225 includes water waste prevention measures even during times when there is no foreseeable threat of a water shortage because water waste violates California law at any stage.

Under shortage Stage 1, EVMWD has identified permanent (i.e., always in effect) restrictions:

- All irrigation shall ensure that automatic irrigation timers are adjusted according to changing weather patterns and landscape requirements.
- All open hoses shall be equipped with automatic, positive shutoff nozzles.
- Watering of lawns and/or groundcovers and irrigating landscaping is permitted only between the hours of 6:00 p.m. and 6:00 a.m.
- Sprinklers and irrigation systems shall be adjusted to avoid overspray, runoff, and waste. Watering on windy days is to be avoided.
- Installation of water-saving devices, such as low-flow showerheads and faucet aerators, is encouraged.
- Selection of low-water-demand shrubs, groundcovers, and trees for all new landscaping is strongly encouraged.
- All swimming pools, spas, ponds, and fountains shall be equipped with recirculating pumps.
- All plumbing leaks, improperly adjusted sprinklers, or other water conduits/fixtures that require repair or adjustment shall be corrected within 96 hours of notification.
- No person shall allow water to leave his or her property by drainage onto adjacent properties or public or private roadways or streets due to excessive irrigation or uncorrected leaks.
- Washing of vehicles can only be done with a bucket or hand-held hose equipped with an automatic, positive shutoff nozzle.
- Construction operations receiving water from a construction meter, hydrant meter, or water truck shall not use water for any purpose other than those required by regulatory agencies. Construction projects requiring watering for new landscaping materials shall adhere to the designated irrigation requirements.

EVMWD also follows Riverside County's Ordinance 859.3, a comprehensive landscape ordinance that includes prohibitions on water waste. In addition, EVMWD is cooperating with the four cities in its service area to assist with enforcement of the ordinance by providing door hangers notifying customers of water waste. The cities of Lake Elsinore, Murrieta, and Wildomar also have water efficiency landscape requirements.

9.2.2 Metering

According to the DWR 2020 UWMP Guidebook, an agency that is fully metered must state this fact in the UWMP. If an agency is not yet fully metered, it must discuss its plans for becoming fully metered by January 1, 2025, per CWC Section 527. Currently, EVMWD is fully metered. EVMWD also requires meters for all new connections and bills by volume of use.

In 2017, EVMWD's Automated Metering Infrastructure (AMI) implementation project was completed. All EVMWD's potable customer meters use the AMI system to detect leaks, view water usage, set alerts, and gather reports about their home water system in real time through a wireless sensor network. The AMI accounts are billed monthly based on each meter's water consumption. EVMWD's Advanced Meter System uses state-of-the-art metering technology for residential and commercial water customers. Through EVMWD's AquaHawk Portal, the AMI meter transmits hourly water usage information to EVMWD's Customer Service Center, four times per day, over a secure communication network. Water use is measured with near-real-time accuracy and enables customers to set alerts if continuous or highwater use occurs. The Advanced Meter System also reduces water loss through the proactive identification of water leaks on customer service lines through AquaHawk's daily alert report, which is sent to EVMWD staff for evaluation.

9.2.3 Conservation Pricing

According to the DWR 2020 UWMP Guidebook, retail water agencies need to describe the pricing structure that is used. EVMWD has adopted water budget rate structures to manage the water supply and encourage customers to conserve water.

EVMWD uses a variable water rate established by the number of units of water delivered to a property that consists of four tiers that impose higher rates as the level of water use increases. A reasonable amount of water is allocated to each residential, irrigation, and recycled water customer based on that customer's needs. This approach is referred to as a "water budget." The indoor water budget is calculated by the number of people in the household, with an allocation of 55 gallons of water per person per day. The outdoor water budget is calculated by the amount of irrigated square footage per parcel, the average daily plant water loss ("evapotranspiration"), and a "plant factor" of 0.60 that reflects the water needs of local plants native to EVMWD's service area. Above that water budget, inefficient and excessive water use will cost customers more because it costs EVMWD more to secure the additional water supply.

EVMWD intends to keep this rate structure in place during the planning horizon of this UWMP. EVMWD also conducts rate studies every two years.

9.2.4 Public Education and Outreach

In coordination with Western, a member agency of Metropolitan, EVMWD partners with SoCal Water$mart for most of its conservation programs. Historically, more than 25 separate rebate programs have been offered to EVMWD's customers through Western and SoCal Water$mart. These programs provide device and appliance rebates for indoor and outdoor water use efficiency. EVMWD also conducts extensive outreach to promote conservation.

A summary of EVMWD's programs and educational initiatives to assist customers in leading more water-efficient lifestyles is provided below.

Residential Efficiency Rebates

In partnership with Western and Metropolitan, numerous rebates are offered to residential customers to upgrade their properties to be more water efficient. Rebates offered include free sprinkler nozzles, upgrades to indoor and outdoor water fixtures to reduce water use, pool covers to reduce evaporation, and turf removal to convert grass to water-efficient landscaping. Since 2010, more than 13,200 rebates have been provided to residential properties for indoor and outdoor improvements, such as high-efficiency toilets and clothes washers, weather-based irrigation controllers (WBICs), rain barrels, and rotating sprinkler nozzles. Rebates have also facilitated removal of turf and conversion to water-efficient landscaping.

Commercial Efficiency Rebates

In partnership with Metropolitan, rebates are offered to commercial customers to upgrade to more water-efficient standards, including upgrades to indoor and outdoor fixtures as well as operational equipment. In addition, turf removal has been offered to commercial properties. Over the past five years, more than 800 rebates have been provided to commercial properties for advancements in water-efficient fixtures, including high-efficiency toilets and WBICs. Turf removal has also been a successful program. It has helped five schools in the Lake Elsinore Unified School District and multiple associations to convert existing turf to water-efficient landscaping.

Workshops

EVMWD offers a variety of workshops on water-related topics designed to help educate residential customers. Topics offered include California Friendly Landscape Training, Composting, Drip Irrigation, and Using Your Controller. All workshops are free to EVMWD customers and are hosted at EVMWD's headquarters. Promoting the workshops includes sending out flyers in the mail, posting information on social media, sending email blasts, and newspaper articles. These marketing materials are sent out to customers up to one month before the day of the workshop.

Outreach Activities

EVMWD offers continuous conservation-related messaging through its website (www.evmwd.com) and its microsites, http://evmwddrought.com/ and Elsinore Eddie's Gardens (http://elsinoreeddiesefficientgardens.com/). These websites contain various brochures, fact sheets, photo visuals, and other conservation program information. When possible, EVMWD plans to host booths offering printed conservation materials for customers, including rebate program information, water-wise living tips, and free conservation devices. The outreach activities are an effective way to educate customers on conservation practices and work directly with the community to promote conservation. EVMWD conducts significant and ongoing social media outreach initiatives, as well.

Education

Under normal circumstances, EVMWD works with local kindergarten through grade 12 schools to educate students on conservation and the importance of participating. Educational programs that EVMWD uses include local poster contests to showcase the "Water is Life" concept, field trips to EVMWD water treatment facilities and water-efficient gardens, and promotion of grant opportunities encouraging classes to create and implement water-related projects at their schools.

9.2.5 Programs to Assess and Manage Distribution System Water Loss

EVMWD's current operations and data management practices are designed to reduce real and apparent losses. Real losses are attributed to physical loss of water from the system caused by leaks, breaks, or spillage that occurs before customer consumption. Apparent losses are attributed to nonphysical losses that occur when water is delivered to the customer but is not measured or recorded accurately, which may be attributed to metering inaccuracies, unauthorized consumption (theft), or systematic data-handling error.

EVMWD uses the current efforts to minimize these losses:

Annual Water Auditing

To meet regulations outlined in California Senate Bill 555, EVMWD conducts annual water auditing using the standard American Water Works Association (AWWA) M36 methodology. The water audit is validated by a third party each year and provides a high-level indication of water loss performance.

Efficient Response to Reported Breaks

EVMWD field staff respond to work orders related to reported breaks quickly and repair breaks effectively, minimizing leakage.

Source Meter Testing: EVMWD conducts accuracy testing on active source meters to capture production volumes correctly. Accurate production volumes are critical to reliable water auditing. The testing program adopted by EVMWD is guided by the accuracy parameters set forth by AWWA. The data obtained through testing is also used for the Water Loss Audit required by the DWR.

Customer Meter Testing and Replacement: EVMWD conducts accuracy testing on 0.05% of its customer meters per year to inform replacement policies and estimate metering error for the annual water audit. Through EVMWD's Meter Testing Program, meter accuracy can be monitored to ensure that water consumption is billed at an equitable rate and all usage is accounted for.

9.2.6 Water Conservation Program Coordination and Staffing Support

EVMWD's water conservation staff consists of a Water Efficiency Specialist overseen by a Community Affairs Supervisor. Both positions are EVMWD's contact points for water conservation-related discussions, support, distribution of conservation materials, and outreach opportunities. Historically, EVMWD's customers have been offered more than 25 separate rebate programs operated through Western and SoCal Water$mart. These programs complement EVMWD's water-efficient programming.

9.2.7 Other Demand Management Measures

As discussed in **Chapter 9.2.4**, EVMWD collaborates with Metropolitan and Western to implement most of its conservation programs. Additional DMM efforts are summarized in that section.

9.3 Reporting Implementation

9.3.1 Implementation over the Past Five Years

EVMWD must provide a narrative description addressing the nature and extent of each DMM implemented from 2016 through 2020.

The water waste prevention ordinance, conservation pricing, and public education and outreach are ongoing. For water waste, between 2016 and 2020, a total of 119 contacts were made to customers and 24 written actions (door hangers, warning letters) were issued. Since the implementation of Ordinance 225 and continuous efforts, EVMWD's GPCD has remained constant, even with population growth. For example, in 2015, the actual GPCD was 128, and in 2020 the GPCD was 129. Based on the 2018 Water Conservation Business Plan, the 2020 DMM measures are estimated to save about 900 AFY (Maddaus Water Management, 2018).

The metering program is ongoing and helps staff identify significant leaks. Over the past five years, water loss has ranged from 5% to 9%, which are low compared to other water suppliers. Per the System Optimization Review (SOR) Plan (SOR Plan), from 2016 to 2018, real loss averaged 20.1 gallons per connection per day, which is below the California State median of 25 gallons per connection per day over the same time period (Water System Optimization (WSO), 2020). These results indicate that EVMWD's efforts to minimize losses are working.

9.4 Water Use Objectives (Future Requirements)

EVMWD complies with the 2020 SBX7-7 water use target. EVMWD is aware that future water use standards are under development, which will supersede SBX7-7 standards and likely require additional water use reductions. Therefore, EVMWD plans to continue encouraging efficient water use and implementing water use efficiency measures to support meeting future water use standards and to enhance resiliency for drought and other water shortage conditions.

As part of the 2018 Water Conservation Business Plan, EVMWD identified 21 existing and new measures that could be implemented to achieve greater water savings. The implementation of these strategies will save between 1,100 AFY and 9,890 AFY between 2020 and 2040. This plan is included in **Appendix M**.

In September 2020, EVMWD completed the SOR Plan to evaluate and prioritize opportunities to better assess and reduce water loss in the potable system. The SOR Plan outlines 18 discrete optimization projects that EVMWD can implement to increase confidence in water loss assessment, reduce leakage, and prepare for upcoming state regulations. These projects are summarized in **Figure 9-1**, which is Table 2 of the SOR Plan. This plan is included in **Appendix N**.

Area	Optimization Project	Cost	Effort	2021	2022	2023	2024	2025	2026	2027	2028
Water Audit Data Improvements	Create single repository for source and customer meter testing and calibration results	*	**								
	Review AMI data handling process and procedure	*	*								
	Standardize audit compilation with written documentation	*	**								
	Improve cross-departmental communication related to water loss metrics and opportunities	*	**								
Source Meters	Reaffirm annual source meter accuracy testing policy	**	**								
	Reaffirm annual source meter calibration policy	**	**								
	Integrate source meters with AMI	****	****								
	Conduct source meter inventory and assessment	*	**								
	Install source meter at Temescal Valley Pipeline (TVP)	****	****								
Customer Meters	Shift to revenue-based large customer meter accuracy testing	*	**								
	Conduct flow profiling on large customer meters	**	**								
	Shift to random and representative small customer meter accuracy testing	***	**								
	Identify failing customer meters on closed accounts	*	*								
Leakage	Enhance work order data to support water loss analysis (adjust current system or implement new one)	* / ****	** / ****								
	Pilot satellite leak detection	**	***								
	Pilot transient monitoring	**	**								
	Pilot district metered areas (DMA) using booster stations	***	***								
	Look for opportunities to optimize pressure when operationally feasible	*	**								

Improved Assessment Water Loss Reduction

**Lighter shade indicates reduced effort*

Figure 9-1. EVMWD SOR Plan Implementation Timeline (Source: 2020 SOR Plan)

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10 URBAN WATER MANAGEMENT PLAN
Plan Adoption, Submittal, and Implementation

This section describes the steps taken to adopt and submit the UWMP and to make it publicly available. This chapter also includes a discussion of the EVMWD's plan to implement the UWMP.

The 2020 UWMP, 2021 WSCP, and 2015 UWMP addendum were prepared in a transparent manner, and EVMWD actively engaged stakeholders, cities, counties, water agencies, and the public to both seek and distribute water use, supply, and reliability information to strengthen EVMWD's ability to assess and plan for water future.

IN THIS SECTION

10.1 Inclusion of All 2020 Data

EVMWD included all requisite 2020 data in the development of this UWMP.

10.2 Notice of Public Hearing

10.2.1 Notice to Cities and Counties

CWC Section 10621(b) requires that suppliers notify cities and counties in which they serve water that the UWMP and WSCP are being updated and reviewed at least 60 days prior to the public hearing. To fulfill this requirement, on **March 26, 2021**, EVMWD notified all cities and counties within the service area of their intent to update the UWMP by **June 10, 2021**. On **May 18, 2021**, public hearing notices to all cities and counties within the service area were provided, which provided the time and place of the public hearing. In addition, EVMWD sent public hearing notices to several tribes and environmental and social groups. Letters were sent to Pechanga Band of Luiseño Indians, Agua Caliente Band of Cahuilla Indians, Soboba Band of Luiseño Indians, Rincon Band of Luiseño Indians, Audubon Society, the Nature Conservancy, and Center for Community Action and Environmental Justice. These notices are provided to meet the CWC requirements and are included in **Appendix D**. **Table 10-1** shows the notification provided to the surrounding cities and counties.

Table 10-1. Notification to Cities and Counties (This is Required DWR Table 10-1R)

CITY	60 DAY NOTICE	NOTICE OF PUBLIC HEARING
City of Canyon Lake	Yes	Yes
City of Corona	Yes	Yes
City of Lake Elsinore	Yes	Yes
City of Murrieta	Yes	Yes
City of Wildomar	Yes	Yes
COUNTY	**60 DAY NOTICE**	**NOTICE OF PUBLIC HEARING**
Riverside County Flood Control and Water Conservation District	Yes	Yes
Riverside County Planning Department	Yes	Yes
OTHER	**60 DAY NOTICE**	**NOTICE OF PUBLIC HEARING**
California Regional Water Quality Control Board – Santa Ana Region (8)	Yes	Yes
Eastern Municipal Water District	Yes	Yes
Western Municipal Water District	Yes	Yes
Farm Mutual Water Company	Yes	Yes
Rancho California Water District	Yes	Yes
Temescal Valley Water District	Yes	Yes
Metropolitan Water District of Southern California	Yes	Yes

CITY	60 DAY NOTICE	NOTICE OF PUBLIC HEARING
Santa Ana Watershed Protection Authority	Yes	Yes
Santa Margarita River Watershed	Yes	Yes

10.2.2 Notice to the Public

Per Government Code 6066, EVMWD provided notice of the 2020 UWMP, 2021 WSCP, and 2015 UWMP Addendum public hearings at least two weeks in advance in a local newspaper, with at least five days between publications. Notice of the public hearing was first noticed in the local paper on **May 25, 2021**, and again on **June 1, 2021**. The hearing notices are attached as **Appendix D**.

10.3 Public Hearing and Adoption

The 2020 UWMP, 2021 WSCP, and 2015 UWMP addendum were included as separate agenda items, submitted for notice, and reviewed in a public hearing at the regularly scheduled EVMWD's Board of Directors (Board) meeting on **June 10, 2021**. This hearing provided cities, counties, and members of the public a chance to review the staff report and provide comments. The public hearing took place before the adoption, offering an opportunity for the report to be modified in response to public input. The Board adopted the 2020 UWMP, 2021 WSCP, and 2015 UWMP addendum on **June 10, 2021**. A copy of each Resolution of Plan Adoption is included as **Appendix O.**

10.4 Plan Submittal

The 2020 UWMP, 2021 WSCP, and 2015 UWMP addendum were submitted to DWR by July 1, 2021 (within 30 days of adoption) using the DWR Water Use Efficiency (WUE) Data Portal. The documents were also submitted to the California State Library and to all cities and counties within EVMWD's service area within 30 days of adoption.

10.5 Public Availability

Commencing no later than July 1, 2021, EVMWD will have a copy of the 2020 UWMP, 2021 WSCP, and 2015 UWMP addendum available for public review at the EVMWD office (see address below) during regular business hours.

Elsinore Valley Municipal Water District

31315 Chaney St

Lake Elsinore, CA 92531

The final documents will also be posted on the EVMWD website at **https://www.evmwd.com/**.

10.6 Amending an Adopted UWMP or WSCP

Amendments to the EVMWD 2020 UWMP and WSCP will be made on an as-needed basis. **Table 10-2** outlines the general steps to adopt, submit, and/or amend the UWMP and/or WSCP.

Should EVMWD need to amend the adopted 2020 UWMP or WSCP in the future, EVMWD will hold a public hearing for review of the proposed amendments to the document. EVMWD will send a 60-day

notification letter to all cities and counties within the EVMWD service area and notify the public in the same manner set forth in **Chapter 2** of this UWMP. Once the amended document has been adopted, a copy of the finalized version will be sent to the California State Library, DWR (electronically using the WUE data reporting tool), and all cities and counties within the EVMWD service area within 30 days of adoption. The finalized version will also be made available to the public both online on the EVMWD website and in person at the EVMWD office during normal business hours.

Table 10-2. Steps to Adopt, Submit, and Implement the UWMP and WSCP

STEP	TASK	DESCRIPTION	TIMEFRAME
1	Notice to cities and counties	Notify cities and counties within the service area that the UWMP or WSCP is being updated. It is recommended that the notice includes: • Time and place of public hearing. • Location of the draft Plan, latest revision schedule, and contact information of the Plan preparer.	At least 60 days before public hearing. * If desired, advance notices can be issued without providing time and place of public hearing.
2	Publish Plan	Publish the draft UWMP or WSCP in advance of public hearing meeting	At least 2 weeks before public hearing.
3	Notice to the public	Publish two notifications of the public hearing in a local newspaper notice at least once a week for two consecutive weeks, with at least 5 days between publications. This notice must include: • Time and place of hearing. • Location of the draft UWMP or WSCP.	At least 2 weeks before public hearing. * Include a copy of public notices in plan.
4	Public hearing and optional adoption	Host at least one public hearing before adopting the UWMP or WSCP to: • Allow for community input. • Consider the economic impacts for complying with the Plan. **For UWMP only** As part of public hearing, • Provide information on the SBX7-7 baseline water use, target water use, compliance status, and implementation plan. • If needed, re-adopt a method for determining urban water use targets	Public hearing date * Adoption can be combined as long as public hearing is on the agenda before adoption
5	Adoption	Before submitting the UWMP or WSCP to DWR, the governing body must formally adopt it. An adoption resolution must be included, as an attachment or as a web address indicating where the adoption resolution can be found online.	At public hearing or at a later meeting. *The UWMP or WSCP can be adopted as prepared or as modified after the hearing.
6	Plan submittal	Submit the adopted or amended UWMP or WSCP via the WUE Data Portal within 30 days of adoption or by July 1, if updated with the UWMP five-year cycle.	Within 30 days of adoption or by July 1st, whichever comes first.

*Table continues on the next page

STEP	TASK	DESCRIPTION	TIMEFRAME
7	Plan availability	Submit a CD or hardcopy of the adopted UWMP or WSCP to the California State Library within 30 days of adoption. California State Library Government Publications Section Attention: Coordinator, Urban Water Management Plans P.O. Box 942837 Sacramento, CA 94237-0001 Provide a copy (hardcopy or electronic) of the adopted UWMP or WSCP to any cities and counties within the service area. Make the UWMP or WSCP available to the public by posting the Plan on website or making a hardcopy available for public review during normal business hours.	Within 30 days after adoption
9	Other - Notification to Public Utilities Commission	For water suppliers regulated by the California Public Utilities Commission (CPUCP) submit UWMP and WSCP as part of the general rate case filing.	

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URBAN WATER MANAGEMENT PLAN

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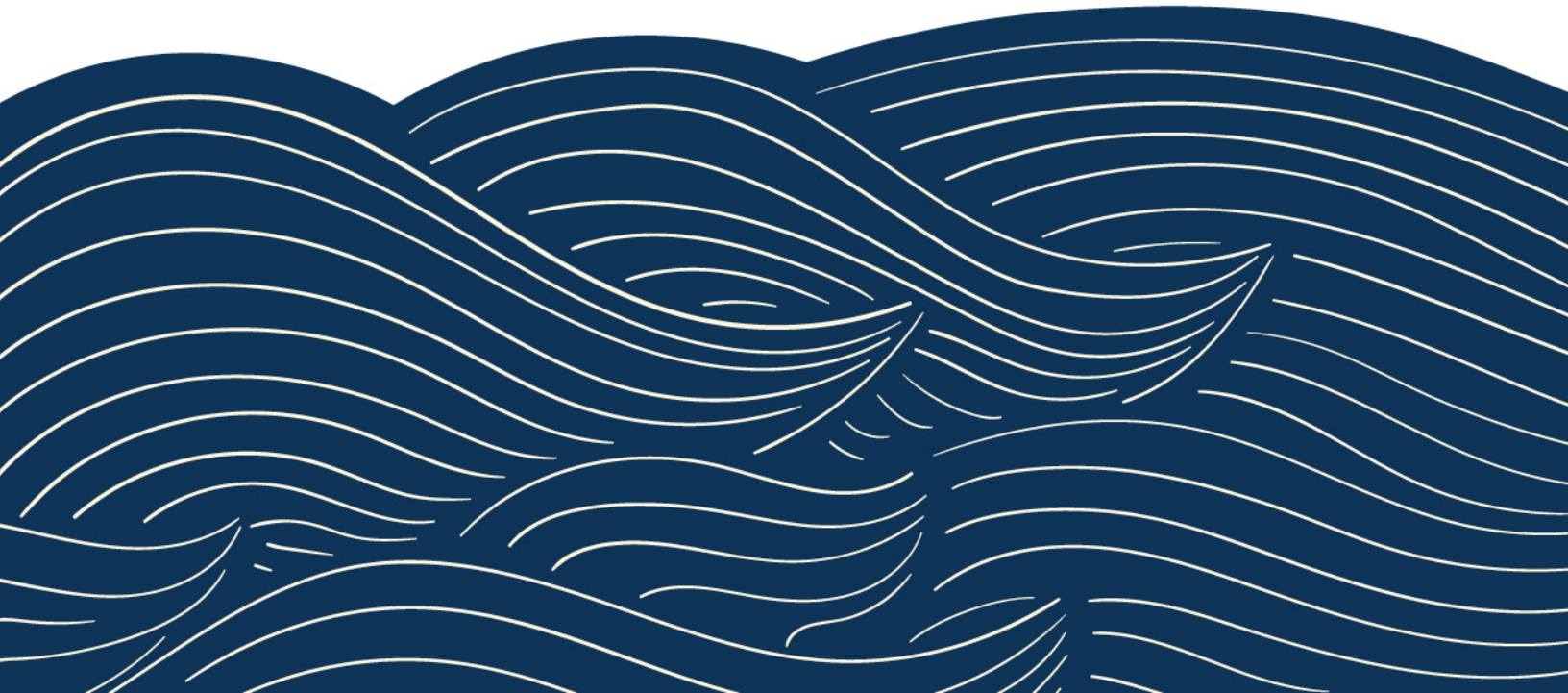
A

2021 Water Shortage Contingency Plan



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ELSINORE VALLEY MUNICIPAL WATER DISTRICT

Water Shortage Contingency Plan

FINAL

JUNE 2021

Prepared by Water Systems Consulting, Inc.

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Water Shortage Contingency Plan

The Water Shortage Contingency Plan (WSCP; or Plan) is a strategic plan that Elsinore Valley Municipal Water District (EVMWD) uses to prepare for and respond to foreseeable and unforeseeable water shortages. A water shortage occurs when the water supply available is not sufficient to meet the normally expected customer water use at a given point in time. A shortage may occur due to many reasons, such as an extended drought, water pollution, a power outage, and/or a catastrophic event.

The WSCP is used to provide guidance to EVMWD's Board of Directors (Board), staff, and the public by identifying anticipated water shortages and response actions to manage any water shortage with predictability and accountability in an efficient manner. This WSCP is not intended to provide absolute direction; rather, it is intended to provide a working framework and options to help guide the EVMWD's response to water shortages.

The purpose of the WSCP is to conserve the available water supply and protect the water supply's integrity while also protecting and preserving public health, welfare, and safety. Preparation provides the tools to maintain reliable supplies and reduce the impacts of supply interruptions during a water shortage.

Water shortages can be triggered by a hydrologic limitation in supply (i.e., a prolonged period of below normal precipitation and runoff), limitations or failure of supply and treatment infrastructure, or both. Hydrologic or drought limitations tend to develop and abate more slowly, whereas infrastructure failure tends to happen quickly and relatively unpredictably.

Water supplies may be interrupted or reduced significantly in several ways, such as during a drought that limits supplies, an earthquake that damages water delivery or storage facilities, a regional power outage, or a toxic spill that affects water quality.

The WSCP describes the following:

- **Water supply reliability analysis:** EVMWD's water supply analysis and reliability are described and any key issues that may trigger a shortage condition are identified.
- **Annual water supply and demand assessment procedures:** The key data inputs, evaluation criteria, and methodology for assessing the system's reliability are described for the coming year, as are the steps to formally declare any water shortage levels and response actions.
- **Shortage stages:** Water shortage levels are established to clearly identify and prepare for shortages.
- **Shortage response actions:** Response actions are described that may be implemented or considered for each stage to reduce gaps between supply and demand.
- **Communication protocols:** Communication protocols under each stage are described to ensure customers, the public, and government agencies are informed of shortage conditions and requirements.

- **Compliance and enforcement:** Compliance and enforcement actions available to administer demand reductions are defined.
- **Legal authority:** The legal documents are summarized that grant EVMWD the authority to declare a water shortage and implement and enforce response actions. EVMWD's current Ordinance 225, adopted in 2015, provides EVMWD the authority to adopt and enforce a WSCP. Ordinance 225 outlines the shortage stages and response actions identified in this WSCP (Elsinore Valley Municipal Water District, 2015).
- **Financial consequences of WSCP implementation:** The anticipated financial impacts of water shortage stages are described and mitigation strategies to offset financial burdens are identified.
- **Monitoring and reporting:** The monitoring and reporting techniques to evaluate the effectiveness of shortage response actions and overall WSCP implementation are summarized. Results are used to determine if additional shortage response actions should be activated, if efforts are successful, and if response actions should be adjusted.
- **WSCP refinement procedures:** Factors that may trigger updates to the WSCP are described, and the WSCP outlines how to complete an update.
- **Special water-features distinctions:** Considerations are defined, and definitions are provided for water use for decorative features versus pools and spas. Decorative features include ornamental fountains, ponds, and other aesthetic features.
- **Plan adoption, submittal, and availability:** The WSCP adoption process, submittal, and availability after each revision are described.

This WSCP was prepared in conjunction with EVMWD's 2020 Urban Water Management Plan (UWMP) and is a standalone document that can be modified as needed. This document is compliant with the California Water Code Section 10632 and guidance was incorporated in it from the State of California Department of Water Resources UWMP Guidebook 2020 (California Department of Water Resources, 2021).

The WSCP addresses several types of water supply shortages that could potentially impact EVMWD and its customers, including:

- Short-term supply shortages due to a decrease in surface water and groundwater levels, natural or manmade catastrophic emergencies, or production capacity limitations
- Long-term supply shortages due to prolonged drought, groundwater over pumping, contamination, destruction of critical water supply facilities, and so forth

EVMWD also developed a Drought Contingency Plan (DCP) in 2018, which was used to develop this WSCP. The DCP includes information on drought monitoring, a drought vulnerability assessment, mitigation actions, response actions, and operational and administrative frameworks for the implementation of the DCP. The DCP was developed in response to significant droughts in California that severely affected water supplies. Under the DCP, EVMWD developed a drought-monitoring framework that was used to monitor near- and long-term water availability and described steps for confirming existing droughts and predicting droughts. Details for this process include analyzing weather indices like the Palmer Drought Severity Index and the Standard Precipitation Index from the National Oceanic and Atmospheric Administration. In addition, EVMWD will monitor supply availability for both local and imported water sources, infrastructure operability, and any statewide mandates that may influence supply and demand (Civiltec for Elsinore Valley Municipal Water District, 2018). Additional information on the drought monitoring framework is provided in the DCP.

1.1 Water Supply Reliability Analysis

This section is structured in accordance with California Water Code (CWC) Section 10632(a)(1) and describes the key findings of the water supply reliability analysis that was conducted pursuant to CWC Section 10635, which is presented in **Chapter 7** of the EVMWD's 2020 UWMP (WSC, 2021). Understanding the water supply reliability factors provides EVMWD with a solid basis for developing appropriate and feasible response actions during a water shortage.

1.1.1 Supply Characterization

EVMWD's three primary sources of potable water supply are:

1. Local groundwater pumped from EVMWD-owned wells
2. Surface water from Canyon Lake Reservoir and treated by the Canyon Lake Water Treatment Plant (CLWTP). This source is offline until treatment upgrades are completed.
3. Imported water purchased from Metropolitan Water District (Metropolitan) through Western Municipal Water District (Western)

EVMWD first relies on local supplies prior to importing water. EVWMD is planning to use these supplies to meet its future demands under normal, single-dry, and five-consecutive-year drought conditions.

EVMWD is also planning to implement the following projects to increase the reliability of its supplies:

- **Palomar well replacement** — anticipated to be completed in 2023
- **Lee Lake Basin wells** — anticipated to be completed in 2024
- **Treatment upgrades at CLWTP** — anticipated to be completed in 2025
- **Temescal Pauba groundwater well** — anticipated to be completed in 2032
- **Indirect Potable Reuse (IPR) at the Regional Wastewater Reclamation Facility** — anticipated to be completed in 2034

The new projects have the potential to increase the water supply by 10,245 acre-feet per year (AFY) by 2045.

Furthermore, EVMWD has access to several additional water sources through its acquisition of the Temescal Water Company assets in 1989. These consist of groundwater from the Bunker Hill, Rialto-Colton, Riverside North, Bedford, Coldwater, and Lee Lake basins, and surface water from Temescal Creek and several tributary creeks. Currently, EVWMD has a 20-year agreement with Western to lease EVMWD's water rights in the San Bernardino Basin Area, totaling 4,680 AFY. The lease agreement, which provides a cost savings to Western customers and revenue to EVMWD, also includes four optional five-year extensions.

EVMWD also has a recycled-water network that delivers non-potable recycled water to customers in four different service areas. Three of the service areas are supplied by EVMWD and one recycled-water service area is supplied from the Santa Rosa Water Reclamation Facility owned by Santa Rosa Regional Resources Authority. All three of EVMWD's water reclamation facilities produce tertiary recycled water.

1.1.2 Water Service Reliability Assessment

In the 2020 UWMP, EVMWD conducted a Water Service Reliability Assessment to compare the total water supply sources available to long-term projected water demands over the next 25 years, in five-year increments, for a normal, single-dry year, and a five-year consecutive dry period. This analysis indicates that EVMWD's water supply portfolio is reliable under all scenarios and anticipates meeting demands through local and imported water sources.

1.1.3 Drought Risk Assessment

New to the 2020 UWMP, CWC Section 10635 (b) requires a Drought Risk Assessment (DRA), an analysis to evaluate the current supply reliability for 2021–2025 under stressed hydrologic conditions. This short-term analysis can help water suppliers foresee undesired risks, such as upcoming shortages, and allow for proactive steps to be taken before the next actual drought period that lasts at least five consecutive years.

EVMWD may use this analysis to determine how severe near-term shortages will be and identify the appropriate shortage level. The 2020 EVMWD DRA concluded that if a drought were to occur within the next five years, EVMWD's water supply portfolio is reliable and can still meet customer demands. EVMWD does not anticipate any supply shortages within the next five years from local or imported water sources.

1.1.4 Water Supply Reliability Risks

EVMWD's water supply may be threatened by different risks. Imported water may be affected greatly by climate change, whereas local groundwater and surface water may be affected more strongly by water quality issues. Risks to imported water, local groundwater, and surface water are summarized below and detailed in Chapter 7 of the 2020 UWMP.

Imported water supply may be significantly affected by climate change. Climate change is anticipated to increase the frequency and intensity of droughts and flooding, alter the timing of snowmelt, and increase variability in precipitation while raising average temperatures and increasing sea levels. This may affect the amount of water available in the Bay-Delta and Colorado River systems and possibly limit EVMWD's access to imported water.

Local groundwater may be affected by over pumping. However, local groundwater basins have, or will soon have, Groundwater Sustainability Plans (GSPs) in place to guide water agencies to properly manage groundwater basins and ensure sustainability for future generations, in accordance with the Sustainable Groundwater Management Act. EVMWD extracts groundwater from the Elsinore Basin, which is also negatively affected by nitrates and arsenic. To combat high levels of nitrates, EVMWD continues to monitor and treat groundwater by blending it with other higher-quality water. To address arsenic, EVMWD treats groundwater at the Back Basin Groundwater Treatment Plant and blends it with other higher-quality water prior to conveyance to customers.

In addition, surface water from Canyon Lake is currently affected by per- and polyfluoroalkyl substances (PFAS) and, therefore, is not used as an active supply source. EVMWD is monitoring PFAS levels and working on a solution to reinstate Canyon Lake as an active supply source by early to mid-2025.

1.2 Annual Water Supply and Demand Assessment

This section is structured in accordance with CWC Section 10632(a)(2) and describes the methodology for preparing and submitting the Annual Water Shortage Assessment Report (annual report) to DWR, due July 1 each year starting in 2022. Because EVMWD receives imported water from the State Water

Project, EVMWD may submit the annual report within 14 days of receiving its final allocations, or by July 1 of each year, whichever is later. This section also discusses the decision-making process to formally approve any water shortage levels and response actions.

The annual report must include the annual water supply and demand assessment (Annual Assessment) results with information on how EVMWD intends to respond to shortages, if any. The Annual Assessment is an evaluation of the near-term outlook for supplies and demands. It is used to determine whether the potential for a supply shortage exists and whether there is a need to trigger WSCP shortage level and response actions in the current calendar year to maintain supply reliability. The annual report should report the anticipated shortage level, triggered shortage response actions, compliance and enforcement actions, and communication actions that will be implemented to mitigate the shortage identified in the Annual Assessment. The preparation of this report will inform the Board, the public, and state and local agencies about EVMWD's water supply conditions and the likelihood of water shortages.

The annual report process will take place at the same time each year on the basis of known circumstances and information available to EVMWD at the time of analysis and can be updated or revised at any time if circumstances change. EVMWD will establish and convene a WSCP Team to conduct the Annual Assessment each year.

The 2018 DCP included an operational and administrative framework to designate roles and responsibilities for implementing the DCP. It is assumed that the same team will be responsible for implementing the WSCP. **Table A-1** identifies the key members of the WSCP and DCP teams and responsibilities associated with each plan element.

Table A-1. Operational and Administrative Framework

TASK	TASK FORCE LEAD(S)	RESPONSIBILITIES
Annual Assessment (WSCP)/ Drought Monitoring (DCP)	Water Resources Manager	Data collection, observation, drought forecast, monitor hydrologic conditions, and share information with stakeholders.
Vulnerability Assessment	Water Resources Manager	Climate change assessment, vulnerability assessment.
Mitigation Actions	Water Resources and Engineering Mangers	Evaluate and initiate infrastructure opportunity for mitigation actions.
Response Actions	Water Resources Manager, Community Relations Manager/Community Affairs Supervisor, Assistant General Manager	Create and identify response actions, stages and fines, relationship, education, communication, and initiate response actions.
Plan Actions	Water Resource Manager	Create plan update process and assign personnel.
Source: Elsinore Valley Municipal Valley Water District Drought Contingency Plan (2018)		

EVMWD's Annual Assessment procedure, including key data inputs, evaluation criteria, and responsible staff is summarized in **Table A-2**.

Table A-2. Annual Assessment Procedure

TIMING	ASSESSMENT ACTIVITIES	PROCEDURE, KEY DATA INPUTS, EVALUATION CRITERIA AND OTHER CONSIDERATIONS	EVMWD STAFF RESPONSIBLE
March	Estimate unconstrained demands for the upcoming year	EVMWD evaluates water budgets every two-years and will utilize this effort to determine anticipated demands for the coming year. Water budgets will be compared to actual demand use to ensure actual demand trends represent the forecasted water budget estimate to build reliability.	Water Resources Manager Water Resources Planner/Engineer Finance Manager
March	Estimate available supplies for the year, considering the following year will be dry	EVMWD anticipates that sufficient imported supplies will be available to meet demands, even in dry years, based on Metropolitan and Western's 2020 UWMP. If Metropolitan enacts their Water Shortage Allocation Plan (WSAP) and declares a shortage stage (typically done in the spring of a given year if needed), normal quantities of water will still be available, but will be charged at penalty rate above the allocation. EVMWD's local supplies are from groundwater basins and the CLWTP (currently not in use). Local groundwater basins are in the process of developing GSPs to ensure sustainability and reliability for future generations. Groundwater basins are not anticipated to be impacted in dry years.	Water Resources Manager Water Resources Planner/Engineer
March	Consider potential infrastructure constraints that may impact supply delivery	Identify any known Metropolitan, Western, or EVMWD infrastructure issues that may pertain to near-term water supply reliability, including repairs, construction, and environmental mitigation measures that may temporarily constrain capabilities, as well as any new projects that may add to system capacity. Identify any facilities out of service due to water quality problems, equipment failure, etc. that may impact normal water deliveries.	Water Resources Manager
April	Convene WSCP Team to conduct Retail Annual Assessment	Compare supplies and demands and discuss any infrastructure constraints that may impact supply delivery. If the potential for a shortage exists or if Metropolitan/Western have enacted a WSAP stage, determine which EVMWD shortage response level and actions are recommended to reduce/eliminate the shortage or to reduce demands on Metropolitan/Western. Additionally, if the State declares a drought state of emergency and requires demand reductions, the WSCP Team will determine which water shortage level and response actions are needed to comply with the State mandate.	WSCP Team

*Table continues on the next page.

TIMING	ASSESSMENT ACTIVITIES	PROCEDURE, KEY DATA INPUTS, EVALUATION CRITERIA AND OTHER CONSIDERATIONS	EVMWD STAFF RESPONSIBLE
June	EVMWD Board of Directors	If the potential for a shortage exists, if Metropolitan and/or Western has enacted a WSAP stage or the State has mandated demand reductions, the results of the Annual Assessment will be presented to the EVMWD Board of Directors, including the recommended shortage level and response actions. The Board of Directors may order the implementation of a shortage level and will adopt a resolution declaring the applicable water shortage level.	Water Resources Manager Board of Directors
On-Going	Implement WSCP actions, if needed	Relevant members of EVMWD's staff will implement shortage response actions associated with the declared water shortage level	WSCP Team
Prior to July 1st	Submit Annual Assessment	Submit Final Annual Assessment to DWR	Water Resources Manager

1.3 Water Shortage Levels

This section is structured in accordance with CWC Section 10632(a)(3) and describes EVMWD's water shortage levels. New to the 2020 UWMP, water suppliers must now adopt six standard water shortage levels. However, a water supplier may maintain its current shortage levels if a crosswalk relating its existing shortage levels to the six standard levels is included. DWR standardized the shortage levels to provide a consistent regional and statewide approach to measure water supply shortage conditions. The six standard water shortage levels correspond to progressively increasing estimated shortage conditions (up to 10%, 20%, 30%, 40%, 50%, and greater than 50% shortages compared with the normal reliability conditions) and align with the response actions that a water supplier would implement to mitigate the severity of the impending shortages.

EVMWD is maintaining its current water shortage levels, as identified in Ordinance 225, with the intent to update them when Western updates its wholesale stages. EVMWD uses five shortage stages to identify and respond to water shortage emergencies. At a minimum, EVMWD encourages baseline conservation efforts year-round, regardless of a shortage emergency. Stages 3, 4, and 5 are further broken down into substages (3a, 3b, and so forth) to allow for greater flexibility when implementing response actions. **Table A-3** shows EVMWD's five shortage levels, and a cross-reference to the six standard stages is shown in **Figure A-1**.

In 2020, EVMWD obtained approximately 64% of its total potable water supply as imported water from Western. With the exception of a catastrophic failure of Western's Mills Gravity Line, a critical piece of infrastructure that conveys imported water to EVMWD and other local agencies, or other infrastructure failure of similar magnitude, EVMWD does not foresee imposing a water shortage level except under the State's direction, as occurred in 2014. If a potential water supply shortage is identified in the Annual Assessment, this section provides information on the water shortage levels and response actions that EVMWD may implement.

Table A-3. DWR 8-1 Water Shortage Contingency Plan Levels

SHORTAGE LEVEL	PERCENT SHORTAGE RANGE[1] (NUMERICAL VALUE AS A PERCENT)	SHORTAGE RESPONSE ACTIONS
1	Up to 5%	Stage 1 response actions
2	Up to 10%	Stages 1 and 2 response actions
3	Up to 25%	Stages 1, 2, and 3 response actions
4	Up to 40%	Stages 1, 2, 3, and 4 response actions
5	Up to or greater than 50%	Stages 1, 2, 3, 4, and 5 response actions
[1]One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.		

EVMWD's Shortage Stage	Supply Shortage Level
1	Up to 5%
2	Up to 10%
3	Up to 25%
4	Up to 40%
5	Up to or Greater than 50%

DWR's 2020 WSCP Standard Shortage Stage	Standard Supply Shortage Level
1	Up to 10%
2	Up to 20%
3	Up to 30%
4	Up to 40%
5	Up to 50%
6	Greater than 50%

Figure A-1. EVMWD's Shortage Stages and Their Relationship to DWR's Six Standard Shortage Stages

1.4 Shortage Response Actions

This section is structured in accordance with CWC Section 10632(a)(4) and describes the response actions available to mitigate shortages. EVMWD expects to mitigate supply shortages through a variety of response actions, including demand-reduction actions, conservation, operational changes, outreach, and, if necessary, mandatory prohibitions. It should be noted that subsequent stages require that restrictions and prohibitions from previous stages continue to apply. If necessary, EVMWD may adopt additional actions not listed here in extreme circumstances. Ordinance 225 provides standing authorization for water use restrictions and prohibitions to become effective upon adoption by the Board. The following section discusses the response actions for each of EVMWD's five water supply shortage stages as provided in detail in EVMWD's Ordinance 225 (**Attachment 1**).

In the event of a water shortage emergency, EVMWD will evaluate the cause of the emergency to help inform which response actions should be implemented. Depending on the nature of the water shortage, EVMWD can elect to implement one or several response actions to mitigate the shortage and reduce gaps between supply and demand.

1.4.1 Demand Reduction

EVMWD has identified a variety of demand reduction actions to offset supply shortages. Demand-reduction measures are strategies intended to decrease water demand to close the gap between supply and demand. These actions include, but are not limited to, leak detection and repair, limitations on irrigation, and other voluntary actions to reduce customer demand. Demand reduction actions available to EVMWD that may be considered during water shortage conditions are summarized in **Table A-4.** These methods were effective in providing required substantial reductions in demand during the drought that commenced in 2012.

EVMWD also developed a long-term, comprehensive, system-wide system optimization review plan of EVMWD that provides an assessment of potential water management improvements to address annual water audits and efficient responses to reported water main breaks, meter testing, and meter replacement (Elsinore Valley Municipal Water District and Water Systems Optimization, 2020). This plan helps EVMWD identify and mitigate water loss throughout the system.

Table A-4. DWR 8-2 Demand Reduction Actions

SHORTAGE LEVEL	DEMAND REDUCTION ACTIONS	HOW MUCH IS THIS GOING TO REDUCE THE SHORTAGE GAP?[1,2]	ADDITIONAL EXPLANATION OR REFERENCE	PENALTY, CHARGE, OR OTHER ENFORCEMENT
1	Landscape - Other landscape restriction or prohibition	1-5%	All irrigation shall ensure automatic irrigation timers are adjusted according to changing weather patterns and landscape requirements	Yes
1	Other - Require automatic shut-off hoses	1-5%	All open hoses shall be equipped with automatic, positive shut-off nozzles.	Yes
1	Landscape - Limit landscape irrigation to specific times	1-5%	Watering of lawns and/or groundcovers and irrigating landscaping is permitted only between the hours of 6:00 p.m. and 6:00 a.m.	Yes
1	Landscape - Restrict or prohibit runoff from landscape irrigation	1-5%	Sprinklers and irrigation systems shall be adjusted to avoid overspray, runoff and waste. Watering on windy days is to be avoided.	Yes
1	Other	1-5%	Installation of water saving devices, such as low flow shower heads and faucet aerators, is encouraged	Yes
1	Landscape - Other landscape restriction or prohibition	1-5%	Selection of low-water-demand shrubs, groundcovers and trees for all new landscaping is strongly encouraged	Yes
1	Other water feature or swimming pool restriction	1-5%	All swimming pools, spas, ponds, and fountains shall be equipped with re-circulating pumps.	Yes
1	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	1-5%	All plumbing leaks, improperly adjusted sprinklers, or other water conduits/fixtures that require repair or adjustment shall be corrected within 96 hours of notification	Yes
1	Other - Prohibit use of potable water for washing hard surfaces	1-5%	Prohibit use of potable water for washing hard surfaces	Yes
1	Landscape - Restrict or prohibit runoff from landscape irrigation	1-5%	No Person shall allow water to leave his or her property by drainage onto adjacent properties or public or private roadways or streets due to excessive irrigation or uncorrected leaks	Yes
1	Other - Vehicle washing except at facilities using recycled or recirculating water	1-5%	Washing of vehicles can only be done with a bucket or hand-held hose equipped with an automatic, positive shut off nozzle.	Yes

SHORTAGE LEVEL	DEMAND REDUCTION ACTIONS	HOW MUCH IS THIS GOING TO REDUCE THE SHORTAGE GAP?[1,2]	ADDITIONAL EXPLANATION OR REFERENCE	PENALTY, CHARGE, OR OTHER ENFORCEMENT
1	Other	1-5%	Construction operations receiving water from a construction meter, hydrant meter, or water truck shall not use water for any purpose other than those required by regulatory agencies. Construction projects requiring watering for new landscaping materials shall adhere to the designated irrigation requirements.	Yes
2	Landscape - Limit landscape irrigation to specific days	5-10%	Use of movable or permanent sprinkler systems allowed no more than three days per week. However, irrigation of lawns, gardens, landscaped areas, trees, shrubs or other plants is permitted at any time if a hand-held hose, hand-held bucket, a drip irrigation system, or recycled water is used.	Yes
2	Landscape - Limit landscape irrigation to specific days	5-10%	Irrigation occurring during or 48 hours after a rain event is prohibited.	Yes
2	Other	5-10%	Construction meters utilizing potable water shall be issued only to those persons who have been issued valid grading and/or building permits.	Yes
2	CII - Restaurants may only serve water upon request	5-10%	All restaurants, cafes, and other public food service establishments are prohibited from serving drinking water unless specifically requested by their customers.	Yes
2	CII - Lodging establishment must offer opt out of linen service	5-10%	Hotels, motels and other commercial lodging establishments should provide customers the option of not having towels and linens laundered daily. Commercial lodging establishments should prominently display notice of this option in each bathroom using clear and easily understood language.	Yes
2	Pools and Spas - Require covers for pools and spas	5-10%	Customers shall install pool and spa covers to minimize water loss due to evaporation.	Yes
2	Landscape - Other landscape restriction or prohibition	5-10%	Installation of new landscapes shall be prohibited unless irrigated with drip irrigation. Exceptions may be provided for projects with prior approval by the appropriate jurisdiction.	Yes
2	Other	5-10%	The District shall develop a public information campaign to provide Customers with options for achieving the Stage 2 demand reduction goal. The District shall explore increased Customer incentives for conservation measures.	Yes

SHORTAGE LEVEL	DEMAND REDUCTION ACTIONS	HOW MUCH IS THIS GOING TO REDUCE THE SHORTAGE GAP?[1,2]	ADDITIONAL EXPLANATION OR REFERENCE	PENALTY, CHARGE, OR OTHER ENFORCEMENT
2	Other	5-10%	Water use beyond the water volume permitted will be charged a civil administrative penalty of $1.59 per hundred cubic feet (CCF).	Yes
3	Landscape - Limit landscape irrigation to specific days	10-25%	Irrigation only three days per week	Yes
3	Pools - Allow filling of swimming pools only when an appropriate cover is in place.	10-25%	No filling uncovered swimming pools	Yes
3	Water Features - Restrict water use for decorative water features, such as fountains	10-25%	Operation of any exterior ornamental fountain or similar structure is prohibited unless equipped with a recirculating system	Yes
3	Other	10-25%	The District shall eliminate all adjustments to existing residential Customers' outdoor Water Budgets including increases for swimming pools, spas, pond maintenance adjustments, etc.	Yes
4	Other	25-40%	Water use beyond the water volume permitted will be charged a civil administrative penalty of $2.09 per hundred cubic feet (CCF).	Yes
4	Landscape - Limit landscape irrigation to specific days	25-40%	Irrigation only two times a week on odd/even calendar days	Yes
4	Other - Prohibit use of potable water for construction and dust control	25-40%	No District water shall be used for construction purposes	Yes
4	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	25-40%	Commercial car-washing using recycled water only	Yes
4	Other - Prohibit use of potable water for construction and dust control	25-40%	No new construction or hydrant meters will be issued. Potable water shall not be used for earthwork, road construction, dust control, compaction, or trenching jetting.	Yes
5	Other	>40%	Water use beyond the water volume permitted will be charged a civil administrative penalty of $4.01 per hundred cubic feet (CCF).	Yes

SHORTAGE LEVEL	DEMAND REDUCTION ACTIONS	HOW MUCH IS THIS GOING TO REDUCE THE SHORTAGE GAP?[1,2]	ADDITIONAL EXPLANATION OR REFERENCE	PENALTY, CHARGE, OR OTHER ENFORCEMENT
5	Landscape - Other landscape restriction or prohibition	>40%	All landscape and non-essential outdoor water use for all Customers in all areas of the District's retail water service area shall be prohibited	Yes
5	Other	>40%	No new water meter(s) shall be provided, except if the project is necessary to protect public health, safety, and welfare or when using recycled water.	Yes
5	Other	>40%	All dedicated irrigation meters will be locked off by District personnel.	Yes

[1]Reduction in the shortage gap is estimated and can vary significantly. The upper end of the gap reduction is based on the use of multiple demand reduction actions in a stage. For example, if all shortage level Stage 1 actions by EVMWD were implemented, a 5% reduction or higher in the shortage gap is estimated.

[2]Reduction in the shortage gap for Stages 2–5 assume all measures in the previous stage(s) are implemented and those savings are counted toward the total reduction in the shortage gap. For example, in WSCP Stage 4, EVMWD may limit irrigation to specific days, and this measure, along with all demand management measures in Stages 1, 2, and 3, is estimated to reduce the shortage gap by 25-50%.

1.4.2 Supply Augmentation

EVMWD does not plan to use additional supply sources during a water shortage but rather mitigate supply impacts through demand reduction actions. If needed, EVMWD may use additional groundwater and/or imported water to meet demands.

1.4.3 Operational Changes

During shortage conditions, operations may be affected by demand-reduction responses.

EVMWD will consider their operational procedures at the time of a shortage to identify changes that can be implemented to address water shortage on a short-term basis, including but not limited to:

- Development of a public information campaign to educate and inform customers of the water shortage emergency and required water savings
- Decrease line flushing
- Increase water patrols
- Increase frequency of meter reading
- Offer water use surveys
- Implement or modify drought rate structure or surcharge
- Provide rebates for plumbing fixtures and landscape irrigation
- Decrease fire flow testing

1.4.4 Additional Mandatory Restrictions

Ordinance 225 identifies permanent restrictions that are always in effect under Stage 1. Stage 1 mandates the implementation of several permanent water waste prohibitions, even when there is no foreseeable threat of a water shortage. Water waste is in violation of California Law at any stage. Therefore, all normal water efficiency programs and water conservation regulations are in full force and effect during Stage 1.

The permanent shortage response measures include:

- All irrigation shall ensure automatic irrigation timers are adjusted according to changing weather patterns and landscape requirements.
- All open hoses shall be equipped with automatic, positive shut-off nozzles.
- Watering of lawns and/or groundcovers and irrigating landscaping is permitted only between the hours of 6:00 p.m. and 6:00 a.m.
- Sprinklers and irrigation systems shall be adjusted to avoid overspray, runoff, and waste. Watering on windy days is to be avoided.
- Installation of water-saving devices, such as low-flow shower heads and faucet aerators, is encouraged.
- Selection of low-water-demand shrubs, groundcovers, and trees for all new landscaping is strongly encouraged.
- All swimming pools, spas, ponds, and fountains shall be equipped with recirculating pumps.
- All plumbing leaks, improperly adjusted sprinklers, or other water conduits/fixtures that require repair or adjustment shall be corrected within 96 hours of notification.
- No person shall allow water to leave his or her property by drainage onto adjacent properties or public or private roadways or streets due to excessive irrigation or uncorrected leaks.

- Washing of vehicles can only be done with a bucket or hand-held hose equipped with an automatic, positive shut-off nozzle.
- Construction operations receiving water from a construction meter, hydrant meter, or water truck shall not use water for any purpose other than those required by regulatory agencies. Construction projects requiring watering for new landscaping materials shall adhere to the designated irrigation requirements.

1.4.5 Emergency Response Plan

In 2020, EVMWD completed a Risk and Resilience Assessment (RRA) and Emergency Response Plan (ERP) in accordance with America's Water Infrastructure Act (AWIA) of 2018. The purpose of the RRA and ERP is to meet the AWIA compliance requirements and plan for long-term resilience of EVMWD's infrastructure.

The RRA assessed EVMWD's water system to identify critical assets that may be vulnerable to malevolent threats and natural hazards such as a seismic event, as well as identified measures that can be taken to reduce risk and enhance resilience from service disruption for the benefit of customers. The RRA identifies and characterizes both infrastructure-specific and systemwide vulnerabilities and threats, in addition to the consequences of disruption. The RRA also recognizes various options in addressing and mitigating risk due to intentional or accidental threats as well as natural hazards.

The ERP includes prevention and detection measures for a wide range of emergency situations. In the case of a seismic event, the ERP includes specific responses to mitigate damage and provide safety for staff during the event as well as documents detailing responses and action items to complete after the event. The ERP also defines roles and responsibilities of EVMWD staff and coordination with neighboring utilities and governing agencies, provides emergency procurement procedures and contact information, defines a path to restore water in the case of a service interruption, and protects public health.

EVMWD certified with the EPA that their RRA was compliant with all AWIA requirements on March 31, 2020 and their ERP on December 31, 2020, meeting all federal deadlines. Prior to AWIA certification, the District also performed the EVMWD Seismic Vulnerability Study for Water and Wastewater Facilities, dated March 19th, 2020. This separate analysis identifies seismic hazard information, provided an assessment of seismic resilience of the water system, and made recommendations necessary for development of an Emergency Response Plan. The RRA, ERP, and Seismic Vulnerability Study all contain confidential information related to infrastructure risk and response measures, and therefore is used as an internal document only and located at EVMWD.

1.4.6 Seismic Risk Assessment and Mitigation Plan

Disasters such as earthquakes can and will occur without notice. In addition to the AWIA RRA and ERP, which specifically address seismic risk and mitigation plans, EVMWD has developed a more detailed seismic risk assessment and mitigation plan. This document is also a confidential document and, therefore, is for EVMWD staff use only.

1.4.7 Shortage Response Action Effectiveness

Measuring reductions in water use is part of regular procedures, whether during normal or water shortage conditions. Water is produced and introduced into the distribution system in response to customer demand and is tracked monthly as an indicator of overall demand. EVMWD's billing system provides standardized reports on monthly metered sales by bill code, as well as customized reports for specific areas of analysis.

During water shortage conditions, savings are measured in comparison to normal year demand (i.e., current customer base with approximately average rainfall) or in reference to a specific base year as may

be dictated by statewide requirements. Estimates of the effectiveness for the response actions are included in **Table A-4**. In general, the effectiveness of each reduction action can vary significantly. It is also difficult to assess the effectiveness of each activity separately because EVMWD implements several activities at once. For the WSCP implementation, it is assumed that the upper end of the gap reduction is based on the use of multiple demand-reduction actions in a stage. For example, if all shortage level Stage 1 actions by EVMWD were implemented, a 5% reduction or higher in the shortage gap would be estimated. However, this estimate could be higher based on local conditions and public outreach.

Reduction in the shortage gap for Stages 2–5 assume all measures in the previous stage(s) are implemented and those savings are counted toward the total reduction in the shortage gap. For example, in WSCP Stage 4, EVMWD may limit irrigation to specific days, and this measure, along with all demand management measures in Stages 1, 2, and 3, is estimated to reduce the shortage gap by 25% to 40%.

1.5 Communication Protocols

This section is presented in accordance with CWC Section 10632(a)(5) and describes the communication protocols and procedures to inform customers, the public, and state and local officials of any current or predicted water shortages.

EVMWD's outreach strategy is based on the specific circumstance and water shortage stage to ensure customers are notified in the most effective way possible. EVMWD will notify its customers about upcoming shortages, response actions, penalties, and /or WSCP amendments. Typically, EVMWD notifies customers through a variety of methods, such as by telephone, email and e-blasts; inserts with utility bills and mailings; postings at EVMWD offices and facilities; flyers; "door hangers"; social media; billboard messaging; partnerships with neighboring agencies; the EVMWD app; and other means (Civiltec for Elsinore Valley Municipal Water District, 2018). EVMWD can also use other communication methods, such as press releases, publication in homeowner association newsletters, city publications, chamber newsletters, radio announcements, and robo-calls as necessary. All customers must ensure that EVMWD has current telephone and email contact information. At its discretion, the Board or its authorized designee can also notify agencies or organizations it believes may be affected.

1.6 Compliance and Enforcement

This section is structured in accordance with CWC Section 10632(a)(6) and describes the compliance and enforcement provisions. EVMWD's water shortage ordinance includes customer penalties for noncompliance in **Section 13 of Ordinance 225**, which is included in **Attachment 1**. These penalties include warnings, fines, flow restrictions, and, finally, water service shutoffs. Penalties and charges are imposed for violations during mandatory water reductions. The penalty surcharges vary for each stage of mandatory water reduction.

The consequences for violating the water use prohibitions are summarized below.

First violation: notice of noncompliance. EVMWD is authorized and directed to issue a written warning notice for the first time a user has failed or refused to comply with the water shortage ordinance.

Second violation: final written notice. For a second violation within 12 months of the first violation, EVMWD shall issue a final written notice to the second-time offender with additional information such as the required compliance and potential fines and/or penalties for noncompliance.

Third, Fourth, and Fifth Violations: fine, flow restriction, or water service shutoff. For the third, fourth, and fifth violations within a 12-month period, a monetary penalty for each day a person violates the ordinance will be applied. During Stages 1 and 2, the penalty is $100 per day for the third, fourth, and fifth violation. During Stages 3, 4, and 5, the penalty is $200, $400, and $500 per day for the third, fourth, and fifth violation, respectively.

Sixth and subsequent violations: flow restriction or water service shutoff. If the customer has failed or refused to comply with the notice of noncompliance, the General Manager has the authority to provide flow-restricting devices at the customer's meter. If installing a flow-restricted device is infeasible or impractical, the General Manager can authorize a shutoff. Any restriction or terminated service may be restored in accordance with the District's applicable rules and regulations once the person shows they are in compliance with Ordinance 225.

1.7 Legal Authorities

EVMWD obtains the legal authority to declare a water shortage and implement the actions outlined in this WSCP through Ordinance 225. A water shortage emergency is to be officially declared through an adopted resolution. Ordinance 225 provides EVMWD with the authority to restrict water use and prohibit water waste for all uses that are not necessary to sustain public health, sanitation, and fire protection. Specifically, Ordinance 225 provides EVMWD with the authority to implement supply-shortage response measures and prevent unreasonable use of water (Elsinore Valley Municipal Water District, 2015). Ordinance 225 will continue to serve as the legal authority for EVMWD and this WSCP.

In the event that this WSCP is updated and the shortage response stages or response actions are revised, Ordinance 225 may be updated to reflect the contents of the updated WSCP.

EVMWD shall coordinate with any city or county within which it provides water supply services for the possible proclamation of a local emergency, as defined in Section 8558 of the Government Code.

When a WSCP Stage 2 or greater is implemented, EVMWD will inform the following cities and counties:

- City of Canyon Lake
- City of Corona
- City of Lake Elsinore
- City of Murrieta
- City of Wildomar
- Farm Mutual Water Company
- Riverside County Planning Department

1.8 Financial Consequences of WSCP

This section is structured in accordance with CWC Section 10632(a)(6) and describes the financial consequences of implementing the WSCP and potential mitigation strategies. To ensure EVMWD customers comply with Ordinance 225 and CWC Chapter 3.3 (Excessive Residential Water Use During Drought), additional costs will be incurred to monitor and enforce response actions. The incurred cost may vary depending on the shortage stage and duration of the water shortage emergency.

A reduction in the amount of water consumed will lead to a reduction in revenue and expenses for EVMWD. These reductions could impact EVMWD's ability to finance its operations during periods of water shortages. Revenue reductions are calculated in the EVMWD Drought Surcharge Study completed in July 2015 and included in **Attachment 2**. Details on the Drought Surcharge Study are discussed below. Additionally, expenditures by EVMWD are also expected to decrease in the event of a water shortage. Reductions are expected in water purchases, groundwater pumping expenses, and booster pumping expenses.

Table A-5 presents a summary of projected net revenue impact by stage, as well as the revenue reductions for that stage, as calculated in 2015. It should be noted that EVMWD has the option of adjusting water rates during shortages to minimize or offset revenue reductions, subject to California Proposition 218 (Prop 218) requirements. As mentioned above, Stages 3, 4, and 5 are further broken down into substages (3a, 3b, and so forth) to allow greater flexibility when implementing response actions.

Table A-5. Percent Revenue Reduction Due to Water Shortage

DROUGHT STAGE	REQUIRED SALES REDUCTION	NET REVENUE IMPACT	PERCENT REVENUE REDUCTION
-	0%	$0	
-	5%	$2,173,216	7%
3a	10%	$3,992,768	12%
3b	15%	$5,054,268	15%
3c	20%	$5,841,118	18%
4a	25%	$6,450,847	19%
4b	30%	$7,168,480	22%
4c	35%	$7,733,727	23%
5a	40%	$8,336,119	25%
5b	45%	$9,031,350	27%
5c	50%	$9,907,389	30%
Values obtained from Tables 2–8 in EVMWD Drought Surcharge Report (Attachment 2) (Raftelis Financial Consultants, Inc. for Elsinore Valley Municipal Water District, 2015)			

Methods of compensating for the reduced revenue include penalties for excess water use and rate increases for customers. Penalties for excess water use encourage conservation, in turn, further reducing revenue from water sales, but penalties generally only provide a small amount of revenue. If the water shortage is deemed temporary, a rate increase may not be required.

For long-term shortages, immediate rate increases may be considered. A consequence of rate increases may be further conservation by customers. EVMWD would not change fixed, domestic monthly service charges during a water shortage, because these charges provide revenue for operational expenditures.

EVMWD may also elect to use financial reserves. Although possible, this is not ideal, because it may delay funds designated for capital improvement costs and affect budgets for typical operation and maintenance efforts.

1.8.1 Drought Surcharge Study

EVMWD conducted a study to evaluate drought surcharges in July 2015 (**Attachment 2**). Drought surcharges are an attempt to reduce the negative financial effects of water shortages and reduced customer revenue during drought conditions. The drought surcharges add an additional rate to the base volumetric water-use rate once customers enter into an inefficient or excessive use tier. The rate structure comprises two components: a fixed monthly service charge (“meter charge”) and a variable volumetric water-consumption charge (“water use charge”).

The rates for the fixed monthly meter charge are established on the basis of the size of the water meter serving a property and are calculated to recover a portion of EVMWD’s fixed costs, such as water meter repairs and replacements, meter reading, billing, and customer service. The rates of the variable water-

use charge are based on the number of units of water delivered to a property and consist of four tiers that impose higher rates as the level of water use increases. Each residential, irrigation, and recycled-water customer is allocated a reasonable amount of water on the basis of the customer's particular needs.

The four tiers are:

1. **Indoor use**
2. **Outdoor use**
3. **Inefficient use**
4. **Excessive use**

1.8.2 Water Budgets

EVMWD also uses a simplified rate structure based on water budgets to account for the statewide indoor residential standard of 55 gallons of water per person per day. Households will receive a water budget for outdoor use based on the irrigated square footage of the property. Above that water budget, inefficient and excessive water use will cost customers more because it costs EVMWD more to secure this additional water supply. Because customers have control over the amount of water they use, these budgeted water rates allow customers to be charged according to the water they use. Customers that use too much water and enter the inefficient or excessive water use tiers will be charged a penalty depending on the shortage stage. Penalties for each shortage stage are summarized in **Table A-6**.

Table A-6. Drought Penalties

DROUGHT STAGE	PENALTY FOR ENTERING INEFFICIENT OR EXCESSIVE USE TIER[1]
1	$0.00
2	$0.00
3	$1.59 per CCF
4	$2.09 per CCF
5	$4.01 per CCF

[1] Surcharges may be applied in Stages 3–5 when customers enter inefficient or excessive use tiers.

1.9 Monitoring and Reporting

This section is presented in accordance with CWC Section 10632(a)(9) and describes the reporting requirements and monitoring procedures to implement the WSCP and track and evaluate the response actions effectiveness. EVMWD is required to submit the Urban Water Supplier Monthly Water Conservation Report, pursuant to Resolution No. 2020-0009, which became effective on October 1, 2020. In general, EVMWD reports the WSCP shortage stage, the total potable water production, the 2013 same-month production, demand for several water uses, enforcement actions, compliance issues, and response actions. An example of the monthly report is shown in **Attachment 3**. EVMWD will continue to report this information and will integrate this process in its WSCP annual assessment process.

The water savings from implementation of the WSCP will be determined on the basis of monthly production reports, which will be compared with the supply from prior months, the same period of the prior year, and/ or the allocation. At first, the cumulative consumption for the various sectors (e.g., residential, commercial) will be evaluated for reaching the target demand-reduction level. Then, if needed, individual accounts will be monitored. Weather and other possible influences may be accounted for in the evaluation.

1.10 WSCP Refinement Procedures

This section is consistent with CWC Section 10632 (a)(10). The WSCP is best prepared and implemented as an adaptive management plan. EVMWD will use results obtained from the monitoring and reporting program to evaluate any needs for revisions. Potential changes to the WSCP that would warrant an update include, but are not limited to, any changes to shortage-level triggers, changes to the shortage stage structure, and/or changes to the response actions.

Any prospective changes to the WSCP would need to be presented at a public hearing where EVMWD staff would obtain any comments, revise if necessary, and adopt the updated WSCP. The steps to formally amend the WSCP are discussed in **Section 1.12**.

Potential refinements will be documented and integrated in the next WSCP update. If additional response actions are identified by staff or the public, these could be advertised as voluntary actions until these are formally added to the WSCP and adopted as mandatory restrictions in a future update.

1.11 Special Water Feature Distinction

The CWC Section 10623 (b) requires that suppliers analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code. Non-pool or non-spa water features may use or be able to use recycled water, whereas pools and spas must use potable water for health and safety considerations, so limitations to pools and spas may require different considerations compared with non-pool or non-spa water features. EVMWD prohibits the operation of any exterior ornamental fountain or similar structure once a **Stage 3** water shortage is in effect. An exterior ornamental fountain is a decorative water feature and does not include recreational water features, such as swimming pools. Golf-course water hazards that are not part of an integral part of the permanent irrigation or fire protection system, fountains, and other waterscape features are not to be filled or replenished during **Stage 3**.

1.12 Plan Adoption, Submittal, and Availability

The WSCP is a standalone document that can be updated as needed. **Table A-7** describes the general steps to adopt and submit an updated or amended WSCP, consistent with CWC Section 10632(a)(c).

This 2020 WSCP was presented for adoption to EVMWD's Board at the June 10, 2021, public Board meeting. Notifications of the public board meeting were sent to various local and regional agencies 60 days ahead of the meeting. EVMWD also published two notices in the local newspaper two weeks prior to the meeting date. Copies of the 60-day notices and public-hearing newspaper notices are provided in **Attachment 4**. The WSCP was also made available two weeks prior to the public Board meeting to provide ample opportunity for review.

The WSCP was formally adopted on June 10, 2021, by EVMWD's Board through **Resolution 21-06-03**, included in **Attachment 5**. After formal adoption, the WSCP was made available to all staff, customers, and any affected cities, counties, and other members of the public at the EVMWD office and online within 30 days of the adoption date.

The WSCP was submitted to DWR via the Water Use Efficiency (WUE) Data Portal in conjunction with the 2020 UWMP no later than July 1, 2021. Hard copies of the 2020 UWMP and WSCP were submitted to the California State Library within 30 days of adoption. Electronic and/or hard copies were provided to all cities and counties within EVMWD's service area within 30 days of adoption.

Table A-7. Steps to Adopt, Submit, and Implement the WSCP

STEP	TASK	DESCRIPTION	TIMEFRAME
1	Notice to Cities and Counties	Notify cities and counties within the service area that the WSCP is being updated. It is recommended that the notice includes: • Time and place of public hearing • Location of the draft Plan, latest revision schedule, and contact information of the Plan preparer	At least 60 days before public hearing. If desired, advance notices can be issued without providing time and place of public hearing.
2	Publish Plan	Publish the draft WSCP in advance of public hearing.	At least 2 weeks before public hearing.
3	Notice to the Public	Publish two notifications of the public hearing in a local newspaper notice at least once a week for two consecutive weeks, with at least 5 days between publications. This notice must include: • Time and place of hearing • Location of the draft WSCP	At least 2 weeks before public hearing. *Include a copy of public notices in plan.
4	Public Hearing and Optional Adoption	Host at least one public hearing before adopting the WSCP to: • Allow for community input • Consider the economic impacts for complying with the Plan	Public hearing date Note: Adoption can be combined as long as public hearing is on the agenda before adoption.
5	Adoption	Before submitting the WSCP to DWR, EVMWD's Board must formally adopt the WSCP. An adoption resolution must be included, as an attachment or as a web address indicating where the adoption resolution can be found online.	At public hearing or at a later meeting. *The WSCP can be adopted as prepared or as modified after the hearing.
6	Plan Submittal	Submit the adopted or amended WSCP via the WUE Data Portal within 30 days of adoption or by July 1, if updated with the UWMP five-year cycle.	Within 30 days of adoption or by July 1st, whichever comes first.
7	Plan Availability	Submit an electronic or hard copy of the adopted WSCP to the California State Library within 30 days of adoption. If submitting a hard copy, the WSCP must be mailed to: California State Library Government Publications Section Attention: Coordinator, Urban Water Management Plans P.O. Box 942837 Sacramento, CA 94237-0001 Provide a copy (hardcopy or electronic) of the adopted WSCP to any cities and counties within the service area. Make the WSCP available to the public by posting to EVMWD's website or by hard copy at the EVMWD office for public review during normal business hours.	Within 30 days after adoption.

1.13 Resources and References

State of California Department of Water Resources. (2021). *Urban Water Management Plan Guidebook 2020.* Sacramento: California Department of Water Resources.

Civiltec for Elsinore Valley Municipal Water District. (2018). *Drought Contingency Plan.* Lake Elsinore: Elsinore Valley Municipal Water District.

Elsinore Valley Municipal Water District. (2015). *Ordinance No. 225.* Elsinore Valley Municipal Water District.

Elsinore Valley Municipal Water District and Water Systems Optimization. (2020). *System Optimization Review Plan.* Lake Elsinore: Elsinore Valley Municipal Water District.

Raftelis Financial Consultants, Inc. for Elsinore Valley Municipal Water District. (2015). *Elsinore Valley Municipal Water District Drought Surcharge Study.* Lake Elsinore: Elsinore Valley Municipal Water District.

WSC. (2021). *EVMWD 2020 UWMP.*

Attachment 1: EVMWD's Ordinance 225

ORDINANCE NO. 225

AN ORDINANCE OF THE ELSINORE VALLEY MUNICIPAL WATER DISTRICT OF RIVERSIDE COUNTY UPDATING AND RESTATING THE DISTRICT'S WATER SHORTAGE CONTINGENCY PLAN / WATER CONSERVATION PROGRAM

WHEREAS, California Constitution article X, section 2, and California Water Code section 100 provide that, because of conditions prevailing in the State of California ("State"), it is the declared policy of the State that the general welfare requires that the water resources of the State shall be put to beneficial use to the fullest extent of which they are capable; the waste or unreasonable use of water shall be prevented; and the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and the public welfare; and

WHEREAS, pursuant to California Water Code section 106, it is the declared policy of the State that the use of water for domestic use is the highest use of water and that the next highest use is for irrigation; and

WHEREAS, pursuant to California Water Code section 375 et seq., the Elsinore Valley Municipal Water District ("District"), by ordinance or resolution, is authorized to adopt and enforce a Water Conservation Program to reduce the quantity of water used by persons within its jurisdiction for the purpose of conserving the water supplies of the District; and

WHEREAS, pursuant to California Water Code section 10610 et seq., the District is required to include a water shortage contingency analysis establishing various stages of action to be implemented in cases of water supply shortage, known as a Water Shortage Contingency Plan, as part of the District's Urban Water Management Plan; and

WHEREAS, pursuant to California Water Code section 71610.5, the District may undertake a water conservation program to reduce water use and may require, as a condition of new service, that reasonable water-saving devices and water reclamation devices be installed to reduce water use; and

WHEREAS, pursuant to California Water Code section 71640 et seq., the District may restrict the use of District water during any emergency caused by drought, or other threatened or existing water shortage, and may prohibit the waste of District water or the use of District water during such periods for any purpose other than those that the District determines to be necessary. The District may also prohibit use of District water during such periods for specific uses which it finds to be nonessential.

WHEREAS the District's Board of Directors recognizes continued long term challenges to the region and the State. Climate change impacts are predicted to increase the uncertainty of water supplies. Additionally, regulatory restrictions on pumping from the Bay-Delta region affecting State Water Project ("SWP") deliveries will continue to impact the District's supply reliability. Further, the District is dependent on the Metropolitan Water District of Southern California ("Metropolitan") for its imported water supplies and is subject to the policy actions pertaining to water supply set by Metropolitan's governing body. The District relies heavily on SWP supplies, obtaining approximately up to 70 percent of its total supply through imported water sources from Metropolitan; and

WHEREAS, Metropolitan has adopted a Water Shortage Allocation Plan and has declared a regional supply shortage reduction of fifteen percent (15%) which will be in effect on July 1, 2015; and

WHEREAS, because of the prevailing conditions in the State and the declared policy of the State that the District manage its water resources for the general welfare to ensure their beneficial use to the fullest extent of which they are capable, the District hereby finds and determines that it is necessary and appropriate for the District to adopt, implement, and enforce an updated Water Shortage Contingency Plan / Water Conservation Program (together, the "WSCP") to reduce the quantity of water used by consumers within the District to ensure that there is sufficient water for human consumption, sanitation, and fire protection; and

WHEREAS, the Governor, on April 1, 2015 issued Executive Order B-29-15 that, in part, directed the State Water Resources Control Board ("SWRCB") to

impose restrictions on water suppliers to achieve a statewide 25 percent (25%) reduction in potable urban usage through February 2016. The Executive Order includes, but is not limited to, the following: (1) commercial, industrial, and institutional water users shall implement water efficiency measures; (2) prohibits irrigation with potable water of ornamental turf in public street medians; and (3) prohibits irrigation with potable water of landscapes outside of newly constructed homes and buildings in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development; and

WHEREAS, the SWRCB, on May 5, 2015 mandated that urban water suppliers whose average July-September 2014 Residential Gallons Per Capita Per Day ("R-GPCD") was 130 or more but less than 170 shall reduce its total potable water production by twenty-eight percent (28%) for each month as compared to the amount of use in the same month in 2013; and

WHEREAS, the District's average R-GPCD was 146.3 for July-September 2014; and

WHEREAS, the Board of Directors hereby finds and determines that in the event the District determines that it is necessary to declare that a Water Shortage Emergency exists, the District will be authorized pursuant to this Ordinance to implement supply shortage response measures to regulate water consumption activities within the District and ensure that the water delivered in the District is put to beneficial use for the greatest public benefit, with particular regard to domestic use, including human consumption, sanitation, and fire protection, and that the waste or unreasonable use of water is prevented; and

WHEREAS, the Board of Directors is authorized and hereby finds and determines that it is necessary to prescribe and define by ordinance restrictions, prohibitions, and exclusions for the use of water during a threatened or existing water shortage and adopt and enforce a WSCP to: (i) prohibit the waste of District water or the use of District water during such period; (ii) prohibit use of water during such periods for specific uses which the District may from time to

time find nonessential; and (iii) reduce and restrict the quantity of water used by persons within the District; and

WHEREAS, the Board of Directors hereby finds and determines that the District shall: (i) implement water supply shortage response measures; (ii) regulate the water consumption activities of persons within the District for the purposes of conserving and protecting the District's water supplies, reducing the quantity of water consumed, and deterring and preventing the waste or unreasonable use or unreasonable method of use of valuable water resources; and (iii) establish and collect regulatory fees and impose fines and/or penalties as set forth herein to accomplish these purposes and recover the costs of the District's water conservation and regulatory program; and

WHEREAS, the Board of Directors hereby finds and determines that it is desirable to adopt this WSCP in order to codify the rules and regulations governing its actions, and the actions of persons using and consuming water within the District, particularly during declared water shortages and water shortage emergencies, to protect the general welfare and the District's water supplies, and to reduce water consumption, all in accordance with the declared policies and laws of the State; and

WHEREAS, the Board of Directors hereby further finds and determines that this Ordinance and the WSCP set forth herein are in the public interest and serve the public purpose of the District; and

WHEREAS, at a public hearing held on May 28, 2015, the Board heard and considered all oral testimony, written materials, and written protests concerning the establishment of and imposition of the proposed WSCP; and

WHEREAS, due to the fiscal impacts referenced above, the Board has determined that it is in the best interests of the District to adopt the proposed WSCP identified herein and as more particularly described and set forth herein; and

NOW, THEREFORE, BE IT ORDAINED by the Board of Directors of the Elsinore Valley Municipal Water District of Riverside County as follows:

Section 1. Recitals

The Board of Directors hereby finds and determines that the above recitals are true and correct and incorporated herein.

Section 2. Findings a nd Intent

(A) The Board of Directors finds and determines that because of the prevailing conditions in the State, and the declared policy of the State, it is necessary and appropriate for the District to adopt, implement, and enforce this WSCP to reduce the quantity of water used by persons within the District to ensure that there is sufficient water for human consumption, sanitation, and fire protection. The District further finds and determines that, during periods of drought, water shortages, and water shortage emergencies the general welfare requires that the District maximize the beneficial use of its available water resources to the extent that it is capable, and that the waste or unreasonable use, or unreasonable method of use of water shall be prevented and the conservation of water is to be extended with the view to the reasonable and beneficial use thereof in the interests of the people of the District and for the public health, safety, and welfare.

(B) This Ordinance adopts the WSCP, which establishes water waste restrictions, supply shortage response measures, regulations, and administrative fines and/or penalties to be implemented during declared water supply shortage stages.

(C) This Ordinance adopts the WSCP which establishes five (5) water supply shortage stages and supply shortage response measures to be implemented by the District, with increasing restrictions on water use and administrative fines and/or penalties for water waste in response to decreasing water supplies and/or worsening drought conditions.

(D) The implementation of water supply shortage stages may be triggered by, without limitation, any or all of the following circumstances or events:

(1) A regional water supply shortage exists;

(2) Delivery infrastructure such as storage reservoirs, pipes, pumps, filtration devices or groundwater wells, is inoperable or unusable (such as by power outages, mechanical failure, or contamination);

(3) Alternative water supplies are limited or unavailable;

(4) Groundwater levels or groundwater quality is approaching levels which may require augmentation of the groundwater basin or other actions necessary to protect the groundwater basin, as prescribed by the California Department of Water Resources, the Regional Water Quality Control Board, Riverside County, or some other regulatory body;

(5) Metropolitan's Water Surplus and Drought Management Plan stages and the Metropolitan Water Supply Allocation Plan stages and corresponding actions have been implemented; or

(6) An executive order from the Governor.

Section 3. Purpose and S cope

(A) The purposes of the provisions of this Ordinance and WSCP are to assure the highest beneficial use of District water supplies and to provide sufficient water supplies to meet the basic needs of human consumption, sanitation, and fire protection within the District's direct retail service area.

(B) This Ordinance is not intended to repeal, abrogate, annul, impair or in any way interfere with the free use of property by covenant, deed, or other private agreement or with restrictive covenants running with the land to which the District provides water services.

(C) The provisions of this Ordinance shall apply to all persons within the District's direct retail service area and all property served in a retail capacity by the District wherever situated.

(D) Nothing in this Ordinance is intended to affect or limit the ability of the District to respond to an emergency, including an emergency that affects the ability of the District to supply water.

Section 4. Definitions

For the purposes of this Ordinance, the following words, terms, and phrases shall have the following meanings:

"Appellant" means the Person appealing a decision of the Approving Authority, General Manager or other District official.

"Approving Authority" means the General Manager of the District, or his or her designee, charged with approving or denying written applications for Relief.

"Board of Directors" means the Board of Directors of the District.

"District" means the Elsinore Valley Municipal Water District.

"Enforcement Officer" means any individual employed or otherwise charged by the District to inspect or enforce codes, ordinances, mandates, regulations, resolutions, rules or other laws adopted by the Board of Directors or other regulatory bodies.

"General Manager" means the General Manager of the District or his or her authorized designee.

"Immediate Emergency" means a breakage or failure of a dam, pump, pipeline or conduit, a disaster or other disruption of the District's water supply.

"Medical Adjustment" means an adjustment to the residential indoor water allocation based on medical needs. Medical adjustments must be approved by the District and are not subject to mandatory residential indoor water allocation reductions in any stage. The District will consider a request for medical adjustment at any time and at any stage. The adjustment shall be removed with any changes to the account holder.

"Metropolitan" means the Metropolitan Water District of Southern California.

"Non-Potable Water" means water that is not of drinking water quality, but which may still be used for purposes other than for human consumption.

"Person" means any natural person, firm, joint venture, joint stock company, partnership, public or private association, club, company, corporation, business trust, organization, public or private agency, government agency or institution, school district, college, university, any other user of water provided by the District, or the manager, lessee, agent, servant, officer or employee of any of them or any other entity which is recognized by law as the subject of rights or duties.

"Property Owner" means the owner of a parcel whose name and address appears on the last Riverside County equalized secured property tax assessment roll, or in the case of any public entity, the State of California, or the United States, means the representative of that public entity at the address of that entity known to the District.

"Recycled Water" means municipal wastewater that has been treated to meet all applicable Federal, State and local standards for use in approved applications, including, but not limited to, agricultural and landscape irrigation.

"Relief" means excuse from compliance with the regulations and restrictions on water use contained in this Ordinance.

"State" means the State of California.

"Water Budget" means a Customer's total water billing allocation for indoor and outdoor water use. The specific indoor and outdoor allocation of water depends on the type of Customer (Customer sector) and the specific characteristics of the Customer's site. Use in excess of the allocation is charged at incrementally higher rates.

"Water Customer" or "Customer" means any Person, firm, partnership, association, corporation, or local political entity using water obtained from the District.

"Water Shortage Emergency" means a condition existing within the District where the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the distributor to the extent that there would be insufficient water for human consumption, sanitation,

and fire protection. A Water Shortage Emergency includes both an Immediate Emergency, in which the District is unable to meet current water needs of persons within the District, as well as a threatened water shortage, in which the District determines that its supply cannot meet an increased future demand.

“WSCP” means the Water Shortage Contingency Plan adopted pursuant to this Ordinance.

“Water Supply Allocation Plan" or “WSAP” means the Plan developed by Metropolitan to calculate member agencies' supply allocations should a shortage be declared.

“Water Surplus and Drought Management Plan” or “WSDM Plan” means the 1999 plan that Metropolitan uses to direct its resource operations to ensure that shortage allocations of imported water supplies are not required.

Section 5. Stage Implementation

(A) The General Manager shall monitor the projected supply of and demand for water within the retail water service area of the District during periods of a water shortage or supply shortage and shall recommend to the Board of Directors the extent of the demand reduction required through the implementation and/or termination of particular water supply shortage stages or sub-stages to prudently plan and supply water to water Customers. Thereafter, the Board of Directors may order the implementation or termination of the appropriate stage or sub-stage.

(B) The declaration of any stage or sub-stage beyond Stage 1 shall be made by resolution of the Board of Directors. Within ten (10) calendar days of the adoption of the resolution declaring the applicable stage or sub-stage, the District shall make a public announcement and provide notice of the applicable water supply shortage stage. Such declaration and notice shall provide the extent, terms, and conditions as well as the associated water budget allocations and fines and/or penalties respecting the use and consumption of water in accordance with the applicable water supply shortage stage as provided in this Ordinance. Upon such declaration and publication of such notice, due and

proper notice shall be deemed to have been given to each and every Person supplied water within the District.

(C) The water supply shortage stage designated shall become effective immediately upon announcement.

(D) Except in the event of an Immediate Emergency, the declaration of a Water Shortage Emergency during any water supply shortage stage shall be made in accordance with California Water Code sections 350 et seq.

(E) Notwithstanding any other provision of this Ordinance, if an Immediate Emergency occurs and the Board of Directors cannot meet in time to act to protect the public interest, the General Manager is hereby authorized and directed to implement any necessary rules and regulations upon his or her written determination that the District cannot adequately supply water to meet the ordinary demands of water consumers, and that such implementation is necessary to protect the public health and safety.

(1) The General Manager's written determination of an Immediate Emergency shall be:

(a) filed with the District Secretary;

(b) posted on the District's website;

(c) delivered to the Board of Directors; and

(d) subsequently considered by the Board of Directors at a general or special meeting for review, revocation, or ratification.

(2) The implementation of any rules and regulations during an Immediate Emergency shall take effect immediately upon making a posting of the determination of the Immediate Emergency on the District's website.

(3) The Board of Directors' meeting shall be held on the earliest date that a quorum of the Board of Directors is available. At the Board of Directors meeting, the General Manager shall update the Board of Directors on the severity and length of the Immediate Emergency.

Section 6. Stage 1 – Water Supply Watch

(A) Stage 1 applies during periods when the District is able to meet all of the water demands of its Customers. Stage 1 and the permanent prohibitions set forth herein shall be in effect at all times unless the Board of Directors otherwise declares that another stage is in effect pursuant to this Ordinance and such stage establishes more stringent prohibitions on the use of water during the particular stage.

Under Stage 1, Customers are encouraged to use water efficiently and take advantage of the District's water use efficiency programs. Stage 1 also mandates the implementation of several permanent water waste prohibitions, even when there is no foreseeable threat of a water shortage. Water waste is in violation of California Law at any stage. California's water law and policy, Article X, Section 2 of the California Constitution, requires that all uses of the State's water be both reasonable and beneficial and places a significant limitation on water rights by prohibiting the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water. The permanent prohibitions shall be continually in effect at all levels of water shortage declarations in addition to the requirements specific to each level. All normal water efficiency programs and water conservation regulations of the District will be in full force and effect during Stage 1. The permanent shortage response measures include:

(1) All irrigators shall ensure automatic irrigation timers are adjusted according to changing weather patterns and landscape requirements.

(2) All open hoses shall be equipped with automatic, positive shut-off nozzles.

(3) Watering of lawns and/or groundcovers and irrigating landscaping is permitted only between the hours of 6:00 p.m. and 6:00 a.m.

(4) Sprinklers and irrigation systems shall be adjusted to avoid overspray, runoff and waste. Watering on windy days is to be avoided.

(5) Installation of water saving devices, such as low flow shower heads and faucet aerators, is encouraged.

(6) Selection of low-water-demand shrubs, groundcovers and trees for all new landscaping is strongly encouraged.

(7) All swimming pools, spas, ponds, and fountains shall be equipped with re-circulating pumps.

(8) All plumbing leaks, improperly adjusted sprinklers, or other water conduits/fixtures that require repair or adjustment shall be corrected to the satisfaction of the District within ninety-six (96) hours of notification by the District.

(9) No Person shall use water to wash down sidewalks, driveways, parking areas, tennis courts, patios, or other paved or hard surface areas, except to alleviate immediate fire or sanitation hazards, and then only by use of: a hand-held bucket or similar container; a hand-held hose equipped with an automatic, positive self-closing shut-off device, or a low volume, high-pressure cleaning machine.

(10) No Person shall allow water to leave his or her property by drainage onto adjacent properties or public or private roadways or streets due to excessive irrigation and/or uncorrected leaks.

(11) The washing of automobiles, trucks, trailers, boats, airplanes and other types of mobile equipment, is permitted at any time with a hand-held bucket or a hand-held hose equipped with an automatic, positive shut-off nozzle. Provided, however, such washing may be done at any time on the immediate premises of a commercial car wash, a commercial service station or car dealership with commercial car washing equipment, or by a licensed mobile detailing/car wash professional using low volume, high pressure washing equipment. Further, such washings are exempted from these regulations where the health, safety, and welfare of the public is contingent upon frequent vehicle cleanings, such as garbage trucks and vehicles used to transport food and perishables.

(12) Construction operations receiving water from a construction meter, hydrant meter, or water truck shall not use water for any purpose other than those required by regulatory agencies. Construction projects requiring watering for new landscaping materials shall adhere to the designated irrigation requirements set forth in Section 4 hereof.

(B) The District will attempt to contact Customers by telephone, mail, email and/or printed "door-hanger" to alert of a required repair, adjustment, or violation. All Customers shall ensure that the District has current telephone and email contact information. The District is not responsible for incorrect phone numbers or email addresses.

Section 7. Stage 2 – Water Supply Alert

(A) Stage 2 applies during periods when a reasonable probability exists that the District will not be able to meet all of the water demands of its Customers. This may correlate to Metropolitan's WSDM Plan stage of "Water Supply Watch" or "Water Supply Alert" Conditions.

(B) The objective of Stage 2 is to affect a moderate reduction in water use up to 4% through mandatory actions and may be adjusted depending on supply conditions via a Board approved Resolution.

(C) Mandatory conservation measures will be called upon during this stage. The restrictions listed in Stage I shall remain in effect with the following additions:

(1) Use of movable or permanent sprinkler systems for lawn irrigation and watering of plants, trees, shrubs or other landscaped areas shall be permitted no more than three days per week. However, irrigation of lawns, gardens, landscaped areas, trees, shrubs or other plants is permitted at any time if:

a. A hand-held hose is used, or

b. A hand-held bucket is used, or

c. A drip irrigation system is used, or

d. Recycled water is used.

(i)Irrigation occurring during or 48 hours after a rain event is prohibited;

(2) Construction meters utilizing potable water shall be issued only to those persons who have been issued valid grading and/or building permits.

(3) All restaurants, cafes, and other public food service establishments are prohibited from serving drinking water unless specifically requested by their customers.

(4) Hotels, motels and other commercial lodging establishments should provide customers the option of not having towels and linens laundered daily. Commercial lodging establishments should prominently display notice of this option in each bathroom using clear and easily understood language.

(5) Customers shall install pool and spa covers to minimize water loss due to evaporation.

(6) Installation of new landscapes shall be prohibited unless irrigated with drip irrigation. Exceptions may be provided for projects with prior approval by the appropriate jurisdiction.

(7) The District shall develop a public information campaign to provide Customers with options for achieving the Stage 2 demand reduction goal. The District shall explore increased Customer incentives for conservation measures.

Section 8. Stage 3 – Mandatory Waste Reduc tion

(A) The intent of Stage 3 is to target and eliminate excessive water use and water waste. Stage 3 applies during periods when a reasonable probability exists that the District will not be able to meet all of the water demands of its Customers. This may correlate to Metropolitan's Shortage Allocation Plan Shortage Levels 1 through 4. The District's Board of Directors

may choose to implement a temporary drought rate and a temporary drought penalty to achieve water conservation.

(B) After a Stage 3 has been declared and the District has completed the notice requirements set forth herein, each customer who has had a potable water account with the District shall be limited to using potable water as follows:

(i) For residential customers, water use shall be limited to using a volume equal to Blocks 1 and 2 of their potable water budget per billing cycle for indoor and outdoor water use for his or her property;

(ii) For irrigation customers, water use shall be limited to using a volume equal to Block 1 of their irrigation water budget per billing cycle for outdoor water use for his or her property;

(iii) For wholesale customers, water use shall be limited to using a volume equal to Block 1 and Block 2;

(iv)Water use beyond the water volume permitted in (i), (ii) and (iii) above will be charged a civil administrative penalty of $1.59 per CCF.

(C) The objective of the measures undertaken in Stage 3 is to reduce water system consumption within the District by five to fifteen percent (5 to 20%).

(D) Stage 3 does not apply to the use of non-potable or recycled water. The use of recycled water for daytime irrigation is permitted.

(E) Mandatory conservation measures will be called upon during this stage. The restrictions listed in Stages 1 and 2 shall remain in effect with the following additions:

(1) Stage 3 (a)

(i) Use of movable or permanent sprinkler systems for lawn irrigation and watering of plants, trees, shrubs or other landscaped areas shall be permitted no more than two days per week. However, irrigation of lawns, gardens, landscaped areas, trees, shrubs or other plants is permitted at any time if:

a. A hand-held hose is used, or

b. A hand-held bucket is used, or

c. A drip irrigation system is used, or

d. Recycled water is used.

(ii) The filling, refilling or addition of water to uncovered outdoor swimming pools, wading pools or spas is prohibited;

(iii) The operation of any exterior ornamental fountain or similar structure is prohibited;

(2) Stage 3 (b)

(i) The washing of automobiles, trucks, trailers, boats, airplanes and other types of mobile equipment, is permitted only on the immediate premises of a commercial car wash, a commercial service station or car dealership with commercial car washing equipment, or by a licensed mobile detailing/car wash professional using low volume, high pressure washing equipment. Further, such washings are exempted from these regulations where the health, safety, and welfare of the public is contingent upon frequent vehicle cleanings, such as garbage trucks and vehicles used to transport food and perishables;

(3) Stage 3 (c)

(i) The District shall eliminate all adjustments to existing residential Customers' outdoor Water Budgets including, but not limited to, increases for swimming pools, spas, or pond maintenance adjustments. New water using features or expanded landscapes shall not qualify for a Water Budget Variance.

(F) The District shall develop a public information campaign to provide Customers with options for achieving the Stage 3 demand reduction goal and complying with their applicable water allocation. The District shall explore increased Customer incentives for conservation measures.

Section 9. Stage 4 - Mandatory Outdoor Reductions

(A) The intent of this stage and the related sub-stages is to strategically reduce the demand for water though targeted outdoor reduction actions. Stage 4 applies during periods when the District will not be able to meet all of the water demands of its Customers. This may correlate to any of Metropolitan's WSAP Regional Shortage Levels 5 through 7. The District's Board of Directors may choose to implement a temporary drought rate and a temporary drought penalty to achieve water conservation.

(B) After a Stage 4 has been declared and the District has completed the notice requirements set forth herein, each customer who has had a potable water account with the District shall be limited to using potable water as follows:

(i) For residential customers, water use shall be limited to using a volume equal to Block 2 of their potable water budget per billing cycle for indoor and outdoor water use for his or her property;

(ii) For irrigation customers, water use shall be limited to using a volume equal to Block 1 of their irrigation water budget per billing cycle for outdoor water use for his or her property;

(iii) For wholesale customers, water use shall be limited to using a volume equal to Block 1 and Block 2;

(iv) Water use beyond the water volume permitted in (i), (ii) and (iii) above will be charged a civil administrative penalty of $2.09 per CCF.

(C) The objective of the measures undertaken in Stage 4 is to reduce water system consumption within the District by twenty-five to forty percent (25 to 40%).

(D) Stage 4 does not apply to non-potable or recycled water. The use of recycled water for daytime irrigation is permitted.

(E) Except as otherwise provided in this Section 9, all supply shortage response measures of Stages 1 through 3 shall be in full force and effect during Stage 4.

(1) Stage 4 (a)

(i) Use of movable or permanent sprinkler systems for lawn irrigation and watering of plants, trees, shrubs or other landscaped areas shall be permitted no more than two days per week on odd/even calendar days corresponding to the last digit of a service address. However, irrigation of lawns, gardens, landscaped areas, trees, shrubs or other plants is permitted at any time if:

a. A hand-held hose is used, or

b. A hand-held bucket is used, or

c. A drip irrigation system is used, or

d. Recycled water is used.

(2) Stage 4 (b)

(i) Use of water from fire hydrants shall be limited to firefighting, related activities and/or other activities necessary to maintain the health, safety and welfare of the citizenry and shall not be used for construction uses;

(ii) No District water shall be used for construction purposes except for system pressurization and/or testing.

(3) Stage 4 (c)

(i) No new construction or hydrant meters will be issued. Potable water shall not be used for earth work, road construction purposes, dust control, compaction, or trenching jetting. Construction projects necessary to maintain the health, safety, and welfare of the public are exempt from these regulations.

(ii) If the District Board of Directors declares a Water Shortage Emergency during a Stage 4, no new potable water service

connections shall be provided, no new temporary meters or permanent meters shall be provided, and no statements of immediate ability to serve or provide potable water service (such as will serve letters, certificates, or letters of availability) shall be issued, except under the following circumstances:

(1) a valid, unexpired building permit has been issued for the project; or

(2) the project is necessary to protect the public's health, safety, and welfare; or

(3) where an existing service connection exists and an existing water meter is inoperable and cannot be repaired. In such an instance, the size of the new water meter shall be the same or smaller than the water meter being replaced.

(F) The District shall develop a public information campaign to provide Customers with options for achieving the Stage 4 demand reduction goals and complying with their applicable allocation. The District may explore increased Customer incentives for conservation measures.

Section 10. Stage 5 – Mandatory Targeted Indoor/Outdoor Reductions – Catastrophic Failure or "Immediate Emergency"

(A) The intent of this stage and the related sub-stages is to substantially reduce the demand for water through indoor actions in addition to the elimination of landscape and non-essential outdoor water use. Stage 5 applies during periods when the District will not be able to meet all of the water demands of its Customers. This shortage level may correlate to Metropolitan's WSAP Regional Shortage Levels 8, 9, 10, or greater. Stage 5 may be declared during an Immediate Emergency. A Stage 5 declaration may also be accompanied by a Board Resolution declaring a Water Shortage Emergency under California Water Code sections 350 et seq. The District's Board of Directors may choose to implement a temporary drought rate and a temporary drought penalty to achieve water conservation.

(B) After a Stage 5 has been declared and the District has completed the notice requirements set forth herein, each customer who has had a potable water account with the District shall be limited to using potable water as follows:

(i) For residential customers, water use shall be limited to using a volume equal to Block 2 of their potable water budget per billing cycle for indoor and outdoor water use for his or her property;

(ii) For irrigation customers, water use shall be limited to using a volume equal to Block 1 of their irrigation water budget per billing cycle for outdoor water use for his or her property;

(iii) For wholesale customers, water use shall be limited to using a volume equal to Block 1 and Block 2;

(iv) Water use beyond the water volume permitted in (i), (ii) and (iii) above will be charged a civil administrative penalty of $4.01 per CCF.

(C) The objective of the measures undertaken in Stage 5 is to significantly reduce water consumption within the District to protect public health, safety, and fire flow.

(D) Except as otherwise provided in this Section 10, all water supply shortage response measures of Stages 1 through 4 shall be in full force and effect during Stage 5.

(E) Stage 5 does not apply to non-potable or recycled water, although there is no guarantee of availability. The use of recycled water for daytime irrigation is permitted.

(1) Stage 5 (a)

(i) All landscape and non-essential outdoor water use for all Customers in all areas of the District's retail water service area shall be prohibited.

(2) Stage 5 (b)

(i) Except as to property for which a building permit has been heretofore issued, no new water meter(s) shall be provided, except in the following circumstances:

(1) for projects necessary to protect the public's health, safety, and welfare; or

(2) when using recycled water.

(ii) The use of water for commercial, manufacturing, or processing purposes may be further reduced in volume if it is determined to be in the best interest of the health, sanitation, and fire flow protection in the communities served by the District. This determination may be made by the Board of Directors, the General Manager or his or her authorized designee as provided for in Section 5(E).

(3) Stage 5 (c)

(i)All dedicated irrigation meters will be locked off by District personnel.

(ii) Customers with a District authorized Medical Adjustment to their Tier 1 allocation will be permitted 100 percent (100%) of their Tier 1 Water Budget.

(F) The District shall develop a public information campaign to provide Customers with options for achieving the Stage 5 demand reduction goals and complying with their allocation. The District may explore increased Customer incentives for conservation measures.

Section 11. Violation s and Remedies

(A) Criminal Violation. It shall be unlawful for any Person to willfully violate the provisions of this Ordinance. Any violation of the provisions of this Ordinance shall be a misdemeanor, unless made an infraction by the prosecutor, subject to imprisonment in the county jail for not more than thirty (30) days or by fine not to exceed $1,000, or by both as provided in California Water Code section 377.

(B) Cease and Desist Order. The General Manager may issue a cease and desist order directing the Property Owner, or occupant, or other Person in charge of day-to-day operations of any property, and/or any other Person responsible for a violation of this Ordinance to:

(1) immediately discontinue any prohibited use of water pursuant to this Ordinance; and

(2) immediately cease any activity not in compliance with the terms, conditions, and requirements of this Ordinance.

(C) Civil Action. In addition to any other remedies provided in this Ordinance, any violation of this Ordinance may be enforced by civil action brought by the District and the imposition of administrative fines and/or penalties. In any such action, the District may seek, and the court may grant, as appropriate, any or all of the following remedies:

(1) a temporary and/or permanent injunction;

(2) assessment of the violator for the costs of enforcement of the violation and for the reasonable costs of preparing and bringing legal action under this Ordinance; and

(3) assessments under this subsection shall be paid to the District to be used exclusively for costs associated with implementing or enforcing the water supply shortage and regulatory provisions of this Ordinance.

(D) Cumulative. All remedies provided herein shall be cumulative and not exclusive.

(E) On-going. A Person shall be deemed guilty of a separate offense for each and every day or portion thereof during which any violation of any provision of this Ordinance is committed, continued, or permitted.

Section 1 2. Notices

(A) Any notice, notice of violation, cease and desist order, and administrative compliance order shall be served pursuant to the requirements of this Ordinance and shall:

(1) identify the provision(s) of this Ordinance and any State law, if applicable, alleged to have been violated; and

(2) state that continued noncompliance may result in civil, criminal, or administrative enforcement actions against the Person who committed the violation, or the Property Owner and/or occupant of the property where the violation occurred; and

(3) state a compliance date that must be met by the Person who committed the violation, or the Property Owner and/or occupant of the property where the violation occurred; and

(4) order remediation work, where applicable, that must be taken by the Property Owner and/or occupant of the property; and

(5) state that the recipient has a right to appeal the matter as set forth in this Ordinance; and

(6) include the address of the affected property and be addressed to the Property Owner as shown on the most recently issued equalized assessment roll, or as may otherwise appear in the current records of the District. If the order applies to a responsible party who is not the Property Owner, or if the event is not related to a specific property, the notice may be sent to the last known address of the responsible party; and

(7) be deemed served ten (10) business days after posting on the property, if the Property Owner or occupant of the affected property cannot be located after the reasonable efforts of the General Manager or his or her authorized designee.

(B) Any notice, notice of violation, cease and desist order, and administrative compliance order may be sent by regular mail. Service by regular mail is effective on the date of mailing.

(C) The notice of violation may include, where deemed applicable by the General Manager or his or her authorized designee, the following terms and conditions:

(1) specific steps or actions and time schedules for compliance as reasonably necessary to prevent future violations of this Ordinance; and

(2) any other terms, conditions, or requirements reasonably calculated to prevent continued or threatened future violations of this Ordinance, including, but not limited to, discontinuing or limiting water service.

(D) In addition to or in conjunction with the notice of violation, for a first violation of any provision of this Ordinance, within two (2) weeks of the violation:

(1) the District may provide notice to the Property Owner or occupant of the property where the violation occurred to advise such Person of:

(a) the water supply shortage stage then in effect and the provisions of this Ordinance relating thereto;

(b) water supply shortage response measures that are required and may be implemented pursuant to this Ordinance;

(c) possible consequences and actions which may be taken by the District for future violations of this Ordinance, including discontinuance of water service; and

(d) fines and/or penalties that may be imposed for the specific violation and any future violations of this Ordinance;

(E) In addition to or in conjunction with the notice of violation, for a second or any subsequent violation of this Ordinance, within two (2) weeks of the violation:

(1) the District may provide notice to the property where the violation occurred to notify the Property Owner or occupant of the property where the violation occurred to advise such Person of:

(a) the water supply shortage stage then in effect and the provisions of this Ordinance relating thereto;

(b) the water supply shortage response measures that are required and may be implemented by such Person; and

(c) possible consequences which may occur in the event of any future violations of this Ordinance;

(2) if the General Manager or his or her authorized designee deem it to be appropriate, the District may order the installation of a flow-restricting device on the service line for any Person who violates any term or provision of this Ordinance;

(3) if the General Manager or his or her authorized designee deem it to be appropriate, the District may discontinue water service at the location where the violation occurred.

(F) The District may, after one (1) written notice of violation, order that a special meter reading or readings be made in order to ascertain whether wasteful or unreasonable use of water is occurring. The District may impose a meter reading fee for each meter reading it conducts pursuant to this Ordinance.

Section 13. Administrative Compliance Order and Fines and/or Penalties

(A) Separate from, in addition to, or in combination with a notice of violation or cease and desist order, the General Manager or his or her authorized designee may issue an administrative compliance order against the Property Owner and/or occupant of the property where a violation of this Ordinance occurred and/or any other Person responsible for a violation of this Ordinance who violates any provision of this Ordinance. Issuance of a notice of violation or a cease and desist order is not a prerequisite to the issuance of an administrative compliance order. The administrative compliance order shall allege the act(s) or failure(s) to act that constitute violations of this Ordinance and shall set forth the penalty for the violation(s).

(B) The General Manager may impose the following administrative monetary fines and/or penalties, in addition to other appropriate action requirements and measures:

(i) For the first violation during any water supply shortage stage by any Person of any provision of this Ordinance, the District shall issue a written warning notice of non-compliance for any Person who violates any provisions of this Ordinance.

(ii) For a second violation during any water supply shortage stage by any Person of any provision of this Ordinance within the preceding twelve (12) calendar months, the District shall issue a final written notice to the Person which sets forth a complete copy of this Ordinance or summary document of the WSCP as well as additional information such as the required compliance and potential fines and/or penalties for noncompliance.

(iii) For a third violation during Stages 1 and 2 by any Person of any of the provisions of this Ordinance within the preceding twelve (12) calendar months, the District may impose a monetary penalty in the amount of one hundred dollars ($100.00) per day for each day a Person violates any provision of this Ordinance. During Stages 3, 4, and 5 the District may impose a monetary penalty in the amount of two hundred dollars ($200.00) per day for each day a Person violates any provision of this Ordinance.

(iv) For a fourth and any subsequent violation during Stages 1 and 2 by any Person of any of the provisions of this Ordinance, the District may impose a monetary penalty in the amount of one hundred dollars ($100.00) per day for each day a Person violates any provision of this Ordinance. During Stages 3, 4, and 5 the District may impose a monetary penalty in the amount of four hundred dollars ($400.00) per day for each day a Person violates any provision of this Ordinance.

(v) For a fifth violation during Stages 1 and 2 by any Person of any of the provisions of this Ordinance within the preceding twelve (12) calendar months, the District may impose a monetary penalty in the amount of one hundred dollars ($100.00) per day for each day a Person violates any

provision of this Ordinance. During Stages 3, 4, and 5 the District may impose a monetary penalty in the amount of five hundred dollars ($500.00) per day for each day a Person violates any provision of this Ordinance.

(vi) For a sixth and any subsequent violation, the District may install a flow-restricting device or terminate a Person's service in accordance with the District's applicable rules and regulations. These measures are in addition to any monetary fines and/or penalties provided for herein.

(vii) Any such restricted or terminated service may be restored in accordance with the District's applicable rules and regulations and only upon a showing that the Person is in compliance with this Ordinance. Prior to any restoration of service, the Customer shall pay all District charges for any restriction or termination of service and its restoration as provided for in the District rules governing water service, including, but not limited to payment of all past due bills and fines and/or penalties and any other amounts which may be due and owing under this Ordinance.

(viii) An amount that shall not exceed five hundred dollars ($500.00) per day for each day on which a Person violates any provision of this Ordinance. Unless timely appealed, an administrative compliance order shall be effective and final as of the date it is issued by the General Manager.

(ix) To the extent the amounts of penalties and fines referenced in this Section are not otherwise authorized under State law, the penalties and fines assessed shall be in the amounts authorized under the Municipal Water District Law of 1911.

(C) The amount of any fines and/or penalties imposed pursuant to this Section 13 may be collected by including said amount on the Customer's water bill. The amount of any fines and/or penalties imposed pursuant to this Section 13 which have remained delinquent for a period of sixty (60) calendar days shall constitute a lien against the real property of the Person violating this Ordinance. The lien provided herein shall have no force and effect until recorded with the Riverside County Recorder and when recorded shall have the force and effect and priority of a judgment lien and continue for ten (10) years from the time

of recording unless sooner released, and shall be renewable in accordance with the provisions of sections 683.110 to 683.220, inclusive, of the California Code of Civil Procedure.

(D) All moneys collected under this Section 13 shall be deposited in a special account of the District and shall be made available for enforcement of this Ordinance and enhanced water conservation incentive programs.

(E) The District may, at its option, elect to petition the Superior Court to confirm any order establishing administrative fines and/or penalties and enter judgment in conformity therewith in accordance with the provisions of sections 1285 to 1287.6, inclusive, of the California Code of Civil Procedure.

Section 14. Over-Budget Water Use Penalties

(A) All penalty moneys collected from over-budget water use during a declared water shortage stage in excess of the applicable Tier 2 rate, shall be deposited in the existing special funding accounts designated for conservation penalty and/or supply penalty as appropriate and may be allocated to or used for any of the following as determined by the District:

1. Conservation Penalty Account:

(a) Enhanced conservation programs designed to reduce water demands;

(b) Outreach and Education Programs designed to reduce water demands, decrease water waste, or generally raise water awareness;

(c) Enforcement of any provision of this Ordinance;

2. Supply Penalty Account:

(a) Purchase, acquisition, delivery, or wheeling of additional water supplies;

(b) General operations and maintenance expenses, including those incurred as a result of reduced water sales;

(c) The difference between budgeted revenue expected from the operations and maintenance component in the water rates of Tier 1 and 2 and actual revenue received from this component;

(d) Payment of penalty expenses incurred as a result of exceeding a Metropolitan water supply allocation;

(e) Payment of any other incremental cost of service associated with providing water deliveries and/or water service during any water curtailment, water shortage emergency, or "Immediate Emergency" pursuant to Water Code sections 350 et seq.

Section 15. Recovery of Costs

(A) The General Manager shall serve an invoice for costs upon the Property Owner and/or occupant of any property, or any other responsible Person who is subject to a notice of violation, a cease and desist order, or an administrative compliance order. An invoice for costs shall be immediately due and payable to the District. If any Property Owner or Person in charge of day-to-day operations, Customer, or responsible party, or any other Person fails to either pay the invoice for costs or appeal successfully the invoice for costs in accordance with this Ordinance, then the District may institute collection proceedings. The invoice for costs may include reasonable attorneys' fees.

(B) The District shall impose any other fines and/or penalties or regulatory fees, as fixed from time to time by the Board of Directors, for a violation or enforcement of this Ordinance.

(C) In order to recover the costs of the WSCP set forth in this Ordinance, the Board of Directors may, from time to time, fix and impose regulatory fees. These regulatory fees shall not exceed the cost of the regulatory activities for which they are imposed and shall not be used for unrelated revenue purposes. The District fees and charges may include, but are not limited to fees and charges for:

(1) any visits of an Enforcement Officer or other District staff for time incurred for meter reading, follow-up visits, or the installation or removal of a flow-restricting device;

(2) monitoring, inspection, and surveillance procedures pertaining to enforcement of this Ordinance;

(3) enforcing compliance with any term or provision of this Ordinance;

(4) re-initiating service at a property where service has been discontinued pursuant to this Ordinance;

(5) processing any fees necessary to carry out the provisions of this Ordinance.

Section 1 6. Appeals

Any Person subject to a notice of violation, cease and desist order, or administrative compliance order may file a written appeal of such order or notice to the General Manager within thirty (30) calendar days of the date of service of the order or notice. An appeal shall be made in accordance with the following procedures:

(A) The Appellant shall complete and submit in writing a form provided by the District for such purpose and shall state in such form the grounds for his or her appeal. All appeals shall be submitted to the District Secretary within thirty (30) calendar days of the date of the notice of violation, cease and desist order, or administrative compliance order.

(B) The General Manager or his or her authorized designee shall review the appeal and any related information provided, and, if necessary, cause an investigation and report to be made concerning the request for Relief. The General Manager or his or her authorized designee shall have fifteen (15) calendar days from the submission of the appeal to render a decision on whether to grant the appeal and mail notice thereof to the Appellant. If the General Manager or his or her authorized designee grants the appeal, then within fifteen (15) calendar days of such determination the General Manager or his or her authorized designee shall give written notice thereof to the Appellant.

(C) The decision of the General Manager or his or her authorized designee may be appealed by the Appellant to the Board of Directors.

Such appeal must be submitted in writing and filed with the District Secretary within fifteen (15) calendar days of the date of decision of the General Manager or his or her authorized designee. The Board of Directors shall conduct a hearing on such appeal at its next regularly scheduled Board of Directors meeting; provided, however, the Board of Directors shall have received the notice of appeal at least fifteen (15) calendar days prior to such meeting. If the appeal is not submitted within at least fifteen (15) calendar days prior to a regularly scheduled Board of Directors meeting, then the Hearing shall be held at the following regularly scheduled meeting of the Board of Directors. A notice of the Hearing shall be mailed to the Appellant at least ten (10) calendar days before the date fixed for the Hearing. The Board of Directors shall review the appeal de novo. The determination of the Board of Directors shall be conclusive and shall constitute a final order. Notice of the determination by the Board of Directors shall be mailed to the Appellant within ten (10) calendar days of such determination and shall indicate whether the appeal has been granted in whole or in part and set forth the terms and conditions of the appeal, if any, granted to the Appellant. If the appeal is denied, the Appellant shall comply with all terms and conditions of this Ordinance and the applicable stage then in effect.

(D) After an Appeal Request form has been received, a site survey may be required by the District. The site survey will be at no charge to the person and will require the person who submitted the Appeal request form to be present.

(E) Until the conclusion of the appeal process, all provisions and decisions under appeal shall remain in full force and effect until the conclusion of the appeal process.

Section 17. Variances

The District may, in writing, grant a temporary variance from any fines, Allocation Surcharges and monetary assessments, or restrictions imposed by the WSCP if it is determined that failure to grant such variance would cause an emergency condition adversely affecting the health, sanitation, or fire

protection for the public or the person requesting such variance, and under the following conditions:

(A) Compliance with the WSCP cannot be technically accomplished during the duration of a water supply shortage or other condition for which the WSCP Shortage Stage is in effect

(B) Alternative methods or technology used as part of a District-sanctioned trial or test study can be implemented which will achieve the same level or reduction in water use.

(C) Doctor-approved health circumstances, illness or injury will be considered on a case-by-case basis.

(D) No variances will be issued, beginning in Shortage Stage 3c of the WSCP, for filling swimming pools, leaks not repaired within 14 days or having large livestock animals.

(E) Additional 55 gallons per day (gpd) for each additional person. Documentation of additional residents must be submitted with application if the property will have more than 6 full-time residents. This may be children's birth certificates, school records, copies of income tax returns, lease agreements, etc. Type of documentation provided for this variance will be verified and notated on the variance form. After verification is complete, documentation provided will be destroyed.

(F) Variances will be considered for landscape adjustments within a 60 day grace period after the WSCP adoption.

(G) Variances will be considered for health and safety issue only in Shortage Stages 4 and 5.

(H) A written variance shall be accepted by the District, and may be denied at the sole discretion of the District.

(I) All variances must be requested in writing any time after the WSCP stage implementation. The following must be provided:

1. Name, contact phone number, service address and customer account number of petitioner;

2. Purpose of water use (e.g., domestic, commercial, agriculture);
3. Specific provision(s) of the WSCP from which the petitioner is requesting relief;
4. Detailed statement as to how the provision of the WSCP adversely affects the petitioner or what damage or harm will occur;
5. Description of the relief requested;
6. Period of time for which the variance is sought; and
7. Any alternative water use restrictions (e.g. indoor use) that the petitioner is taking or proposes to take to meet the intent of the WSCP.

Section 1 8. Relief From Complianc e

Consideration of written applications for Relief from compliance regarding the regulations and restrictions on water use set forth in this Ordinance may be made by the District.

(A) Written applications for Relief shall be accepted, and may be granted or denied, by the Approving Authority, at his or her sole discretion, or by his or her designee at his or her sole discretion. The application shall be in a form prescribed by the District and shall be accompanied by a non-refundable processing fee in an amount as determined by the Board of Directors for the purpose of defraying the costs incidental to the proceedings.

(B) The grounds for granting or conditionally granting Relief are:

(1) due to unique circumstances, a specific requirement of this Ordinance would result in undue hardship to a Person using District water or to property upon which District water is used, that is disproportionate to the impacts to other District water users generally or to similar property or classes of water users; or

(2) failure to grant Relief would adversely affect the health, sanitation, fire protection, or safety of the applicant or the public.

(C) The application for Relief shall be accompanied, as appropriate, with photographs, maps, drawings, and other information substantiating the applicant's request, including a statement of the applicant.

(D) An application for Relief shall be denied unless the Approving Authority finds, based on the information provided in the application, supporting documentation, or such other additional information as may be requested, and on water use information for the property as shown by the records of the District, all of the following:

(1) That the Relief does not constitute a grant of special privilege inconsistent with the limitations upon other District Customers;

(2) That because of special circumstances applicable to the property or its use, the strict application of this Ordinance would have a disproportionate impact on: (a) the property or use that exceeds Customers generally; or (b) the applicant's health that exceeds Customers generally;

(3) That the authorization of such Relief will not be of substantial detriment to adjacent properties, will not materially affect the ability of the District to effectuate the purposes of this Ordinance, and will not be detrimental to the public interest; and

(4) That the condition or situation of: (a) the subject property or the intended use of the property for which the Relief is sought is not common, recurrent, or general in nature; or (b) the applicant's health or safety is not common, recurrent, or general in nature.

(E) The denial or grant of a Relief shall be acted upon within fifteen (15) business days of the submittal of the complete application, including any photographs, maps, drawings, and other information substantiating the applicant's request and the statement of the applicant. The application may be approved, conditionally approved, or denied. The decision of the Approving Authority shall be prepared in writing, include terms and conditions, if any, and promptly sent to the applicant.

(F) The denial of a request for Relief may be appealed in writing to the General Manager. An appeal shall be made in accordance with the following procedures:

(1) The Appellant shall complete and submit in writing a form provided by the District for such purpose and shall state in such form the grounds for his or her appeal. All appeals shall be submitted to the District Secretary within thirty (30) calendar days of the date of the notice of the denial of the request for Relief.

(2) The General Manager or his or her authorized designee shall review the appeal and any related information provided, and, if necessary, cause an investigation and report to be made concerning the request for Relief. The General Manager or his or her authorized designee shall have fifteen (15) calendar days from the submission of the appeal to render a decision on whether to grant the appeal and mail notice thereof to the Appellant. If the General Manager or his or her authorized designee grants the appeal and determines that the request for Relief shall be granted, then within fifteen (15) calendar days of such determination the General Manager or his or her authorized designee shall give written notice thereof to the Appellant.

(3) The decision of the General Manager or his or her authorized designee may be appealed by the Appellant to the Board of Directors. Such appeal must be submitted in writing and filed with the District Secretary within fifteen (15) calendar days of the date of decision of the General Manager or his or her authorized designee. The Board of Directors shall conduct a hearing on such appeal at its next regularly scheduled Board of Directors meeting; provided, however, the Board of Directors shall have received the notice of appeal at least fifteen (15) calendar days prior to such meeting. If the appeal is not submitted within at least fifteen (15) calendar days prior to a regularly scheduled Board of Directors meeting, then the Hearing shall be held at the following regularly scheduled meeting of the Board of Directors. A notice of the Hearing shall be mailed to the Appellant at least ten (10) calendar days before the date fixed for the Hearing. The Board of Directors shall review the appeal de

novo. The determination of the Board of Directors shall be conclusive and shall constitute a final order. Notice of the determination by the Board of Directors shall be mailed to the Appellant within ten (10) calendar days of such determination and shall indicate whether the appeal has been granted in whole or in part and set forth the terms and conditions of the Relief, if any, granted to the Appellant. If the appeal is denied, the Appellant shall comply with all terms and conditions of this Ordinance and the applicable stage then in effect.

(4) Until the conclusion of the appeal process, all provisions and decisions under appeal shall remain in full force and effect until the conclusion of the appeal process.

Section 1 8. Conflictin g Prov isions

If provisions of this Ordinance are in conflict with each other, other rules and regulations of the District, or any other resolution or ordinance of the District, including but not limited to Ordinance Numbers 78, 79, 81, 87, 88, 185, and 219 as any or all of same have been amended from time to time the provisions of this Ordinance No. 255 shall apply. If the provisions of this Ordinance are in conflict with any State law or regulation, the more restrictive provisions shall apply.

Section 19. Severabi lit y

If any provision, section, subsection, sentence, clause or phrase or sections of this Ordinance, or the application of same to any Person or set of circumstances, is for any reason held to be unconstitutional, void or invalid, the invalidity of the remaining portions of sections of this Ordinance shall not be affected, it being the intent of the Board of Directors in adopting this Ordinance that no portions, provisions, or regulations contained herein shall become inoperative, or fail by reason of the unconstitutionality of any other provision hereof and all provisions of this Ordinance are declared to be severable for that purpose.

Section 20. Effectiv e Date and Publication

This Ordinance shall be effective immediately upon adoption. Within ten (10) days after its adoption, the District Secretary shall cause this

Ordinance to be published once pursuant to California Government Code section 6061 in full in a newspaper of general circulation which is printed, published, and circulated in the District. If there is no such newspaper, the Ordinance shall be posted within the District after its adoption in three public places.

ADOPTED AND APPROVED this 28th day of May 2015 by the Board of Directors of the Elsinore Valley Municipal Water District.

Phil Williams, President
Board of Directors
Elsinore Valley Municipal Water District

ATTEST:

Terese Quintanar, Secretary of the
Board of Directors of the
Elsinore Valley Municipal Water District

STATE OF CALIFORNIA)
) ss:
COUNTY OF RIVERSIDE)

I, Terese Quintanar, Secretary of the Board of Directors of the Elsinore Valley Municipal Water District, do hereby certify that the foregoing Ordinance No. 225 was duly adopted by said Board at its Regular Meeting held on May 28, 2015, and that it was so adopted by the following roll call vote:

AYES: Cambero, Horton, Morris, Ryan, Williams

NOES: None

ABSENT: None

ABSTAIN: None

_____
Terese Quintanar, Secretary of the Board of Directors of the Elsinore Valley Municipal Water District

Attachment 2: 2015 EVMWD Drought Surcharge Study

RAFTELIS
FINANCIAL CONSULTANTS, INC.

Elsinore Valley Municipal Water District

Drought Surcharge Study

Final Report | July 2, 2015

RAFTELIS
FINANCIAL CONSULTANTS, INC.

201 S. Lake Avenue
Suite 301
Pasadena, CA 91101

Phone 626.583.1894
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www.raftelis.com

July 2, 2015

Ms. Margie Armstrong
Chief Financial Officer
Elsinore Valley Municipal Water District
P.O. Box 3000, 31315 Chaney Street
Lake Elsinore CA 92531

Subject: Drought Surcharge Study Report

Dear Ms. Armstrong,

Raftelis Financial Consultants, Inc. (RFC) is pleased to provide this Drought Surcharge Study Memorandum Report (Report) for Elsinore Valley Municipal Water District (District).

The major objectives of the Drought Surcharge Study include the following:

1. Develop Drought Surcharges for the District to implement during times of water supply shortages, as identified in the District's drought ordinance
2. Develop an approach for estimating customer conservation and usage at various stages of shortage
3. Identify the net revenue impact of water sales reduction with consideration to unrecovered fixed costs and avoided water supply costs
4. Calculate Drought Surcharges for all users, for the three stages (nine sub-stages) of drought that require mandatory restrictions

This Report summarizes the methodology, estimations, and recommendations related to the development of Drought Surcharges for the District.

It has been a pleasure working with you, and we thank you for the support provided during the course of this study.

Sincerely,

RAFTELIS FINANCIAL CONSULTANTS, INC.

Sanjay Gaur
Vice President

Kevin Kostiuk
Consultant

TABLE OF CONTENTS

LIST OF TABLES

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1. INTRODUCTION

1.1 BACKGROUND

The District provides water service to a population of approximately 120,000, comprised of approximately 41,500 residential, commercial, irrigation, and commercial accounts. The District is a member agency of Western Municipal Water District (Western), who in turn is a member agency of Metropolitan Water District of Southern California (MWD). The District receives water from five sources in the following order by volume (descending): imported water from MWD via Western, local Elsinore Basin groundwater well production, Canyon Lake surface water, Back Basin Groundwater Storage Project water, and imported water via Temescal Valley Pipeline.

On July 16, 2014, the District Board declared a Stage 2 water supply shortage[1] as water supplies continued to be reduced during the third year of California's historic drought. On May 28, 2015, the District Board declared a Stage 4a water supply shortage, owing the heightened stage to the continuation and intensification of a drought now in its fourth year. Three of the District's five[2] drought stages include three sub-stages, noted as a-b-c. Stage 4a calls for a mandatory 25% reduction in District-wide water use. In addition to the District's declarations, on April 1, 2015, Governor Brown issued Executive Order (EO) B-29-15 directing the State Water Resources Control Board (SWRCB) to work with water service providers to reduce urban potable use by 25% statewide.[3]

1.2 SCOPE OF THE STUDY

The District engaged RFC to develop Drought Surcharges to facilitate reductions in consumption for each of the nine (9) mandatory drought sub-stages (Stages 3a through 5c). This Study only includes Drought Surcharges for the Elsinore Water Division.[4] The Temescal Water Division is not included in this analysis. This report documents the key assumptions involved in the development of the Drought Surcharges, an overview of the use reduction methodology, corresponding revenue impacts, Drought Surcharge calculations, and summary of proposed surcharges. This Study Report should be read in conjunction with the Water and Recycled Water Rate Study Report dated July 2, 2015.

Throughout the course of the engagement, RFC worked with management to develop several Drought Surcharge structure options. The selected option was presented before the District Board on May 20, 2015. The surcharges presented to the Board, found within this Report in Table 4-1, represent a revenue neutral cost recovery mechanism to achieve the overall consumption reduction for each drought stage, while maintaining revenue sufficiency. The Drought Surcharges assume percentage reductions in

[1] Water Restrictions as defined in the District's Water Shortage Contingency Plan
[2] Mandatory restrictions and Drought Surcharges are only effective in Stages 3-5.
[3] The District's mandated urban water sales reduction is 28% based upon the SWRCB tiered reductions.
[4] This analysis is based on rates for the Elsinore Valley Municipal Water District Rate Study Report dated July 2, 2015.

consumption, by customer class, by block, and by stage, to achieve overall consumption reductions required at each drought stage. The resultant surcharges are calculated as percentage values relative to respective base, or "non-drought" rates. Lastly, as a point of clarification, Drought Surcharges are charged in addition to base commodity rates.

2. ASSUMPTIONS

The Drought Surcharges presented in this report are based on the District's proposed FY 2016 rates found in the Water and Recycled Water Rate Study Report of July 2, 2015. Proposed commodity rates are presented in Table 2-1.[5] All tables in this report relating to commodity rates, water sales and the overall calculation of drought surcharges use FY 2016[6] values. That is, all tables whether explicitly stated or not refer to FY 2016.[7] The commodity rates are comprised of various cost components, including: water supply, delivery, peaking, conservation, recycled water, and revenue offsets. Water supply costs represent a purely variable cost. The other cost components recover fixed costs through the variable commodity rate. Cost components and corresponding values are presented in Table 2-2.

Table 2-1: Proposed FY 2016 Commodity Rates

Customer Class	Proposed Rate ($/ccf)
Residential	
Indoor Use	**$2.25**
Efficient Outdoor Use	**$2.75**
Inefficient Use	**$4.34**
Excessive Use	**$6.26**
Irrigation	
Efficient Outdoor Use	**$2.83**
Inefficient Use	**$4.52**
Excessive Use	**$6.84**
Others	
Commercial	**$2.75**
Institutional	**$2.75**
Hydrant	**$5.33**
Inter-Agency	
Block 1	**$2.41**
Block 2	**$3.91**
Block 3	**$5.02**

[5] Several tables in this report combine the Commercial and Institutional classes in to one classification as they have the same commodity rates and Drought Surcharges. Additionally, Irrigation customers do not receive an allotment for indoor use as it is defined as for essential, indoor household requirements.
[6] Fiscal Year 2016 runs from July 1,2015 through June 30, 2016.
[7] Revenue requirements and proposed rates used in this analysis are from the Elsinore Valley Municipal Water District Rate Study Report dated July 2, 2015.

Table 2-2: Proposed FY 2016 Commodity Rate Cost Components ($/ccf)

Customer Class	Water Supply	Delivery	Peaking	Conserv-ation	RW (Current)	RW Future	Revenue Offsets	Proposed Rate
Residential								
Indoor Use	$1.60	$0.20	$0.48	$0.00	$0.00	$0.00	($0.03)	**$2.25**
Efficient Outdoor Use	$1.60	$0.20	$0.95	$0.00	$0.00	$0.00	$0.00	**$2.75**
Inefficient Use	$2.37	$0.20	$0.99	$0.11	$0.67	$0.00	$0.00	**$4.34**
Excessive Use	$2.71	$0.20	$2.05	$0.44	$0.67	$0.19	$0.00	**$6.26**
Irrigation								
Efficient Outdoor Use	$1.60	$0.20	$1.03	$0.00	$0.00	$0.00	$0.00	**$2.83**
Inefficient Use	$2.37	$0.20	$1.17	$0.11	$0.67	$0.00	$0.00	**$4.52**
Excessive Use	$2.71	$0.20	$2.63	$0.44	$0.67	$0.19	$0.00	**$6.84**
Others (Non-Water Budget)								
Commercial /Institutional	$1.73	$0.20	$0.67	$0.05	$0.10	$0.02	($0.02)	**$2.75**
Hydrant	$2.37	$0.20	$2.64	$0.00	$0.10	$0.02	$0.00	**$5.33**
Inter-Agency								
Block 1	$1.60	$0.20	$0.63	$0.00	$0.00	$0.00	($0.02)	**$2.41**
Block 2	$2.37	$0.20	$0.84	$0.11	$0.39	$0.00	$0.00	**$3.91**
Block 3	$2.71	$0.20	$1.09	$0.44	$0.39	$0.19	$0.00	**$5.02**

District drought stages range from Stage 1 to Stage 5. Stages 3 to 5 are comprised of three sub-stages, with consumption reductions in 5 percent increments. Stage 3a (10 percent mandatory reduction) to Stage 5c (50 percent mandatory reduction) represent the nine sub-stages included in this study. Drought Surcharges for reductions less than 10 percent (voluntary reductions) are excluded from this analysis. A summary of District drought stages is presented in Table 2-3.

Table 2-3: Drought Stages

EVMWD Drought Stage	Declared Shortage
2	5%
3a	10%
3b	15%
3c	20%
4a	25%
4b	30%
4c	35%
5a	40%
5b	45%
5c	50%

2.1 REVENUE REQUIREMENTS

The baseline for the Drought Surcharges is the projected FY 2016 demand and corresponding rates to determine the non-drought revenue requirements. Table 2-4 shows the baseline revenue requirement and corresponding base demand.

Table 2-4: Baseline Revenue Requirement, FY 2016

Customer Class	Base Usage (ccf)	Rev Requirement	Base Rate ($/ccf)
Residential			
Indoor Use	4,568,250	$10,278,563	$2.25
Efficient Outdoor Use	2,808,746	$7,724,052	$2.75
Inefficient Use	317,672	$1,378,696	$4.34
Excessive Use	600,178	$3,757,118	$6.26
Irrigation			
Efficient Outdoor Use	1,292,809	$3,658,649	$2.83
Inefficient Use	192,767	$871,305	$4.52
Excessive Use	417,621	$2,856,530	$6.84
Others (Non-Water Budget)			
Commercial	520,496	$1,431,364	$2.75
Institutional	71,751	$197,315	$2.75
Hydrant	115,529	$615,770	$5.33
Inter-Agency			
Block 1	107,926	$260,102	$2.41
Block 2	25,026	$97,852	$3.91
Block 3	12,944	$64,979	$5.02
Total Demand/Revenue	**11,051,716**	**$33,192,295**	

Revenue requirements are modified for each stage to account for avoided costs from reduced water purchases (a variable cost). Avoided costs consist of the variable cost component (water supply) for each classes'- and blocks'- commodity rate multiplied by the reduced sales (in ccf) in the stage. Table 2-5 details the avoided supply costs by stage. The effect of reducing water supply costs is to reduce the revenue requirement in each stage.

Table 2-5: Avoided Water Supply Costs, by Stage

Drought Stage	Declared Shortage	Avoided Costs (Water Supply)
-	<10%	$1,555,491
3a	10%	$2,905,900
3b	15%	$4,154,894
3c	20%	$5,212,381
4a	25%	$6,029,519
4b	30%	$6,996,743
4c	35%	$7,756,354
5a	40%	$8,566,575
5b	45%	$9,506,894
5c	50%	$10,695,675

However, reduced water sales generate unrecoverable fixed costs which include the costs associated with delivery, peaking, conservation, recycled water, and revenue offsets. Table 2-2 identifies the various cost components that makeup the individual commodity rates. All cost components, less water supply, are incurred irrespective of water sales and are therefore unavoidable. The reduction in sales units (ccf) multiplied by the unavoidable cost represents the revenue impact for each block and/or class. The net revenue impact to the District in each stage is then the sum of all unrecoverable costs across every class and block. Table 2-6 summarizes the calculation for the Residential class and uses Stage 3a as an example. Table 2-7 summarizes the net revenue impacts at each stage.

Table 2-6: Net Revenue Impact Calculation (Residential Class), Stage 3a

Customer Class	Base Usage (ccf)	Reduction (%)	Stage Usage (ccf)	Reduction (ccf)	Fixed Costs	Net Rev Impact
Residential						
Indoor Use	4,568,250	0%	4,568,250	0	$0.65/ccf	$0
Conservation Use	2,808,746	0%	2,808,746	0	$1.15/ccf	$0
Inefficient Use	317,672	10%	285,905	31,767	$1.97/ccf	$62,581
Excessive Use	600,178	100%	0	600,178	$3.55/ccf	$2,130,633
Total	**8,294,847**		**7,662,901**	**631,945**		**$2,193,215**

Table 2-7: Net Revenue Impact, by Stage

Drought Stage	Required Sales Reduction	Net Revenue Impact ($)
-	0%	$0
-	5%	$2,173,216
3a	10%	$3,992,768
3b	15%	$5,054,268
3c	20%	$5,841,118
4a	25%	$6,450,847
4b	30%	$7,168,480
4c	35%	$7,733,727
5a	40%	$8,336,119
5b	45%	$9,031,350
5c	50%	$9,907,389

Table 2-8 summarizes the revenue requirements for each stage relative to baseline. Table 2-9 illustrates the modified revenue requirement calculation for Stage 3a as an example. Note, the revenue requirement only accounts for commodity (water sales), not revenue recovered through fixed charges.

Table 2-8: Stage Adjusted Revenue Requirements and Revenue Impacts

Drought Stage	Required Sales Reduction	Net Revenue Impact	Stage Revenue Requirement
-	0%	$0	$33,192,295
-	5%	$2,173,216	$31,636,804
3a	10%	$3,992,768	$30,286,395
3b	15%	$5,054,268	$29,037,401
3c	20%	$5,841,118	$27,979,914
4a	25%	$6,450,847	$27,162,775
4b	30%	$7,168,480	$26,195,551
4c	35%	$7,733,727	$25,435,941
5a	40%	$8,336,119	$24,625,720
5b	45%	$9,031,350	$23,685,400
5c	50%	$9,907,389	$22,496,620

Table 2-9: Stage Adjusted Revenue Requirements at Stage 3a

Customer Class	Baseline Revenue Requirement	Less Avoided Costs (Water Purchases)	Stage Revenue Requirement
Residential			
Indoor Use	$10,278,563	$0.00	$10,278,563
Efficient Outdoor Use	$7,724,052	$0.00	$7,724,052
Inefficient Use	$1,378,696	$75,288	$1,303,408
Excessive Use	$3,757,118	$1,626,484	$2,130,634
Irrigation			
Efficient Outdoor Use	$3,658,649	$0	$3,658,649
Inefficient Use	$871,305	$45,686	$825,620
Excessive Use	$2,856,530	$1,131,754	$1,724,776
Others (Non-Water Budget)			
Commercial	$1,431,364	$0.00	$1,431,364
Institutional	$197,315	$0.00	$197,315
Hydrant	$615,770	$26,688	$589,082
Inter-Agency			
Block 1	$260,102	$0	$260,102
Block 2	$97,852	$0	$97,852
Block 3	$64,979	$0	$64,979
Total Revenue Requirement	**$33,192,295**	**$2,905,900**	**$30,286,395**

2.2 CONSUMPTION

Table 2-10 below shows the forecast (projected) consumption for FY 2016. The majority of use is attributable to Residential users, with Irrigation secondary. The balance of consumption is comprised of Commercial, Industrial, Construction (Hydrant), and Inter-Agency demand. The consumption levels indicated below correspond with a typical non-water shortage year for the District. Consequently, these usage levels by customer class serve as a baseline for the consumption assumptions and revenue requirement used in each water shortage stage.

Table 2-10: Baseline Demand FY 2016

Customer Class	Base Usage (ccf)
Residential	
Indoor Use	4,568,250
Efficient Outdoor Use	2,808,746
Inefficient Use	317,672
Excessive Use	600,178
Irrigation	
Efficient Outdoor Use	1,292,809
Inefficient Use	192,767
Excessive Use	417,621
Others (Non-Water Budget)	
Commercial	520,496
Institutional	71,751
Hydrant	115,529
Inter-Agency	
Block 1	107,926
Block 2	25,026
Block 3	12,944
Total Demand/Revenue	**11,051,716**

Stage 4a, for example, requires an overall reduction of 25 percent. Table 2-11 indicates the assumed adjustment (targeted reductions) required to achieve Stage 4a usage reductions, as well as the estimated usage once those reductions have been achieved. The method to achieve target reduction is to reduce use in the upper blocks of water budget customers first. Since the purpose of water budgets are to identify allocations for efficient use for different customer classes, we can reasonably assume that in times of shortage inefficient and wasteful usage of water should and will be reduced first. In the District's case, this represents excessive use by Residential and Irrigation customers. Once all excessive use is reduced to zero, we reduce inefficient use to such a degree that we achieve the system wide reduction target of 25 percent in the case of stage 4a. This reduction logic continues "downward" through the blocks as the drought stages, and necessary reductions, increase.

Table 2-11: Usage Reduction by Class and Block, Stage 4a

Customer Class	Adjusted Usage (ccf/year)	Reduction	Stage Usage (ccf)
Residential			
Indoor Use	4,568,250	0%	4,568,250
Efficient Outdoor Use	2,025,374	0%	2,025,374
Inefficient Use	422,126	100%	0
Excessive Use	1,279,097	100%	0
Irrigation			
Efficient Outdoor Use	833,931	0%	833,931
Inefficient Use	198,134	100%	0
Excessive Use	871,132	100%	0
Others (Non-Water Budget)			
Commercial/Institutional	592,247	0%	592,247
Hydrant	115,529	25%	86,321
Inter-Agency			
Block 1	107,926	0%	107,926
Block 2	25,026	5%	23,775
Block 3	12,944	5%	12,297

There are several items to note regarding the estimated Stage 4a usage in Table 2-11. First, no reduction in indoor use (for Residential accounts) was assumed, as indoor use is to meet essential needs for health and sanitation.

Second, a 45 percent reduction in Efficient Outdoor Use (for efficient outdoor irrigation) for Residential and Irrigation customers is required as there is no longer enough use to be reduced in the inefficient and excessive use blocks after adjustment to meet the system-wide 25 percent reduction (see Table 2-12). Efficient Outdoor Use is reduced in the highest drought stage, 5c, to zero use to achieve the system-wide target of 50 percent.

Third, no reduction is assumed for uniform customers other than hydrant (construction) use as these classes are heterogeneous- making it difficult to estimate efficient use and therefore reductions. Additionally, uniform rate customers' use as a whole is minimal (6.4%) relative to District-wide consumption. Hydrant and Inter-Agency use is reduced in the higher stages. See tables in Section 5 for these reductions, by stage. Considering the method above, the remaining classes and blocks must decrease their usage at an average reduction greater than 25 percent to achieve the overall 25 percent reduction target.

The consumption forecast for each of the remaining drought stages is determined using the same logic.

Table 2-12 summarizes the level of reduction in percentage terms for water budget customers at each stage.

Table 2-12: Water Budget Block Reductions, by Stage

Drought Stage	Indoor Reduction	Efficient Outdoor Reduction	Inefficient Reduction	Excessive Reduction
3a	0%	0%	10%	100%
3b	0%	5%	100%	100%
3c	0%	30%	100%	100%
4a	0%	45%	100%	100%
4b	0%	60%	100%	100%
4c	0%	70%	100%	100%
5a	0%	80%	100%	100%
5b	0%	90%	100%	100%
5c	0%	100%	100%	100%

3. DROUGHT SURCHARGE DESIGN

3.1 EXISTING NON-DROUGHT COMMODITY RATES

As mentioned above, the basis for the drought surcharge design is the projected revenue requirements for FY 2016. Table 3-1 indicates the proposed FY 2016 commodity rates. The current rate structure includes water budgets for Residential and Irrigation accounts, an inclining three-block rate structure for Inter-Agency sales, and uniform commodity rates for all other classes.

3.1.1 Water Budget Definitions

Water budgets allot water in discrete blocks to users based on defined needs, namely indoor and outdoor use. Residential customers are allotted indoor use (termed Indoor Use by the District) based upon household density, days of service, and targeted per capita use of 55 gallons per day (gpcd). This allotment is sufficient to meet household demand at efficient usage levels and is referred to as an Indoor Water Budget (IWB). Efficient Outdoor Use is allotted based upon the irrigable area (or landscape area) of a home or Irrigation account, and represents the amount of water required to keep landscapes healthy. This efficient amount of water for irrigation is referred to as an Outdoor Water Budget (OWB). Inefficient Use is defined as anything greater than the Total Water Budget (TWB), which is the IWB+OWB. Customers receive an allotment equal to 30% of their OWB in the Inefficient Use block. The next block is Excessive Use which is all usage in excess of Inefficient Use. Water Budgets function much the same as traditional Inclining Block Rates, with the difference being that in a water budget structure the block widths (or thresholds) are customized for each user, while the price within the block remains the same for all. Please

see Section 3 of the Water and Recycled Water Rate Study Report for further detail on Water Budget definitions and Water Budget development methodology.

Consumption is billed by block or by uniform rate, depending upon the customer class. For example, Residential customers are billed at $2.25/ccf for Indoor Use (IWB), $2.75 for Efficient Outdoor Use (OWB), $4.34 for Inefficient Use, and $6.26 for Excessive Use. Table 3-1 includes proposed FY 2016 rates for all customer classes (same as Table 2-1). See the Water and Recycled Water Rate Study dated July 2, 2015 for a basis upon which these rates were calculated.

Table 3-1: Proposed FY 2016 Commodity Rates

Customer Class	Proposed Rate ($/ccf)
Residential	
Indoor Use	**$2.25**
Efficient Outdoor Use	**$2.75**
Inefficient Use	**$4.34**
Excessive Use	**$6.26**
Irrigation	
Efficient Outdoor Use	**$2.83**
Inefficient Use	**$4.52**
Excessive Use	**$6.84**
Others	
Commercial/Institutional	**$2.75**
Hydrant	**$5.33**
Inter-Agency	
Block 1	**$2.41**
Block 2	**$3.91**
Block 3	**$5.02**

3.2 WATER SHORTAGE RATE CALCULATIONS AND PROPOSED RATES

Of the District's 5 drought stages, the proposed surcharges are for those stages in which consumption reduction is considered mandatory (i.e., Stages 3a through 5c) and are adjusted upward with each stage to reflect the severity of the water shortage and achieve the desired reduction in consumption. The option proposed and presented to the District Board is revenue neutral and recovers costs associated with the drought and the reduction in revenues due to projected reductions in consumption during identified drought stages. That is, the drought surcharges for each stage recover the FY 2016 stage-adjusted revenue requirement, and account for variable cost savings.

3.2.1 Drought Surcharges Calculation

The Drought Surcharge calculations involve the following steps: first, we define the baseline (non-water shortage) consumption as 11.05 million ccf with a commodity revenue requirement of $33.19 million. Again, these requirements are based upon projected FY 2016 demand and proposed FY 2016 commodity rates.

Second, we apply, by customer class and block, the percentage reductions in consumption required to achieve the overall reduction. These percentages are based on discussions with District Management, the characteristics of the District's existing rate structure, and our experience with similar studies of this nature. The adjusted, or stage usage, is thus determined to estimate District-wide water sales at a given stage. Note that no reductions are assumed for Indoor Use (Indoor Water Budget) at any stage, and reductions in Efficient Outdoor Use (Outdoor Water Budget) begin at Stage 3b (5 percent) and escalate to 100 percent at the highest stage (5c). Said differently, in Stage 5c there is no outdoor water use.

Third, we calculate drought surcharges based on the FY 2016 revenue requirements (adjusted for incremental water purchase savings) and reduced usage (25 percent in the case of Stage 4a). This calculation is performed by determining the "across-the-board" percentage increase in the existing commodity rates required to recover the drought costs (net revenue impact) and distributing the percentage increase across all base rates. Therefore the surcharges represent a uniform percentage increase (or percentage amount) to the non-drought rates.

This methodology ensures that the Drought Surcharges reflect revenue recovery consistent with cost of service principles, given that the baseline (non-drought) commodity rates are cost of service based rates. Additionally, a percentage increase, rather than a uniform dollar surcharge, maintains the integrity of the block and budget-based rate structures, allowing a price signal to achieve desired conservation and proportionally allocate the costs of service.

Table 3-2 indicates the detailed calculations for Water Shortage Stage 4a. Table 3-2 is separated into two tables to accommodate the number of columns required in the calculation. The table should be read from left to right, with the second half representing the columns to the right of the last column of the first half. Calculations for all other Stages 3a-5c are included in Appendix A.

Table 3-2: Drought Surcharge Calculation, Stage 4a

Stage 4a	Reduction	25%				
Customer Class	**Base Usage (ccf/year)**	**Base Revenue Requirement**	**Base Rate**	**Adjusted Usage**	**Reduction**	**Stage Usage**
Residential						
Indoor Use	4,568,250	$10,278,563	$2.25	4,568,250	0%	4,568,250
Efficient Outdoor Use	2,808,746	$7,724,052	$2.75	2,025,374	0%	2,025,374
Inefficient Use	317,672	$1,378,696	$4.34	422,126	100%	0
Excessive Use	600,179	$3,757,117	$6.26	1,279,097	100%	0
	8,294,847	**$23,138,429**		**8,294,847**		**6,593,624**
Irrigation						
Efficient Outdoor Use	1,292,809	$3,658,649	$2.83	833,931	0%	833,931
Inefficient Use	192,767	$871,305	$4.52	198,134	100%	0
Excessive Use	417,621	$2,856,530	$6.84	871,132	100%	0
	1,903,197	**$7,386,485**		**1,903,197**		**833,931**
Others (Non-Water Budget)						
Commercial	520,496	$1,431,364	$2.75	520,496	0%	520,496
Institutional	71,751	$197,315	$2.75	71,751	0%	71,751
Hydrant	115,529	$615,770	$5.33	115,529	25%	86,321
	707,776	**$2,244,449**		**707,776**		**678,568**
Inter-Agency						
Block 1	107,926	$260,102	$2.41	107,926	0%	107,926
Block 2	25,026	$97,852	$3.91	25,026	5%	23,775
Block 3	12,944	$64,979	$5.02	12,944	5%	12,297
	145,896	**$422,932**		**145,896**		**143,998**

Table 3-2: Drought Surcharge Calculation, Stage 4a (Continued)

Stage 4a	Reduction	25%		Uniform %	32%
Customer Class	Stage Usage	Net Rev Impact	Avoided Costs	Weighted Sales	Surcharge
Residential					
Indoor Use	4,568,250	$0	$0	4,568,250	$ 0.71
Efficient Outdoor Use	2,025,374	$900,878	$1,253,396	2,475,457	$ 0.86
Inefficient Use	0	$625,814	$752,882	0	$ 1.37
Excessive Use	0	$2,130,634	$1,626,484	0	$ 1.98
	6,593,624	**$3,657,325**	**$3,632,762**		
Irrigation					
Efficient Outdoor Use	833,931	$564,419	$734,204	1,048,900	$ 0.89
Inefficient Use	0	$414,448	$456,857	0	$ 1.43
Excessive Use	0	$1,724,776	$1,131,754	0	$ 2.16
	833,931	**$2,703,644**	**$2,322,815**		
Others (Non-Water Budget)					
Commercial	520,496	$0	$0	636,162	$ 0.86
Institutional	71,751	$0	$0	87,696	$ 0.86
Hydrant	86,321	$86,456	$69,223	204,485	$ 1.67
	678,568	**$86,456**	**$69,223**		
Inter-Agency					
Block 1	107,926	$0	$0	115,601	$ 0.76
Block 2	23,775	$1,927	$2,966	41,315	$ 1.22
Block 3	12,297	$1,495	$1,754	27,436	$ 1.57
	143,998	**$3,422**	**$4,719**	**Unit Cost**	$ 0.70

4. PROPOSED DROUGHT SURCHARGES

The methodology and calculation in the preceding sub-section was performed for Stages 3a-5c to produce the surcharges indicated in Table 4-1 below. Note that the surcharges indicated are additional to the base commodity rates (also shown in Table 4-1) and there is no surcharge on the fixed portion of a customer's bill

The Drought Surcharges calculated in Table 3-2 are found in the column titled 4a below. In Stage 4a, Indoor Use has a Drought Surcharge of $0.71 while Excessive Use has a surcharge of $1.98, nearly three times higher, since the surcharge is relative to the base rate. Efficient Outdoor Use is charged an additional $0.86/ccf for Residential customers and $0.89/ccf for Irrigation customers.

Table 4-1: Proposed Drought Surcharges

	Base Rate	Drought Surcharges								
		Stage 3			Stage 4			Stage 5		
Class		3a	3b	3c	4a	4b	4c	5a	5b	5c
Residential										
Indoor Use	***$2.25***	$0.35	$0.48	$0.60	$0.71	$0.85	$0.99	$1.16	$1.39	$1.78
Efficient Outdoor Use	***$2.75***	$0.42	$0.58	$0.73	$0.86	$1.04	$1.21	$1.41	$1.70	$2.18
Inefficient Use	***$4.34***	$0.66	$0.93	$1.16	$1.37	$1.64	$1.91	$2.24	$2.69	$3.44
Excessive Use	***$6.26***	$0.98	$1.34	$1.67	$1.98	$2.37	$2.76	$3.23	$3.87	$4.96
Irrigation										
Efficient Outdoor Use	***$2.83***	$0.43	$0.60	$0.75	$0.89	$1.07	$1.24	$1.45	$1.75	$2.24
Inefficient Use	***$4.52***	$0.69	$0.97	$1.21	$1.43	$1.71	$1.99	$2.34	$2.80	$3.58
Excessive Use	***$6.84***	$1.07	$1.46	$1.83	$2.16	$2.59	$3.01	$3.53	$4.23	$5.42
Others (Non-Water Budget)										
Commercial/ Institutional	***$2.75***	$0.42	$0.58	$0.73	$0.86	$1.04	$1.21	$1.41	$1.70	$2.17
Hydrant	***$5.33***	$0.81	$1.13	$1.41	$1.67	$2.01	$2.33	$2.73	$3.29	$4.20
Inter-Agency										
Block 1	***$2.41***	$0.37	$0.51	$0.64	$0.76	$0.91	$1.06	$1.24	$1.49	$1.90
Block 2	***$3.91***	$0.60	$0.83	$1.04	$1.22	$1.48	$1.71	$2.01	$2.41	$3.08
Block 3	***$5.02***	$0.77	$1.06	$1.33	$1.57	$1.90	$2.20	$2.57	$3.10	$3.96

5. APPENDIX A – STAGE SURCHARGE CALCULATIONS

Table 5-1: Stage 3a

Stage 3a	Reduction	10%				
Customer Class	**Base Usage (ccf/year)**	**Base Revenue Requirement**	**Base Rate**	**Adjusted Usage**	**Reduction**	**Stage Usage**
Residential						
Low Volume Use	4,568,250	$10,278,563	$2.25	4,568,250	0%	4,568,250
Conservation Base Use	2,808,746	$7,724,052	$2.75	2,808,746	0%	2,808,746
Inefficient Use	317,672	$1,378,696	$4.34	317,672	10%	285,905
Excessive Use	600,179	$3,757,117	$6.26	600,179	100%	0
	8,294,847	**$23,138,429**		**8,294,847**		**7,662,901**
Irrigation						
Conservation Base Use	1,292,809	$3,658,649	$2.83	1,292,809	0%	1,292,809
Inefficient Use	192,767	$871,305	$4.52	192,767	10%	173,490
Excessive Use	417,621	$2,856,530	$6.84	417,621	100%	0
	1,903,197	**$7,386,485**		**1,903,197**		**1,466,299**
Others (Non-Water Budget)						
Commercial	520,496	$1,431,364	$2.75	520,496	0%	520,496
Institutional	71,751	$197,315	$2.75	71,751	0%	71,751
Hydrant	115,529	$615,770	$5.33	115,529	10%	104,268
	707,776	**$2,244,449**		**707,776**		**696,515**
Inter-Agency						
Block 1	107,926	$260,102	$2.41	107,926	0%	107,926
Block 2	25,026	$97,852	$3.91	25,026	0%	25,026
Block 3	12,944	$64,979	$5.02	12,944	0%	12,944
	145,896	**$422,932**		**145,896**		**145,896**

Stage 3a	Reduction	10%		Uniform %	16%
Customer Class	**Stage Usage**	**Net Rev Impact**	**Avoided Costs**	**Weighted Sales**	**Surcharge**
Residential					
Low Volume Use	4,568,250	$0	$0.00	4,568,250	$ 0.35
Conservation Base Use	2,808,746	$0	$0.00	3,432,912	$ 0.42
Inefficient Use	285,905	$62,581	$75,288	551,478	$ 0.66
Excessive Use	0	$2,130,634	$1,626,484	0	$ 0.98
	7,662,901	**$2,193,215**	**$1,701,772**		
Irrigation					
Conservation Base Use	1,292,809	$0	$0.00	1,626,066	$ 0.43
Inefficient Use	173,490	$41,445	$45,686	348,522	$ 0.69
Excessive Use	0	$1,724,776	$1,131,754	0	$ 1.07
	1,466,299	**$1,766,221**	**$1,177,440**		
Others (Non-Water Budget)					
Commercial	520,496	$0	$0	636,162	$ 0.42
Institutional	71,751	$0	$0	87,696	$ 0.42
Hydrant	104,268	$33,332	$26,688	247,000	$ 0.81
	696,515	**$33,332**	**$26,688**		
Inter-Agency					
Block 1	107,926	$0	$0	115,601	$ 0.37
Block 2	25,026	$0	$0	43,490	$ 0.60
Block 3	12,944	$0	$0	28,880	$ 0.77
	145,896	**$0**	**$0**		

Table 5-2: Stage 3b

Stage 3b	Reduction	15%				
Customer Class	**Base Usage (ccf/year)**	**Base Revenue Requirement**	**Base Rate**	**Adjusted Usage**	**Reduction**	**Stage Usage**
Residential						
Low Volume Use	4,568,250	$10,278,563	$2.25	4,568,250	0%	4,568,250
Conservation Base Use	2,808,746	$7,724,052	$2.75	2,756,507	0%	2,756,507
Inefficient Use	317,672	$1,378,696	$4.34	333,278	100%	0
Excessive Use	600,179	$3,757,117	$6.26	636,812	100%	0
	8,294,847	**$23,138,429**		**8,294,847**		**7,324,758**
Irrigation						
Conservation Base Use	1,292,809	$3,658,649	$2.83	1,253,061	0%	1,253,061
Inefficient Use	192,767	$871,305	$4.52	198,744	100%	0
Excessive Use	417,621	$2,856,530	$6.84	451,392	100%	0
	1,903,197	**$7,386,485**		**1,903,197**		**1,253,061**
Others (Non-Water Budget)						
Commercial	520,496	$1,431,364	$2.75	520,496	0%	520,496
Institutional	71,751	$197,315	$2.75	71,751	0%	71,751
Hydrant	115,529	$615,770	$5.33	115,529	15%	98,762
	707,776	**$2,244,449**		**707,776**		**691,009**
Inter-Agency						
Block 1	107,926	$260,102	$2.41	107,926	0%	107,926
Block 2	25,026	$97,852	$3.91	25,026	0%	25,026
Block 3	12,944	$64,979	$5.02	12,944	0%	12,944
	145,896	**$422,932**		**145,896**		**145,896**

Stage 3b	Reduction	15%		Uniform %	21%
Customer Class	**Stage Usage**	**Net Rev Impact**	**Avoided Costs**	**Weighted Sales**	**Surcharge**
Residential					
Low Volume Use	4,568,250	$0	$0.00	4,568,250	$ 0.48
Conservation Base Use	2,756,507	$60,075	$83,582	3,369,064	$ 0.58
Inefficient Use	0	$625,814	$752,882	0	$ 0.93
Excessive Use	0	$2,130,634	$1,626,484	0	$ 1.34
	7,324,758	**$2,816,522**	**$2,462,948**		
Irrigation					
Conservation Base Use	1,253,061	$48,890	$63,596.36	1,576,073	$ 0.60
Inefficient Use	0	$414,448	$456,857	0	$ 0.97
Excessive Use	0	$1,724,776	$1,131,754	0	$ 1.46
	1,253,061	**$2,188,114**	**$1,652,207**		
Others (Non-Water Budget)					
Commercial	520,496	$0	$0.00	636,162	$ 0.58
Institutional	71,751	$0	$0.00	87,696	$ 0.58
Hydrant	98,762	$49,631	$39,739	233,955	$ 1.13
	691,009	**$49,631**	**$39,739**		
Inter-Agency					
Block 1	107,926	$0	$0	115,601	$ 0.51
Block 2	25,026	$0	$0	43,490	$ 0.83
Block 3	12,944	$0	$0	28,880	$ 1.06
	145,896	**$0**	**$0**		

Table 5-3: Stage 3c

Stage 3c	Reduction	20%				
Customer Class	**Base Usage (ccf/year)**	**Base Revenue Requirement**	**Base Rate**	**Adjusted Usage**	**Reduction**	**Stage Usage**
Residential						
Low Volume Use	4,568,250	$10,278,563	$2.25	4,568,250	0%	4,568,250
Conservation Base Use	2,808,746	$7,724,052	$2.75	2,346,212	0%	2,346,212
Inefficient Use	317,672	$1,378,696	$4.34	414,312	100%	0
Excessive Use	600,179	$3,757,117	$6.26	966,073	100%	0
	8,294,847	**$23,138,429**		**8,294,847**		**6,914,462**
Irrigation						
Conservation Base Use	1,292,809	$3,658,649	$2.83	1,011,189	0%	1,011,189
Inefficient Use	192,767	$871,305	$4.52	211,770	100%	0
Excessive Use	417,621	$2,856,530	$6.84	680,239	100%	0
	1,903,197	**$7,386,485**		**1,903,197**		**1,011,189**
Others (Non-Water Budget)						
Commercial	520,496	$1,431,364	$2.75	520,496	0%	520,496
Institutional	71,751	$197,315	$2.75	71,751	0%	71,751
Hydrant	115,529	$615,770	$5.33	115,529	20%	92,847
	707,776	**$2,244,449**		**707,776**		**685,094**
Inter-Agency						
Block 1	107,926	$260,102	$2.41	107,926	0%	107,926
Block 2	25,026	$97,852	$3.91	25,026	0%	25,026
Block 3	12,944	$64,979	$5.02	12,944	0%	12,944
	145,896	**$422,932**		**145,896**		**145,896**

Stage 3c	Reduction	20%		Uniform %	27%
Customer Class	**Stage Usage**	**Net Rev Impact**	**Avoided Costs**	**Weighted Sales**	**Surcharge**
Residential					
Low Volume Use	4,568,250	$0	$0	4,568,250	$ 0.60
Conservation Base Use	2,346,212	$531,915	$740,056	2,867,592	$ 0.73
Inefficient Use	0	$625,814	$752,882	0	$ 1.16
Excessive Use	0	$2,130,634	$1,626,484	0	$ 1.67
	6,914,462	**$3,288,362**	**$3,119,422**		
Irrigation					
Conservation Base Use	1,011,189	$346,393	$450,593	1,271,850	$ 0.75
Inefficient Use	0	$414,448	$456,857	0	$ 1.21
Excessive Use	0	$1,724,776	$1,131,754	0	$ 1.83
	1,011,189	**$2,485,618**	**$2,039,204**		
Others (Non-Water Budget)					
Commercial	520,496	$0	$0	636,162	$ 0.73
Institutional	71,751	$0	$0	87,696	$ 0.73
Hydrant	92,847	$67,138	$53,756	219,945	$ 1.41
	685,094	**$67,138**	**$53,756**		
Inter-Agency					
Block 1	107,926	$0	$0	115,601	$ 0.64
Block 2	25,026	$0	$0	43,490	$ 1.04
Block 3	12,944	$0	$0	28,880	$ 1.33
	145,896	**$0**	**$0**		

Table 5-4: Stage 4a

Stage 4a	Reduction	25%				
Customer Class	**Base Usage (ccf/year)**	**Base Revenue Requirement**	**Base Rate**	**Adjusted Usage**	**Reduction**	**Stage Usage**
Residential						
Indoor Use	4,568,250	$10,278,563	$2.25	4,568,250	0%	4,568,250
Efficient Outdoor Use	2,808,746	$7,724,052	$2.75	2,025,374	0%	2,025,374
Inefficient Use	317,672	$1,378,696	$4.34	422,126	100%	0
Excessive Use	600,179	$3,757,117	$6.26	1,279,097	100%	0
	8,294,847	**$23,138,429**		**8,294,847**		**6,593,624**
Irrigation						
Efficient Outdoor Use	1,292,809	$3,658,649	$2.83	833,931	0%	833,931
Inefficient Use	192,767	$871,305	$4.52	198,134	100%	0
Excessive Use	417,621	$2,856,530	$6.84	871,132	100%	0
	1,903,197	**$7,386,485**		**1,903,197**		**833,931**
Others (Non-Water Budget)						
Commercial	520,496	$1,431,364	$2.75	520,496	0%	520,496
Institutional	71,751	$197,315	$2.75	71,751	0%	71,751
Hydrant	115,529	$615,770	$5.33	115,529	25%	86,321
	707,776	**$2,244,449**		**707,776**		**678,568**
Inter-Agency						
Block 1	107,926	$260,102	$2.41	107,926	0%	107,926
Block 2	25,026	$97,852	$3.91	25,026	5%	23,775
Block 3	12,944	$64,979	$5.02	12,944	5%	12,297
	145,896	**$422,932**		**145,896**		**143,998**

Stage 4a	Reduction	25%		Uniform %	32%
Customer Class	**Stage Usage**	**Net Rev Impact**	**Avoided Costs**	**Weighted Sales**	**Surcharge**
Residential					
Indoor Use	4,568,250	$0	$0	4,568,250	$ 0.71
Efficient Outdoor Use	2,025,374	$900,878	$1,253,396	2,475,457	$ 0.86
Inefficient Use	0	$625,814	$752,882	0	$ 1.37
Excessive Use	0	$2,130,634	$1,626,484	0	$ 1.98
	6,593,624	**$3,657,325**	**$3,632,762**		
Irrigation					
Efficient Outdoor Use	833,931	$564,419	$734,204	1,048,900	$ 0.89
Inefficient Use	0	$414,448	$456,857	0	$ 1.43
Excessive Use	0	$1,724,776	$1,131,754	0	$ 2.16
	833,931	**$2,703,644**	**$2,322,815**		
Others (Non-Water Budget)					
Commercial	520,496	$0	$0	636,162	$ 0.86
Institutional	71,751	$0	$0	87,696	$ 0.86
Hydrant	86,321	$86,456	$69,223	204,485	$ 1.67
	678,568	**$86,456**	**$69,223**		
Inter-Agency					
Block 1	107,926	$0	$0	115,601	$ 0.76
Block 2	23,775	$1,927	$2,966	41,315	$ 1.22
Block 3	12,297	$1,495	$1,754	27,436	$ 1.57
	143,998	**$3,422**	**$4,719**	**Unit Cost**	$ 0.70

Table 5-5: Stage 4b

Stage 4b	Reduction	30%				
Customer Class	**Base Usage (ccf/year)**	**Base Revenue Requirement**	**Base Rate**	**Adjusted Usage**	**Reduction**	**Stage Usage**
Residential						
Low Volume Use	4,568,250	$10,278,563	$2.25	4,568,250	0%	4,568,250
Conservation Base Use	2,808,746	$7,724,052	$2.75	1,631,406	0%	1,631,406
Inefficient Use	317,672	$1,378,696	$4.34	431,183	100%	0
Excessive Use	600,179	$3,757,117	$6.26	1,664,008	100%	0
	8,294,847	**$23,138,429**		**8,294,847**		**6,199,656**
Irrigation						
Conservation Base Use	1,292,809	$3,658,649	$2.83	633,886	0%	633,886
Inefficient Use	192,767	$871,305	$4.52	166,676	100%	0
Excessive Use	417,621	$2,856,530	$6.84	1,102,635	100%	0
	1,903,197	**$7,386,485**		**1,903,197**		**633,886**
Others (Non-Water Budget)						
Commercial	520,496	$1,431,364	$2.75	520,496	0%	520,496
Institutional	71,751	$197,315	$2.75	71,751	0%	71,751
Hydrant	115,529	$615,770	$5.33	115,529	30%	81,222
	707,776	**$2,244,449**		**707,776**		**673,469**
Inter-Agency						
Block 1	107,926	$260,102	$2.41	107,926	0%	107,926
Block 2	25,026	$97,852	$3.91	25,026	10%	22,523
Block 3	12,944	$64,979	$5.02	12,944	10%	11,650
	145,896	**$422,932**		**145,896**		**142,099**

Stage 4b	Reduction	30%		Uniform %	38%
Customer Class	**Stage Usage**	**Net Rev Impact**	**Avoided Costs**	**Weighted Sales**	**Surcharge**
Residential					
Low Volume Use	4,568,250	$0	$0	4,568,250	$ 0.85
Conservation Base Use	1,631,406	$1,353,941	$1,883,745	1,993,940	$ 1.04
Inefficient Use	0	$625,814	$752,882	0	$ 1.64
Excessive Use	0	$2,130,634	$1,626,484	0	$ 2.37
	6,199,656	**$4,110,389**	**$4,263,111**		
Irrigation		$2,130,634	$1,626,484		
Conservation Base Use	633,886	$810,475	$1,054,276	797,288	$ 1.07
Inefficient Use	0	$414,448	$456,857	0	$ 1.71
Excessive Use	0	$1,724,776	$1,131,754	0	$ 2.59
	633,886	**$2,949,699**	**$2,642,887**		
		$1,724,776	$1,131,754		
Others (Non-Water Budget)					
Commercial	520,496	$0	$0	636,162	$ 1.04
Institutional	71,751	$0	$0	87,696	$ 1.04
Hydrant	81,222	$101,548	$81,307	192,407	$ 2.01
	673,469	**$101,548**	**$81,307**		
Inter-Agency					
Block 1	107,926	$0	$0	115,601	$ 0.91
Block 2	22,523	$3,854	$5,931	39,141	$ 1.48
Block 3	11,650	$2,990	$3,508	25,992	$ 1.90
	142,099	**$6,844**	**$9,439**		

Table 5-6: Stage 4c

Stage 4c	Reduction	35%				
Customer Class	**Base Usage (ccf/year)**	**Base Revenue Requirement**	**Base Rate**	**Adjusted Usage**	**Reduction**	**Stage Usage**
Residential						
Low Volume Use	4,568,250	$10,278,563	$2.25	4,568,250	0%	4,568,250
Conservation Base Use	2,808,746	$7,724,052	$2.75	1,313,153	0%	1,313,153
Inefficient Use	317,672	$1,378,696	$4.34	384,849	100%	0
Excessive Use	600,179	$3,757,117	$6.26	2,028,594	100%	0
	8,294,847	**$23,138,429**		**8,294,847**		**5,881,404**
Irrigation						
Conservation Base Use	1,292,809	$3,658,649	$2.83	489,395	0%	489,395
Inefficient Use	192,767	$871,305	$4.52	135,791	100%	0
Excessive Use	417,621	$2,856,530	$6.84	1,278,011	100%	0
	1,903,197	**$7,386,485**		**1,903,197**		**489,395**
Others (Non-Water Budget)						
Commercial	520,496	$1,431,364	$2.75	520,496	0%	520,496
Institutional	71,751	$197,315	$2.75	71,751	0%	71,751
Hydrant	115,529	$615,770	$5.33	115,529	35%	75,104
	707,776	**$2,244,449**		**707,776**		**667,351**
Inter-Agency						
Block 1	107,926	$260,102	$2.41	107,926	0%	107,926
Block 2	25,026	$97,852	$3.91	25,026	15%	21,272
Block 3	12,944	$64,979	$5.02	12,944	15%	11,002
	145,896	**$422,932**		**145,896**		**140,201**

Stage 4c	Reduction	35%		Uniform %	44%
Customer Class	**Stage Usage**	**Net Rev Impact**	**Avoided Costs**	**Weighted Sales**	**Surcharge**
Residential					
Low Volume Use	4,568,250	$0	$0	4,568,250	$ 0.99
Conservation Base Use	1,313,153	$1,719,932	$2,392,949	1,604,965	$ 1.21
Inefficient Use	0	$625,814	$752,882	0	$ 1.91
Excessive Use	0	$2,130,634	$1,626,484	0	$ 2.76
	5,881,404	**$4,476,379**	**$4,772,315**		
Irrigation					
Conservation Base Use	489,395	$988,199	$1,285,462	615,550	$ 1.24
Inefficient Use	0	$414,448	$456,857	0	$ 1.99
Excessive Use	0	$1,724,776	$1,131,754	0	$ 3.01
	489,395	**$3,127,424**	**$2,874,073**		
Others (Non-Water Budget)					
Commercial	520,496	$0	$0	636,162	$ 1.21
Institutional	71,751	$0	$0	87,696	$ 1.21
Hydrant	75,104	$119,658	$95,808	177,913	$ 2.33
	667,351	**$119,658**	**$95,808**		
Inter-Agency					
Block 1	107,926	$0	$0.00	115,601	$ 1.06
Block 2	21,272	$5,781	$8,897	36,966	$ 1.71
Block 3	11,002	$4,485	$5,262	24,548	$ 2.20
	140,201	**$10,266**	**$14,158**		

Table 5-7: Stage 5a

Stage 5a	Reduction	40%				
Customer Class	**Base Usage (ccf/year)**	**Base Revenue Requirement**	**Base Rate**	**Adjusted Usage**	**Reduction**	**Stage Usage**
Residential						
Low Volume Use	4,568,250	$10,278,563	$2.25	4,568,250	0%	4,568,250
Conservation Base Use	2,808,746	$7,724,052	$2.75	972,875	0%	972,875
Inefficient Use	317,672	$1,378,696	$4.34	359,151	100%	0
Excessive Use	600,179	$3,757,117	$6.26	2,394,571	100%	0
	8,294,847	**$23,138,429**		**8,294,847**		**5,541,125**
Irrigation						
Conservation Base Use	1,292,809	$3,658,649	$2.83	335,298	0%	335,298
Inefficient Use	192,767	$871,305	$4.52	99,040	100%	0
Excessive Use	417,621	$2,856,530	$6.84	1,468,859	100%	0
	1,903,197	**$7,386,485**		**1,903,197**		**335,298**
Others (Non-Water Budget)						
Commercial	520,496	$1,431,364	$2.75	520,496	0%	520,496
Institutional	71,751	$197,315	$2.75	71,751	0%	71,751
Hydrant	115,529	$615,770	$5.33	115,529	40%	68,985
	707,776	**$2,244,449**		**707,776**		**661,232**
Inter-Agency						
Block 1	107,926	$260,102	$2.41	107,926	0%	107,926
Block 2	25,026	$97,852	$3.91	25,026	20%	20,021
Block 3	12,944	$64,979	$5.02	12,944	20%	10,355
	145,896	**$422,932**		**145,896**		**138,302**

Stage 5a	Reduction	40%		Uniform %	52%
Customer Class	**Stage Usage**	**Net Rev Impact**	**Avoided Costs**	**Weighted Sales**	**Surcharge**
Residential					
Low Volume Use	4,568,250	$0	$0	4,568,250	$ 1.16
Conservation Base Use	972,875	$2,111,252	$2,937,394	1,189,069	$ 1.41
Inefficient Use	0	$625,814	$752,882	0	$ 2.24
Excessive Use	0	$2,130,634	$1,626,484	0	$ 3.23
	5,541,125	**$4,867,700**	**$5,316,761**		
Irrigation					
Conservation Base Use	335,298	$1,177,738	$1,532,017	421,730	$ 1.45
Inefficient Use	0	$414,448	$456,857	0	$ 2.34
Excessive Use	0	$1,724,776	$1,131,754	0	$ 3.53
	335,298	**$3,316,963**	**$3,120,628**		
Others (Non-Water Budget)					
Commercial	520,496	$0	$0	636,162	$ 1.41
Institutional	71,751	$0	$0	87,696	$ 1.41
Hydrant	68,985	$137,769	$110,308	163,419	$ 2.73
	661,232	**$137,769**	**$110,308**		
Inter-Agency					
Block 1	107,926	$0	$0	115,601	$ 1.24
Block 2	20,021	$7,708	$11,862	34,792	$ 2.01
Block 3	10,355	$5,980	$7,016	23,104	$ 2.57
	138,302	**$13,688**	**$18,878**		

Table 5-8: Stage 5b

Stage 5b	Reduction	45%				
Customer Class	**Base Usage (ccf/year)**	**Base Revenue Requirement**	**Base Rate**	**Adjusted Usage**	**Reduction**	**Stage Usage**
Residential						
Low Volume Use	4,568,250	$10,278,563	$2.25	4,568,250	0%	4,568,250
Conservation Base Use	2,808,746	$7,724,052	$2.75	557,414	0%	557,414
Inefficient Use	317,672	$1,378,696	$4.34	284,827	100%	0
Excessive Use	600,179	$3,757,117	$6.26	2,884,356	100%	0
	8,294,847	**$23,138,429**		**8,294,847**		**5,125,664**
Irrigation						
Conservation Base Use	1,292,809	$3,658,649	$2.83	173,561	0%	173,561
Inefficient Use	192,767	$871,305	$4.52	55,210	100%	0
Excessive Use	417,621	$2,856,530	$6.84	1,674,425	100%	0
	1,903,197	**$7,386,485**		**1,903,197**		**173,561**
Others (Non-Water Budget)						
Commercial	520,496	$1,431,364	$2.75	520,496	0%	520,496
Institutional	71,751	$197,315	$2.75	71,751	0%	71,751
Hydrant	115,529	$615,770	$5.33	115,529	45%	63,887
	707,776	**$2,244,449**		**707,776**		**656,134**
Inter-Agency						
Block 1	107,926	$260,102	$2.41	107,926	0%	107,926
Block 2	25,026	$97,852	$3.91	25,026	25%	18,770
Block 3	12,944	$64,979	$5.02	12,944	25%	9,708
	145,896	**$422,932**		**145,896**		**136,404**

Stage 5b	Reduction	45%		Uniform %	62%
Customer Class	**Stage Usage**	**Net Rev Impact**	**Avoided Costs**	**Weighted Sales**	**Surcharge**
Residential					
Low Volume Use	4,568,250	$0	$0	4,568,250	$ 1.39
Conservation Base Use	557,414	$2,589,032	$3,602,132	681,284	$ 1.70
Inefficient Use	0	$625,814	$752,882	0	$ 2.69
Excessive Use	0	$2,130,634	$1,626,484	0	$ 3.87
	5,125,664	**$5,345,480**	**$5,981,498**		
Irrigation					
Conservation Base Use	173,561	$1,376,674	$1,790,796	218,302	$ 1.75
Inefficient Use	0	$414,448	$456,857	0	$ 2.80
Excessive Use	0	$1,724,776	$1,131,754	0	$ 4.23
	173,561	**$3,515,899**	**$3,379,407**		
Others (Non-Water Budget)					
Commercial	520,496	$0	$0	636,162	$ 1.70
Institutional	71,751	$0	$0	87,696	$ 1.70
Hydrant	63,887	$152,861	$122,392	151,341	$ 3.29
	656,134	**$152,861**	**$122,392**		
Inter-Agency					
Block 1	107,926	$0	$0	115,601	$ 1.49
Block 2	18,770	$9,635	$14,828	32,617	$ 2.41
Block 3	9,708	$7,475	$8,770	21,660	$ 3.10
	136,404	**$17,110**	**$23,597**		

Table 5-9: Stage 5c

Stage 5c	Reduction	50%				
Customer Class	**Base Usage (ccf/year)**	**Base Revenue Requirement**	**Base Rate**	**Adjusted Usage**	**Reduction**	**Stage Usage**
Residential						
Low Volume Use	4,568,250	$10,278,563	$2.25	4,568,250	0%	4,568,250
Conservation Base Use	2,808,746	$7,724,052	$2.75	0	0%	0
Inefficient Use	317,672	$1,378,696	$4.34	0	100%	0
Excessive Use	600,179	$3,757,117	$6.26	3,726,597	100%	0
	8,294,847	**$23,138,429**		**8,294,847**		**4,568,250**
Irrigation						
Conservation Base Use	1,292,809	$3,658,649	$2.83	0	0%	0
Inefficient Use	192,767	$871,305	$4.52	0	100%	0
Excessive Use	417,621	$2,856,530	$6.84	1,903,197	100%	0
	1,903,197	**$7,386,485**		**1,903,197**		**0**
Others (Non-Water Budget)						
Commercial	520,496	$1,431,364	$2.75	520,496	0%	520,496
Institutional	71,751	$197,315	$2.75	71,751	0%	71,751
Hydrant	115,529	$615,770	$5.33	115,529	50%	57,768
	707,776	**$2,244,449**		**707,776**		**650,015**
Inter-Agency						
Block 1	107,926	$260,102	$2.41	107,926	0%	107,926
Block 2	25,026	$97,852	$3.91	25,026	30%	17,518
Block 3	12,944	$64,979	$5.02	12,944	30%	9,061
	145,896	**$422,932**		**145,896**		**134,505**

Stage 5c	Reduction	50%		Uniform %	79%
Customer Class	**Stage Usage**	**Net Rev Impact**	**Avoided Costs**	**Weighted Sales**	**Surcharge**
Residential					
Low Volume Use	4,568,250	$0	$0	4,568,250	$ 1.78
Conservation Base Use	0	$3,230,058	$4,493,994	0	$ 2.18
Inefficient Use	0	$625,814	$752,882	0	$ 3.44
Excessive Use	0	$2,130,634	$1,626,484	0	$ 4.96
	4,568,250	**$5,986,505**	**$6,873,360**		
Irrigation					
Conservation Base Use	0	$1,590,155	$2,068,494	0	$ 2.24
Inefficient Use	0	$414,448	$456,857	0	$ 3.58
Excessive Use	0	$1,724,776	$1,131,754	0	$ 5.42
	0	**$3,729,380**	**$3,657,105**		
Others (Non-Water Budget)					
Commercial	520,496	$0	$0	636,162	$ 2.17
Institutional	71,751	$0	$0	87,696	$ 2.17
Hydrant	57,768	$170,971	$136,893	136,847	$ 4.20
	650,015	**$170,971**	**$136,893**		
Inter-Agency					
Block 1	107,926	$0	$0	115,601	$ 1.90
Block 2	17,518	$11,562	$17,793	30,443	$ 3.08
Block 3	9,061	$8,970	$10,523	20,216	$ 3.96
	134,505	**$20,532**	**$28,317**		

Attachment 3: Urban Water Supplier Monthly Water Conservation Report Example

From: SWRCB Office Research, Planning & Performance
To: Water Resources
Subject: Monitoring Report Acknowledgement for May 2020
Date: Thursday, June 11, 2020 8:33:14 AM

[*External E-mail alert! Use caution before clicking links/attachments*]

Hello Jesus Gastelum

Thank you for your Monitoring Report. Below is the information you have submitted for the month of May 2020. If this information is incorrect, you can edit the report or re-submit your report for the month with the corrected information. We use your most recently submitted monthly report in our calculations.

Reporter	Jesus Gastelum
Urban Water Supplier(Number)	Elsinore Valley Municipal Water District (325)
Reporting Month	0520
Stage/Mandatory	Stage 2 Yes
Days Outside Irrigation	4
Total Potable Water Production	2208.8 AF
2013 Same Month Production	2482.4 AF
CII Water	224.4 AF
Commercial Agricultural Water	AF
Commercial Agricultural Water 2013	AF
Recycled Water	554.9 AF
Non-revenue Water	AF
Residential Use Percentage	83 %
Population	157473
Estimated R-GPCD	121.8
Number Complaints	0
Number Follow-ups	0

Number Warnings	0
Rate Penalties	0
Other Penalties	0
Enforcement Actions	
Actions Taken	Raised rates,Restricted allowed outdoor irrigation times
Implementation Comments	In response to the recent supply conditions combined with significant saving efforts by customers, EVMWD adopted moving from Stage 3a to Stage 2 on March 9, 2017, while maintaining water efficiency standards. EVMWD invested $10 million of its reserve funds to expand its local water supply options, and implementing integrated resources planning to improve water supply reliability under drought conditions. Stage 2 Prohibitions: •Watering during or 48 hours after a rain even, on windy days. •Watering more than 4 days per week. •Adding water to an uncovered pool. •Washing down sidewalks or driveways. Stage 2 Guidelines for outdoor water use and irrigation for residential and commercial: •Water between 6 pm & 6 am. •Adjust sprinklers to avoid overspray, and fix leaks to reduce irrigation waste. •Hotels provide option to not have towels and linens laundered daily. •Restaurants only serve water by customer request.
Qualification	

To edit your report click HERE (After logging in, select the report to edit, click on “Edit”, make your corrections, and click on “Update” when finished)

State Water Resources Control Board Office of Research, Planning & Performance

Attachment 4: WSCP 60-day and Public Hearing Notices

ELSINORE VALLEY MUNICIPAL WATER DISTRICT (EVMWD)
PUBLIC HEARING NOTICE
2020 URBAN WATER MANAGEMENT PLAN, WATER SHORTAGE CONTINGENCY PLAN, AND ADDENDUM TO THE 2015 URBAN WATER MANAGEMENT PLAN

The Elsinore Valley Municipal Water District ("EVMWD") is currently involved in a review and update process to prepare its 2020 Urban Water Management Plan ("UWMP") per the California Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. An update of EVMWD's UWMP is required every five (5) years. The 2020 UWMP Update will reflect the growth that has occurred since the adoption of the 2015 UWMP, EVMWD's plan to reliably meet the water needs within its service area during normal, single-dry, and multiple-dry year periods over the next 20-year planning horizon and beyond, and compliance with the SB X7-7 2020. In addition, EVMWD prepared the Draft 2021 Water Shortage Contingency Plan ("WSCP") to document EVMWD's plans to manage and mitigate an actual water shortage condition, should one occur because of drought or other impacts on water supplies. The Draft Addendum to the 2015 UWMP is a requirement of the Delta Plan for agencies that receive water from the Sacramento–San Joaquin Delta (Delta) to demonstrate consistency with the Delta Plan policy to reduce reliance on the Delta through improved regional water self-reliance.

Notice is hereby given that on **June 10, 2021**, at **4:00 P.M**., the EVMWD Board of Directors will conduct a virtual public hearing to receive public comments and consider adoption of the Draft 2020 UWMP, Draft 2021 WSCP, and Draft 2015 UWMP Addendum. Following the public hearing, the EVMWD Board of Directors may adopt the Draft 2020 UWMP, Draft 2021 WSCP, and Draft 2015 UWMP Addendum with the recommended modifications as a result of public input.

The agenda and access information for the **June 10, 2021**, EVMWD Board Meeting will be posted to EVMWD's website at least 72 hours before the Public Hearing at **https://www.evmwd.com/board-of-directors/agendas-and-packets**. Copies of the Draft 2020 UWMP, Draft 2021 WSCP, and Draft 2015 UWMP Addendum will be available for public review beginning on **May 21, 2021,** and can be downloaded at **https://www.evmwd.com/**. All comments must be received by **June 10, 2021**, or delivered verbally at the above said meeting. Provide any written comments to:

Send Comments To: Elsinore Valley Municipal Water District
31315 Chaney Street
Lake Elsinore, CA 92530
Attn: Jesus Gastelum

If you have any questions, comments, or input, please contact Jesus Gastelum, Senior Water Resources Planner Engineer, via e-mail at jgastelum@evmwd.net or by phone at (951) 674-3146 ext. 8399.

Nothing below this line is to be published. Notes only.

For Publication May 25 and June 1, 2021

(Guidelines for publication)

6066. Publication of notice pursuant to this section shall be once a week for two successive weeks. Two publications in a newspaper published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates, are sufficient. The period of notice commences upon the first day of publication and terminates at the end of the fourteenth day, including therein the first day.

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ELSINORE VALLEY MUNICIPAL WATER DISTRICT (EVMWD)
PUBLIC HEARING NOTICE
2020 URBAN WATER MANAGEMENT PLAN, WATER SHORTAGE CONTINGENCY PLAN, AND ADDENDUM TO THE 2015 URBAN WATER MANAGEMENT PLAN

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Send Comments To: Elsinore Valley Municipal Water District
31315 Chaney St
Lake Elsinore, CA 92530
Attn: Jesus Gastelum

If you have any questions, comments, or input, please contact Jesus Gastelum, Senior Water Resources Planner Engineer, via e-mail at jgastelum@evmwd.net or by phone at (951) 674-3146 ext. 8399.

Press-Enterprise: 5/25, 6/01

Product	Requested Placement	Requested Position	Run Dates	# Inserts
Daily Bulletin	Legals CLS LA-SB-PE	General IE - 1076~	05/25/21, 06/01/21	2
PE Riverside:Full Run	Legals CLS LA-SB-PE	General IE - 1076~	05/25/21, 06/01/21	2
SB Sun	Legals CLS NP	General NP - 1076~	05/25/21, 06/01/21	2

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Elsinore Valley Municipal Water District

Our Mission…
EVMWD will provide reliable, cost-effective, high quality water and wastewater services that are dedicated to the people we serve.

3/26/2021

Chris Mann
City Manager
City of Canyon Lake
31516 Railroad Canyon Road
Canyon Lake, CA 92587
chrismann@cityofcanyonlake.com

2020 URBAN WATER MANAGEMENT PLAN UPDATE NOTIFICATION

Dear Chris Mann,

The Elsinore Valley Municipal Water District (EVMWD) is in the process of preparing and updating its 2020 Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. An update of EVMWD's UWMP is required every five (5) years. The 2020 UWMP Update will reflect the growth that has occurred since the adoption of the 2015 UWMP, forecasted growth within EVMWD's service area, and EVMWD's plan to reliably meet the water needs within its service area, and compliance with the SB X7-7 2020.

EVMWD is also considering an Addendum to its 2015 UWMP to demonstrate consistency with the Delta Plan Policy to Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (California Code Reg., tit. 23, § 5003). As part of the new requirements, EVMWD is also planning on adopting a Water Shortage Contingency Plan (WSCP), which must be included as part of the 2020 UWMP. This document will describe how EVMWD will respond to foreseeable and unforeseeable water shortages.

Water Code section 10621(b) requires an urban water supplier updating its UWMP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing. This letter serves as EVMWD's official notice of preparation and intent to adopt the UWMP, WSCP, and 2015 UWMP Addendum before the July 1, 2021 deadline.

A copy of EVMWD's draft 2020 UWMP, WSCP, and 2015 UWMP Addendum will be available for review on the EVMWD's website in spring of 2021, and EVMWD will subsequently hold a noticed public hearing on the 2020 UWMP, WSCP, and 2015 UWMP Addendum in advance of its proposed adoption. EVMWD invites you to submit comments and consult with EVMWD regarding these plans.

The EVMWD's website (www.evmwd.com) will give updates on the 2020 UWMP and WSCP. If you have any questions, comments, or input, please contact Jesus Gastelum, Senior Water Resources Planner Engineer, via email at jgastelum@evmwd.net or by phone at (951) 674-3146 ext. 8201.

Sincerely,

Parag Kalaria, P.E., PMP
Water Resources Manager
Elsinore Valley Municipal Water District

Elsinore Valley Municipal Water District

Our Mission…

EVMWD will provide reliable, cost-effective, high quality water and wastewater services that are dedicated to the people we serve.

May 18, 2021

SENT VIA E-MAIL

Chris Mann
City Manager
City of Canyon Lake
31516 Railroad Canyon Road
Canyon Lake, CA 92587
chrismann@cityofcanyonlake.com

SUBJECT: ELSINORE VALLEY MUNICIPAL WATER DISTRICT PUBLIC HEARING NOTICE; 2020 URBAN WATER MANAGEMENT PLAN, WATER SHORTAGE CONTINGENCY PLAN, AND ADDENDUM TO THE 2015 URBAN WATER MANAGEMENT PLAN

Dear Chris Mann,

The Elsinore Valley Municipal Water District ("EVMWD") is currently involved in a review and update process to prepare its 2020 Urban Water Management Plan ("UWMP") per the California Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. An update of EVMWD's UWMP is required every five (5) years. The 2020 UWMP Update will reflect the growth that has occurred since the adoption of the 2015 UWMP, EVMWD's plan to reliably meet the water needs within its service area during normal, single-dry, and multiple-dry year periods over the next 20-year planning horizon and beyond, and compliance with the SB X7-7 2020. In addition, EVMWD prepared the Draft 2021 Water Shortage Contingency Plan ("WSCP") to document EVMWD's plans to manage and mitigate an actual water shortage condition, should one occur because of drought or other impacts on water supplies. The Draft Addendum to the 2015 UWMP is a requirement of the Delta Plan for agencies that receive water from the Sacramento–San Joaquin Delta (Delta) to demonstrate consistency with the Delta Plan policy to reduce reliance on the Delta through improved regional water self-reliance.

This letter serves as EVMWD's official notice of public hearing for the 2020 UWMP, 2021 WSCP, and 2015 UWMP Addendum pursuant to Water Code section 10621(b).

The public hearing is intended to provide the public and public agencies the opportunity to comment on the Draft 2020 UWMP, 2021 WSCP, and 2015 UWMP Addendum before adopting these documents. The public hearing is scheduled to be held on **June 10, 2021**, at **4:00 PM** at the following address:

Public Hearing Location: Elsinore Valley Municipal Water District (EVMWD)
Lake Elsinore, CA 92530
Please note: Due to State Mandates, virtual attendance of the Public Hearing may be required. In such case, participation information will be provided on the Agenda for the **June 10, 2021**, EVMWD Board Meeting, which will be posted to EVMWD's website at least 72 hours before the Public Hearing, at: **https://www.evmwd.com/board-of-directors/agendas-and-packets**.

Copies of EVMWD's Draft 2020 UWMP, 2021 WSCP, and 2015 UWMP Addendum are currently scheduled to be available for public review and comment by **Friday, May 21, 2021,** at EVMWD's office during normal business hours and online at **https://www.evmwd.com/**. EVMWD invites you to submit comments and consult with EVMWD regarding these plans. Public input and coordination are encouraged and will be considered throughout the process of preparing and completing EVMWD's 2020 UWMP, 2021 WSCP, and 2015 UWMP Addendum (See, e.g., Water Code §§ 10620(d)(2); 10621(b); 10642.) All comments must be received by **June 10, 2021**, or delivered verbally at the above said meeting. Provide any written comments to:

Send Comments To: Elsinore Valley Municipal Water District
31315 Chaney Street
Lake Elsinore, CA 92530
Attn: Jesus Gastelum

Thank you for your cooperation and involvement in the EVMWD's UWMP, 2021 WSCP, and 2015 Addendum process. If you have any questions, comments, or input, please contact Jesus Gastelum, Senior Water Resources Planner Engineer, via e-mail at jgastelum@evmwd.net or by phone at (951) 674-3146 ext. 8399.

Sincerely,

Parag Kalaria, P.E., PMP
Water Resources Manager
Elsinore Valley Municipal Water District

Elsinore Valley Municipal Water District

Our Mission…
EVMWD will provide reliable, cost-effective, high quality water and wastewater services that are dedicated to the people we serve.

3/26/2021

Katie Hockett
Assistant General Manager
City of Corona
755 Public Safety Way
Corona, CA 92880
Katie.Hockett@CoronaCA.gov

2020 URBAN WATER MANAGEMENT PLAN UPDATE NOTIFICATION

Dear Katie Hockett,

The Elsinore Valley Municipal Water District (EVMWD) is in the process of preparing and updating its 2020 Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. An update of EVMWD's UWMP is required every five (5) years. The 2020 UWMP Update will reflect the growth that has occurred since the adoption of the 2015 UWMP, forecasted growth within EVMWD's service area, and EVMWD's plan to reliably meet the water needs within its service area, and compliance with the SB X7-7 2020.

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Water Code section 10621(b) requires an urban water supplier updating its UWMP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing. This letter serves as EVMWD's official notice of preparation and intent to adopt the UWMP, WSCP, and 2015 UWMP Addendum before the July 1, 2021 deadline.

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The EVMWD's website (www.evmwd.com) will give updates on the 2020 UWMP and WSCP. If you have any questions, comments, or input, please contact Jesus Gastelum, Senior Water Resources Planner Engineer, via email at jgastelum@evmwd.net or by phone at (951) 674-3146 ext. 8201.

Sincerely,

Parag Kalaria, P.E., PMP
Water Resources Manager
Elsinore Valley Municipal Water District

Elsinore Valley Municipal Water District

Our Mission…

EVMWD will provide reliable, cost-effective, high quality water and wastewater services that are dedicated to the people we serve.

May 18, 2021

SENT VIA E-MAIL

Katie Hockett
Assistant General Manager
City of Corona
755 Public Safety Way
Corona, CA 92880
Katie.Hockett@CoronaCA.gov

SUBJECT: ELSINORE VALLEY MUNICIPAL WATER DISTRICT PUBLIC HEARING NOTICE; 2020 URBAN WATER MANAGEMENT PLAN, WATER SHORTAGE CONTINGENCY PLAN, AND ADDENDUM TO THE 2015 URBAN WATER MANAGEMENT PLAN

Dear Katie Hockett,

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This letter serves as EVMWD's official notice of public hearing for the 2020 UWMP, 2021 WSCP, and 2015 UWMP Addendum pursuant to Water Code section 10621(b).

The public hearing is intended to provide the public and public agencies the opportunity to comment on the Draft 2020 UWMP, 2021 WSCP, and 2015 UWMP Addendum before adopting these documents. The public hearing is scheduled to be held on **June 10, 2021**, at **4:00 PM** at the following address:

Public Hearing Location: Elsinore Valley Municipal Water District (EVMWD)
Lake Elsinore, CA 92530
Please note: Due to State Mandates, virtual attendance of the Public Hearing may be required. In such case, participation information will be provided on the Agenda for the **June 10, 2021**, EVMWD Board Meeting, which will be posted to EVMWD's website at least 72 hours before the Public Hearing, at: **https://www.evmwd.com/board-of-directors/agendas-and-packets**.

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Send Comments To: Elsinore Valley Municipal Water District
31315 Chaney Street
Lake Elsinore, CA 92530
Attn: Jesus Gastelum

Thank you for your cooperation and involvement in the EVMWD's UWMP, 2021 WSCP, and 2015 Addendum process. If you have any questions, comments, or input, please contact Jesus Gastelum, Senior Water Resources Planner Engineer, via e-mail at jgastelum@evmwd.net or by phone at (951) 674-3146 ext. 8399.

Sincerely,

Parag Kalaria, P.E., PMP
Water Resources Manager
Elsinore Valley Municipal Water District

Elsinore Valley Municipal Water District

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3/26/2021

Nicole Dailey
Assistant to the City Manager
City of Lake Elsinore
130 South Main St.
Lake Elsinore, CA 92530
ndailey@lake-elsinore.org

2020 URBAN WATER MANAGEMENT PLAN UPDATE NOTIFICATION

Dear Nicole Dailey,

The Elsinore Valley Municipal Water District (EVMWD) is in the process of preparing and updating its 2020 Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. An update of EVMWD's UWMP is required every five (5) years. The 2020 UWMP Update will reflect the growth that has occurred since the adoption of the 2015 UWMP, forecasted growth within EVMWD's service area, and EVMWD's plan to reliably meet the water needs within its service area, and compliance with the SB X7-7 2020.

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Water Resources Manager
Elsinore Valley Municipal Water District

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May 18, 2021

SENT VIA E-MAIL

Nicole Dailey
Assistant to the City Manager
City of Lake Elsinore
130 South Main St.
Lake Elsinore, CA 92530
ndailey@lake-elsinore.org

SUBJECT: ELSINORE VALLEY MUNICIPAL WATER DISTRICT PUBLIC HEARING NOTICE; 2020 URBAN WATER MANAGEMENT PLAN, WATER SHORTAGE CONTINGENCY PLAN, AND ADDENDUM TO THE 2015 URBAN WATER MANAGEMENT PLAN

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Fax 951.674.9872
www.evmwd.com

31315 Chaney Street
P.O. Box 3000
Lake Elsinore, CA 92530

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Water Resources Manager
Elsinore Valley Municipal Water District

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3/26/2021

Jarrett Ramaiya
City Planner
City of Murrieta
1 Town Square
Murrieta, CA 92562
jramaiya@MurrietaCA.gov

2020 URBAN WATER MANAGEMENT PLAN UPDATE NOTIFICATION

Dear Jarrett Ramaiya,

The Elsinore Valley Municipal Water District (EVMWD) is in the process of preparing and updating its 2020 Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. An update of EVMWD's UWMP is required every five (5) years. The 2020 UWMP Update will reflect the growth that has occurred since the adoption of the 2015 UWMP, forecasted growth within EVMWD's service area, and EVMWD's plan to reliably meet the water needs within its service area, and compliance with the SB X7-7 2020.

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Elsinore Valley Municipal Water District

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May 18, 2021

SENT VIA E-MAIL

Jarrett Ramaiya
City Planner
City of Murrieta
1 Town Square
Murrieta, CA 92562
jramaiya@MurrietaCA.gov

SUBJECT: ELSINORE VALLEY MUNICIPAL WATER DISTRICT PUBLIC HEARING NOTICE; 2020 URBAN WATER MANAGEMENT PLAN, WATER SHORTAGE CONTINGENCY PLAN, AND ADDENDUM TO THE 2015 URBAN WATER MANAGEMENT PLAN

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Water Resources Manager
Elsinore Valley Municipal Water District

Elsinore Valley Municipal Water District

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3/26/2021

Gary Nordquist
City Manager
City of Wildomar
23873 Clinton Keith Rd. Ste 201
Wildomar, CA 92595
gnordquist@cityofwildomar.org

2020 URBAN WATER MANAGEMENT PLAN UPDATE NOTIFICATION

Dear Gary Nordquist,

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Water Resources Manager
Elsinore Valley Municipal Water District

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May 18, 2021

SENT VIA E-MAIL

Gary Nordquist
City Manager
City of Wildomar
23873 Clinton Keith Rd, Ste 201
Wildomar, CA 92595
gnordquist@cityofwildomar.org

SUBJECT: ELSINORE VALLEY MUNICIPAL WATER DISTRICT PUBLIC HEARING NOTICE; 2020 URBAN WATER MANAGEMENT PLAN, WATER SHORTAGE CONTINGENCY PLAN, AND ADDENDUM TO THE 2015 URBAN WATER MANAGEMENT PLAN

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Water Resources Manager
Elsinore Valley Municipal Water District

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3/26/2021

Steve Weiss, AICP
Planning Director
Riverside County Planning Department
4080 Lemon Street 12th Floor
Riverside, CA 92502-1409
planning@rivco.org

2020 URBAN WATER MANAGEMENT PLAN UPDATE NOTIFICATION

Dear Steve Weiss, AICP,

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May 18, 2021

SENT VIA E-MAIL

Steve Weiss, AICP
Planning Director
Riverside County Planning Department
4080 Lemon Street 12th Floor
Riverside, CA 92502-1409
planning@rivco.org

SUBJECT: ELSINORE VALLEY MUNICIPAL WATER DISTRICT PUBLIC HEARING NOTICE; 2020 URBAN WATER MANAGEMENT PLAN, WATER SHORTAGE CONTINGENCY PLAN, AND ADDENDUM TO THE 2015 URBAN WATER MANAGEMENT PLAN

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Public Hearing Location: Elsinore Valley Municipal Water District (EVMWD)
Lake Elsinore, CA 92530
Please note: Due to State Mandates, virtual attendance of the Public Hearing may be required. In such case, participation information will be provided on the Agenda for the **June 10, 2021**, EVMWD Board Meeting, which will be posted to EVMWD's website at least 72 hours before the Public Hearing, at: **https://www.evmwd.com/board-of-directors/agendas-and-packets**.

Copies of EVMWD's Draft 2020 UWMP, 2021 WSCP, and 2015 UWMP Addendum are currently scheduled to be available for public review and comment by **Friday, May 21, 2021,** at EVMWD's office during normal business hours and online at **https://www.evmwd.com/**. EVMWD invites you to submit comments and consult with EVMWD regarding these plans. Public input and coordination are encouraged and will be considered throughout the process of preparing and completing EVMWD's 2020 UWMP, 2021 WSCP, and 2015 UWMP Addendum (See, e.g., Water Code §§ 10620(d)(2); 10621(b); 10642.) All comments must be received by **June 10, 2021**, or delivered verbally at the above said meeting. Provide any written comments to:

Send Comments To: Elsinore Valley Municipal Water District
31315 Chaney Street
Lake Elsinore, CA 92530
Attn: Jesus Gastelum

Thank you for your cooperation and involvement in the EVMWD's UWMP, 2021 WSCP, and 2015 Addendum process. If you have any questions, comments, or input, please contact Jesus Gastelum, Senior Water Resources Planner Engineer, via e-mail at jgastelum@evmwd.net or by phone at (951) 674-3146 ext. 8399.

Sincerely,

Parag Kalaria, P.E., PMP
Water Resources Manager
Elsinore Valley Municipal Water District

Elsinore Valley Municipal Water District

Our Mission…
EVMWD will provide reliable, cost-effective, high quality water and wastewater services that are dedicated to the people we serve.

3/26/2021

Jason Uhley
General Manager
Riverside County Flood Control and Water Conservation District
1995 Market Street
Riverside, CA 92501
juhley@rivco.org

2020 URBAN WATER MANAGEMENT PLAN UPDATE NOTIFICATION

Dear Jason Uhley,

The Elsinore Valley Municipal Water District (EVMWD) is in the process of preparing and updating its 2020 Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. An update of EVMWD's UWMP is required every five (5) years. The 2020 UWMP Update will reflect the growth that has occurred since the adoption of the 2015 UWMP, forecasted growth within EVMWD's service area, and EVMWD's plan to reliably meet the water needs within its service area, and compliance with the SB X7-7 2020.

EVMWD is also considering an Addendum to its 2015 UWMP to demonstrate consistency with the Delta Plan Policy to Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (California Code Reg., tit. 23, § 5003). As part of the new requirements, EVMWD is also planning on adopting a Water Shortage Contingency Plan (WSCP), which must be included as part of the 2020 UWMP. This document will describe how EVMWD will respond to foreseeable and unforeseeable water shortages.

Water Code section 10621(b) requires an urban water supplier updating its UWMP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing. This letter serves as EVMWD's official notice of preparation and intent to adopt the UWMP, WSCP, and 2015 UWMP Addendum before the July 1, 2021 deadline.

951.674.3146
Fax 951.674.9872
www.evmwd.com

31315 Chaney Street
P.O. Box 3000
Lake Elsinore, CA 92530

A copy of EVMWD's draft 2020 UWMP, WSCP, and 2015 UWMP Addendum will be available for review on the EVMWD's website in spring of 2021, and EVMWD will subsequently hold a noticed public hearing on the 2020 UWMP, WSCP, and 2015 UWMP Addendum in advance of its proposed adoption. EVMWD invites you to submit comments and consult with EVMWD regarding these plans.

The EVMWD's website (www.evmwd.com) will give updates on the 2020 UWMP and WSCP. If you have any questions, comments, or input, please contact Jesus Gastelum, Senior Water Resources Planner Engineer, via email at jgastelum@evmwd.net or by phone at (951) 674-3146 ext. 8201.

Sincerely,

Parag Kalaria, P.E., PMP
Water Resources Manager
Elsinore Valley Municipal Water District

Elsinore Valley Municipal Water District

Our Mission…

EVMWD will provide reliable, cost-effective, high quality water and wastewater services that are dedicated to the people we serve.

May 18, 2021

SENT VIA E-MAIL

Jason Uhley
General Manager
Riverside County Flood Control and Water Conservation District
1995 Market Street
Riverside, CA 92501
juhley@rivco.org

SUBJECT: ELSINORE VALLEY MUNICIPAL WATER DISTRICT PUBLIC HEARING NOTICE; 2020 URBAN WATER MANAGEMENT PLAN, WATER SHORTAGE CONTINGENCY PLAN, AND ADDENDUM TO THE 2015 URBAN WATER MANAGEMENT PLAN

Dear Jason Uhley,

The Elsinore Valley Municipal Water District ("EVMWD") is currently involved in a review and update process to prepare its 2020 Urban Water Management Plan ("UWMP") per the California Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. An update of EVMWD's UWMP is required every five (5) years. The 2020 UWMP Update will reflect the growth that has occurred since the adoption of the 2015 UWMP, EVMWD's plan to reliably meet the water needs within its service area during normal, single-dry, and multiple-dry year periods over the next 20-year planning horizon and beyond, and compliance with the SB X7-7 2020. In addition, EVMWD prepared the Draft 2021 Water Shortage Contingency Plan ("WSCP") to document EVMWD's plans to manage and mitigate an actual water shortage condition, should one occur because of drought or other impacts on water supplies. The Draft Addendum to the 2015 UWMP is a requirement of the Delta Plan for agencies that receive water from the Sacramento–San Joaquin Delta (Delta) to demonstrate consistency with the Delta Plan policy to reduce reliance on the Delta through improved regional water self-reliance.

This letter serves as EVMWD's official notice of public hearing for the 2020 UWMP, 2021 WSCP, and 2015 UWMP Addendum pursuant to Water Code section 10621(b).

The public hearing is intended to provide the public and public agencies the opportunity to comment on the Draft 2020 UWMP, 2021 WSCP, and 2015 UWMP Addendum before adopting these documents. The public hearing is scheduled to be held on **June 10, 2021**, at **4:00 PM** at the following address:

Public Hearing Location: Elsinore Valley Municipal Water District (EVMWD)
Lake Elsinore, CA 92530
Please note: Due to State Mandates, virtual attendance of the Public Hearing may be required. In such case, participation information will be provided on the Agenda for the **June 10, 2021**, EVMWD Board Meeting, which will be posted to EVMWD's website at least 72 hours before the Public Hearing, at: **https://www.evmwd.com/board-of-directors/agendas-and-packets**.

Copies of EVMWD's Draft 2020 UWMP, 2021 WSCP, and 2015 UWMP Addendum are currently scheduled to be available for public review and comment by **Friday, May 21, 2021,** at EVMWD's office during normal business hours and online at **https://www.evmwd.com/**. EVMWD invites you to submit comments and consult with EVMWD regarding these plans. Public input and coordination are encouraged and will be considered throughout the process of preparing and completing EVMWD's 2020 UWMP, 2021 WSCP, and 2015 UWMP Addendum (See, e.g., Water Code §§ 10620(d)(2); 10621(b); 10642.) All comments must be received by **June 10, 2021**, or delivered verbally at the above said meeting. Provide any written comments to:

Send Comments To: Elsinore Valley Municipal Water District
31315 Chaney Street
Lake Elsinore, CA 92530
Attn: Jesus Gastelum

Thank you for your cooperation and involvement in the EVMWD's UWMP, 2021 WSCP, and 2015 Addendum process. If you have any questions, comments, or input, please contact Jesus Gastelum, Senior Water Resources Planner Engineer, via e-mail at jgastelum@evmwd.net or by phone at (951) 674-3146 ext. 8399.

Sincerely,

Parag Kalaria, P.E., PMP
Water Resources Manager
Elsinore Valley Municipal Water District

Attachment 5: WSCP Adoption Resolution

RESOLUTION NO. 21-06-03

RESOLUTION OF THE BOARD OF DIRECTORS
OF ELSINORE VALLEY MUNICIPAL WATER
DISTRICT ADOPTING WATER SHORTAGE
CONTIGENCY PLAN (WSCP)

WHEREAS, the California Legislature enacted Assembly Bill 797 during the 1983-94 Regular Session of the California Legislature (Water Code Section 10610 et. seq.) known as the Urban Water Management Planning Act, which mandates that every urban supplier of water providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, prepare and adopt, in accordance with prescribed requirements, a water shortage contingency plan (WSCP); and

WHEREAS, the Act specifies the requirements and procedures for adopting such Water Shortage Contingency Plans; and

WHEREAS, Elsinore Valley Municipal Water District is an urban supplier of water providing to over 46,500 connections, meets the definition of an urban water supplier for purposes of the act, and has therefore, prepared and circulated for public review a Draft Water Shortage Contingency Plan to manage and mitigate an actual water shortage condition, should one occur because of drought or other impacts on water supplies; and

WHEREAS, a properly noticed public hearing regarding said Draft WSCP was held by the Board of Directors of Elsinore Valley Municipal Water District on June 10, 2021;

NOW, THEREFORE BE IT RESOLVED, by the Board of Directors of the Elsinore Valley Municipal Water District as follows:

1. The Water Shortage Contingency Plan is hereby adopted;
2. The General Manager is hereby authorized and directed to submit the Plan to the California Department of Water before July 1, 2021, in accordance with AB 797;

APPROVED, ADOPTED AND SIGNED this 10th day of June, 2021.

Phil Williams, President of the
Board of Directors of the
Elsinore Valley Municipal Water District

ATTEST:

Terese Quintanar, Secretary to the
Board of Directors of the
Elsinore Valley Municipal Water District

STATE OF CALIFORNIA)
) ss:
COUNTY OF RIVERSIDE)

I, Terese Quintanar, Secretary of the Board of Directors of the Elsinore Valley Municipal Water District, do hereby certify that the foregoing Resolution No. 21-06-03, was duly adopted by said Board at its Regular Board Meeting held on June 10, 2021 and that it was so adopted by the following roll call vote:

AYES:	Burke, Morris, Ryan, Williams
NOES:	None
ABSENT:	McBride
ABSTAIN:	None

Terese Quintanar, Secretary of the
Board of Directors of the
Elsinore Valley Municipal Water District

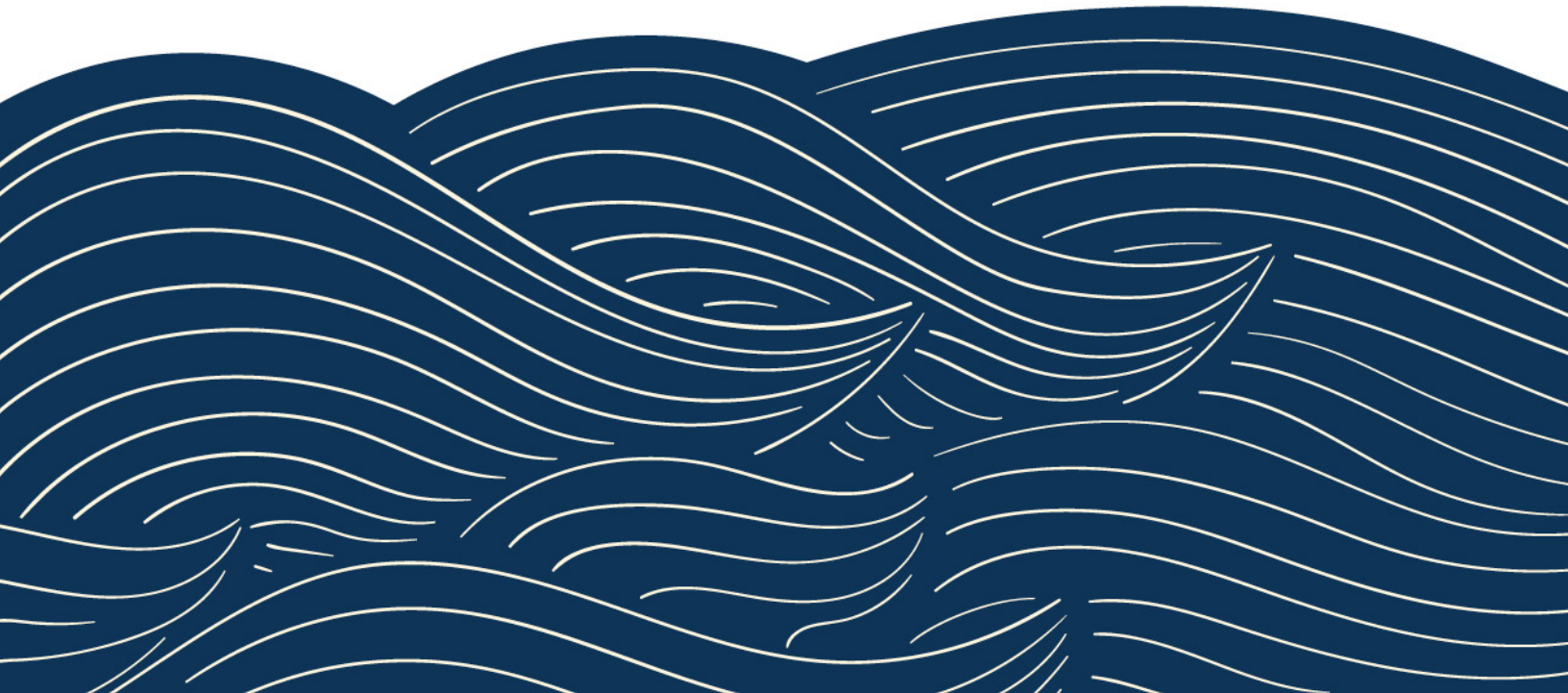
B

Appendix J Addendum to the Elsinore Valley Municipal Water District's 2015 Urban Water Management Plan

Demonstration of Reduced Delta Reliance

FINAL

JUNE 2021



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Quantifying Regional Self-Reliance and Reduced Reliance on Water Supplies from the Delta Watershed

1.1 Background

Under the Sacramento–San Joaquin Delta Reform Act of 2009, state and local public agencies proposing a covered action in the Delta, prior to initiating the implementation of that action, must prepare a written certification of consistency with detailed findings as to whether the covered action is consistent with applicable Delta Plan policies and submit that certification to the Delta Stewardship Council. Anyone may appeal a certification of consistency, and if the Delta Stewardship Council grants the appeal, the covered action may not be implemented until the agency proposing the covered action submits a revised certification of consistency, and either no appeal is filed, or the Delta Stewardship Council denies the subsequent appeal.

The **Urban Water Management Plan Guidebook 2020** states that that an urban water supplier that anticipates participating in or receiving water from a proposed project, such as a multiyear water transfer, conveyance facility, or new diversion that involves transferring water through, exporting water from, or using water in the Sacramento–San Joaquin Delta (Delta) should provide information in their 2015 and 2020 Urban Water Management Plans (UWMPs) that can then be used in the covered action process to demonstrate consistency with Delta Plan Policy, Water Restriction (WR) P1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (California Code Req., tit. 23, § 5003).

Elsinore Valley Municipal Water District (EVMWD) is an urban water supplier that anticipates receiving a blend of Delta water through its imported water. Currently, EVMWD purchases imported water from Metropolitan Water District of Southern California (Metropolitan) via Western Municipal Water District (Western). The imported water is a blend of Colorado River water, State Project Water, and local Western supplies. Therefore, EVMWD is preparing this analysis to comply with the Delta Plan Policy WR P1.

The Delta Plan Policy WR P1 specifies the measures that must be taken by water suppliers under certain conditions to reduce their reliance on the Delta and improve regional self-reliance. In addition, the Delta Plan recommends that all water suppliers within the Delta watershed voluntarily implement the measures contained in WR P1 to reduce their reliance on the Delta and improve regional self-reliance. Delta Plan WR P1 identifies UWMPs as the tool to be used to demonstrate consistency with the state policy that states suppliers who carry out or take part in covered actions must reduce their reliance on the Delta.

WR P1 details what is needed for a covered action to demonstrate consistency with reduced reliance on the Delta and improved regional self-reliance. WR P1 subsection (a) states:

> *(a) Water shall not be exported from, transferred through, or used in the Delta if all the following apply:*
>
> > *(1) One or more water suppliers that would receive water as a result of the export, transfer, or use have failed to adequately contribute to reduced reliance on the Delta and improved regional self-reliance consistent with all of the requirements listed in paragraph (1) of subsection (c);*
> >
> > *(2) That failure has significantly caused the need for the export, transfer, or use; and*
> >
> > *(3) The export, transfer, or use would have a significant adverse environmental impact in the Delta.*

WR P1 subsection (c)(1) further defines what adequately contributing to reduced reliance on the Delta means in terms of (a)(1) above:

> *(c)(1) Water suppliers that have done all the following are contributing to reduced reliance on the Delta and improved regional self-reliance and are therefore consistent with this policy:*
>
> > *(A) Completed a current Urban or Agricultural Water Management Plan (Plan) which has been reviewed by the California Department of Water Resources for compliance with the applicable requirements of Water Code Division 6, Parts 2.55, 2.6, and 2.8;*
> >
> > *(B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta; and*
> >
> > *(C) Included in the Plan, commencing in 2015, the expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance. The expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance shall be reported in the Plan as the reduction in the amount of water used, or in the percentage of water used, from the Delta watershed. For the purposes of reporting, water efficiency is considered a new source of water supply, consistent with Water Code section 1011(a).*

The analysis and documentation provided below include all the elements described in WR P1(c)(1) that need to be included in a water supplier's UWMP to support a certification of consistency for a future covered action.

1.2 Demonstration of Regional Self-Reliance

The methodology used to determine EVMWD's improved regional self-reliance is consistent with the approach detailed in DWR's UWMP Guidebook Appendix C (Guidebook Appendix C), including the use of narrative justifications for the accounting of supplies and the documentation of specific data sources.

Some of the key assumptions underlying EVMWD's demonstration of reduced reliance include:

- All data were obtained from the current 2020 UWMP or previously adopted UWMPs and represent average or normal water-year conditions.
- All analyses were conducted at the service-area level, and all data reflect the total contributions of EVMWD and its customers.
- Future projects that are covered actions requiring a certification of consistency with the Delta Plan were excluded from this analysis.

1.2.1 Baseline and Expected Outcomes

To demonstrate the expected outcomes for a reduced reliance on the Delta and improved regional self-reliance, a comparison to a baseline is needed. This analysis uses a normal water-year representation of 2010 as the baseline, which is consistent with the approach described in the Guidebook Appendix C. Population, demand, and supply data for the 2010 baseline were taken from EVMWD's 2005 UWMP, because UWMPs generally do not provide normal water-year data for the year they are adopted (i.e., 2005 UWMP forecasts begin in 2010, 2010 UWMP forecasts begin in 2015, and so on).

Consistent with the 2010 baseline data approach, the expected outcomes for reduced Delta reliance and improved regional self-reliance for 2015 and 2020 were taken from EVMWD's 2010 and 2015 UWMPs,

respectively, unless noted otherwise. Expected outcomes for 2025–2045 are from the current 2020 UWMP. Documentation of the specific data sources and assumptions are included in the discussions below.

1.2.2 Service-Area Demands without Water Use Efficiency

In alignment with the Guidebook Appendix C, this analysis uses normal water-year demands, rather than normal water-year supplies, to calculate expected outcomes in terms of the percentage of water used. Normal water-year demands serve as a proxy for the amount of supplies that would be used in a normal water-year, which helps alleviate issues associated with how supply capability is presented to fulfill the requirements of the UWMP Act versus how supplies might be accounted for to demonstrate consistency with WR P1.

Because WR P1 considers water-use efficiency savings a source of water supply, water suppliers can calculate their embedded water-use efficiency savings based on changes in forecasted per capita water use compared with the baseline. As explained in the Guidebook Appendix C, water-use efficiency savings must be added back to the normal year demands to represent demands without water-use efficiency savings accounted for; otherwise, the effect of water-use efficiency savings on regional self-reliance would be overestimated. **Table B-1** shows the results of this adjustment for EVMWD. Supporting narratives and documentation for all the data shown in **Table B-1** are provided below.

1.2.3 Service-Area Demands with Water Use Efficiency

The service-area water demands shown in **Table B-1** represent the total municipal and industrial (M&I) water demands and non-potable demands for EVMWD's retail service area.

The M&I demand data shown in Table B-1 were collected from the following sources:

- **Baseline (2010):** EVMWD 2005 UWMP, **Table 3-21**
- **2015:** EVMWD 2010 UWMP, **Table 3-16** (DWR Table 11)
- **2020:** EVMWD 2015 UWMP, **Table 4-3** (DWR Table 4-3R)
- **2025–2045:** EVMWD 2020 UWMP, **Table 4-7** (DWR 4-3R)

The 2010 UWMP demand projections included water demand from Farm Mutual Water Company (FMWC) and "additional water uses and losses" in the total demand projections. The FMWC demands were included but the "additional water uses and losses" were not. The "additional water uses and losses" include recycled-water demands and groundwater recharge targets as part of the Metropolitan Groundwater Storage Program. These demands were excluded because recycled water is incorporated separately, and the groundwater storage is not included in this analysis, as discussed in the Local and Regional Water Supply and Storage Projects section, to prevent double counting. The non-potable water (i.e., recycled water) demands are discussed in the next section. The potable demand projections are presented in **Table B-1**.

1.2.4 Non-Potable Water Demands

EVMWD serves recycled water to customers for landscape and golf course irrigation. EVMWD is also permitted to discharge 7.5 million gallons per day (MGD) of recycled water from the regional water reclamation facility (WRF) to Lake Elsinore to maintain a minimum lake level of 1,240 feet and to Temescal Wash to maintain a minimum discharge of 0.5 MGD. The combined flow for these requirements is 8 MGD. Additional information on the supplies is discussed in **Chapter 6** of the 2020 UWMP.

The recycled-water demands by customers for irrigation purposes, as well as discharge requirements for Lake Elsinore and Temescal Wash were collected from the following sources:

- **Baseline (2010):** EVMWD 2005 UWMP, **Table 6-6** and **Table 6-11**
- **2015:** EVMWD 2010 UWMP, **Table 3-15** (DWR Table 10)
- **2020:** EVMWD 2015 UWMP, **Table 4-3** (DWR Table 4-3R) and **Table 6-8** (DWR Table 6-4R)
- **2025–2045:** EVMWD 2020 UWMP, **Table 6-9** (DWR Table 6-4R)

The total non-potable demands for these uses are presented in **Table B-1**. In the 2005 UWMP, it was estimated that EVMWD would have a recycled-water maximum day demand (MDD) of 18.9 MGD. Recycled-water demand was assumed to have an MDD peaking factor of 2.77, based on evapotranspiration and rainfall patterns.

1.2.5 Potable Service-Area Demands with Water-Use Efficiency

The potable service area demands with water-use efficiency were calculated by subtracting the non-potable water demands value from service area demands with water-use efficiency value.

1.2.6 Service-Area Population

The population data shown in Table B-1 were collected from the following sources:

- **Baseline (2010):** EVMWD 2010 UWMP, **Table 2-2**
- **2015:** EVMWD 2015 UWMP, **Table 3-2** (DWR Table 3-1R)
- **2020–2045:** EVMWD 2020 UWMP, **Table 3-2** (DWR Table 3-1R)

1.2.7 Estimated Water-Use Efficiency Since Baseline

The estimated water-use efficiency since baseline was calculated using the potable service-area demands with water-use efficiency value divided by service-area population value and then comparing with 2010 per capita water use data.

1.2.8 Service-Area Water Demands without Water-Use Efficiency

In **Table B-2**, the service-area demands with water-use efficiency value was added to the estimated water-use efficiency since baseline value to obtain the service-area water demands without water-use efficiency accounted for figure.

1.2.9 Supplies Contributing to Regional Self-Reliance

For a covered action to demonstrate consistency with the Delta Plan, WR P1 subsection (c)(1)(C) states that water suppliers must report the expected outcomes for measurable improvement in regional self-reliance. **Table B-3** shows expected outcomes for supplies contributing to regional self-reliance in terms of volume. **Table B-3** represents efforts to improve regional self-reliance for EVMWD's entire service area and includes the total contributions of EVMWD and its customers. Supporting narratives and documentation for all the data provided in **Table B-3** are described below.

EVMWD's water sources include groundwater pumped from EVMWD-owned wells, local surface water treated at the Canyon Lake Water Treatment Plant, and imported water from Metropolitan through Western. EVWMD plans to use these supplies to meet current and future demands. In addition, EVMWD is planning several local projects to increase the reliability of its local water supplies, which include adding or replacing groundwater wells and pursuing an indirect potable reuse project.

EVMWD is expecting to complete the following projects, which are discussed more in Chapter 6 of the 2020 UWMP:

- **Palomar Well Replacement** — anticipated in 2023
- **Lee Lake Wells** — anticipated in 2024
- **Canyon Lake Water Treatment Plant Upgrades** — anticipated in 2025
- **Temecula-Pauba Groundwater Wells** — anticipated in 2032
- **Indirect Potable Reuse** — anticipated in 2034

To prevent double counting, regional projects (i.e., the Metropolitan Conjunctive Use Project and Santa Ana River Regional Conjunctive Use Project) were not included in this analysis. As part of the groundwater storage program, during dry years, EVMWD may also extract up to 4,000 acre-feet per year (AFY) of water stored in the Elsinore Basin for use. This was not included in the analysis.

1.2.10 Water-Use Efficiency

The water-use efficiency information shown in **Table B-3** is taken directly from **Table B-1**.

1.2.11 Water Recycling

EVMWD currently owns and operates three WRFs, and the recycled-water system is divided into four service areas: Wildomar, Railroad Canyon, Horsethief, and regional service areas. In addition, wastewater collected in the southern part of EVMWD's service area is treated at the Santa Rosa WRF operated by Rancho California Water District.

The Wildomar, Railroad Canyon, and Horsethief service areas provide recycled water to public and private customers for irrigation needs such as parks, schools, golf courses, homeowner associations, and roadway medians. For more information, refer to **Chapter 6** of the 2020 UWMP. The water recycling values shown in **Table B-3** are the non-potable water demands for landscape and golf course irrigation. The recycled-water demands to maintain discharge requirements are discussed in the Other Programs and Projects that Contribute to Regional Self-Reliance section to better track these uses.

These data were compiled from the following sources:

- **Baseline (2010):** EVMWD 2010 UWMP, **Table 4-14** (same as Table 24 in the 2010 Guidebook)
- **2015:** EVMWD 2015 UWMP, **Table 6-9** (DWR Table 6-5R)
- **2020:** EVMWD 2020 UWMP, **Table 6-8** (DWR Table 6-4R)
- **2025–2045:** EVMWD 2020 UWMP, **Table 6-14** (DWR Table 6-9R)

For this analysis, the actual recycled-water supply data for 2010, 2015, and 2020 were used because the supply projections in previous UWMPs are not representative of current conditions — they assumed the recycled-water supply to be equal to the demand. Currently, the production and use of recycled water are limited by the wastewater available for treatment and the demand by each of the four recycled-water service areas.

1.2.12 Local and Regional Water Supply and Storage Projects

As discussed above, EVMWD relies on groundwater, surface water, and imported water to meet its potable demands and is actively investing in local water projects.

EVMWD's local water supplies are shown in Table B-3, and data were from the following sources:

- **Baseline (2010):** EVMWD 2005 UWMP, **Table 3-10** (includes Elsinore Valley Basin, Canyon Lake, and Groundwater for TDSA)
- **2015:** EVMWD 2010 UWMP, **Table 4-18** (same as Table 16 in 2010 Guidebook)
- **2020:** EVMWD 2015 UWMP, **Table 6-13** (DWR Table 6-9R)
- **2025–2045:** EVMWD 2020 UWMP, **Table 6-14** (DWR Table 6-9R)

In the 2015 UWMP, the projected groundwater supply for 2020 was 10,560 AFY. This is not accurate, because the local groundwater projects that would have increased the supply by 3,860 AFY were not completed. Therefore, the established 6,700 AFY was used.

1.2.13 Other Programs and Projects that Contribute to Regional Self-Reliance

Other programs and projects that contribute to regional self-reliance that are listed in **Table B-3** include EVMWD deliveries of tertiary treated recycled water for replenishment of Lake Elsinore and Temescal Wash. The use of recycled water offsets the use of potable water.

These values come from the following sources:

- **Baseline (2010):** EVMWD 2010 UWMP, **Table 4-14** (same as Table 24 in the 2010 Guidebook)
- **2015:** EVMWD 2015 UWMP, **Table 6-9** (DWR Table 6-5R)
- **2020:** EVMWD 2020 UWMP, **Table 6-8** (DWR Table 6-4R)
- **2025–2045:** EVMWD 2020 UWMP, **Table 6-14** (DWR Table 6-9R)

As discussed above, this supply is limited by the available wastewater supply, so the actual volumes for 2010, 2015, and 2020 were used. In 2020, the regional WRF produced 6,585 AF of recycled water to maintain the lake levels and flows, which is well below the projected supply of 8,960 AF.

1.3 Reliance on Water Supplies from the Delta Watershed

Metropolitan's service area, as a whole, reduces reliance on the Delta through investments in non-Delta water supplies, local water supplies, and regional and local demand-management measures. Metropolitan's member agencies coordinate reliance on the Delta through their membership in Metropolitan, a regional cooperative providing wholesale water service to its 26 member agencies, which includes Western, and EVMWD receives supplies from both. Accordingly, regional reliance on the Delta can only be measured regionally, not by individual Metropolitan member agencies and not by the customers of those member agencies.

Metropolitan's member agencies, and those agencies' customers, indirectly reduce reliance on the Delta through their collective efforts as a cooperative. Metropolitan's member agencies do not control the amount of Delta water they receive from Metropolitan. Metropolitan manages a statewide integrated conveyance system consisting of its participation in the State Water Project (SWP); its Colorado River Aqueduct (CRA), including Colorado River water resources, programs, and water exchanges; and its regional storage portfolio. Along with the SWP, CRA, storage programs, and Metropolitan's conveyance and distribution facilities, demand-management programs increase the future reliability of water

resources for the region. In addition, demand-management programs provide systemwide benefits by decreasing the demand for imported water, which helps decrease the burden on the district's infrastructure, reduce system costs, and free up conveyance capacity to the benefit of all member agencies.

Metropolitan's costs are funded almost entirely from its service area, except for grants and other assistance from government programs. Most of Metropolitan's revenues are collected directly from its member agencies. Properties within Metropolitan's service area pay a property tax that currently provides approximately 8% of the fiscal year 2021 annual budgeted revenues. The rest of Metropolitan's costs are funded through rates and charges paid by Metropolitan's member agencies for the wholesale services it provides them. Thus, Metropolitan's member agencies fund nearly all operations Metropolitan undertakes to reduce reliance on the Delta, including Colorado River programs, storage facilities, local resources programs, and conservation programs within Metropolitan's service area.

Because of the integrated nature of Metropolitan's systems and operations, and the collective nature of Metropolitan's regional efforts, it is infeasible to quantify each of Metropolitan member agencies' individual reliance on the Delta. It is infeasible to attempt to segregate an entity and a system designed to work as an integrated regional cooperative.

In addition to the member agencies funding Metropolitan's regional efforts, they also invest in their own local programs to reduce their reliance on any imported water. Moreover, the customers of those member agencies may also invest in their own local programs to reduce water demand. However, to the extent those efforts result in reduction of demands on Metropolitan, that reduction does not equate to a like reduction of reliance on the Delta. Demands on Metropolitan are not commensurate with demands on the Delta, because most of Metropolitan member agencies receive blended resources from Metropolitan as determined by Metropolitan — not the individual member agency — and for most member agencies, the blend varies from month to month and year to year due to hydrology, operational constraints, use of storage, and other factors.

1.3.1 Programs Implemented by Metropolitan to Reduce Delta Reliance

As mentioned, Metropolitan, Western, EVMWD, and other local agencies invest in local sources to reduce reliance on the Delta. However, EVMWD purchases imported water from Western while Western purchases water from Metropolitan. Because of the intricacies in these large systems and the blend of supplies, Western has summarized the various programs Metropolitan has invested in to decrease reliance on the Delta. Details are provided in **Appendix R** of Western's 2020 UWMP.

Because it is not feasible to separate out the reduced reliance on the Delta of individual member agencies or their customers, Metropolitan has completed the analysis to demonstrate a region-wide reduction, which is shown in **Table B-4**.

1.4 Summary of Expected Outcomes for Reduced Reliance on the Delta

As stated in WR P1(c)(1)(C), the policy requires that, commencing in 2015, UWMPs include expected outcomes for measurable reduction in Delta reliance and improved regional self-reliance. WR P1 further states that those outcomes shall be reported in the UWMP as the reduction in the amount of water used, or in the percentage of water used, from the Delta.

The expected outcomes for EVMWD's reduced Delta reliance and regional self-reliance were developed using the approach and guidance described in Guidebook Appendix C issued in March 2021.

1.4.1 Regional Self-Reliance

The data used to demonstrate increased regional self-reliance in this analysis represent the total regional efforts of EVMWD and its customers and were developed in conjunction with Western and Metropolitan as part of the UWMP coordination process.

The following provides a summary of the near-term (2025) and long-term (2045) expected outcomes for EVMWD's regional self-reliance:

- **Near-term (2025)** — normal water-year regional self-reliance is expected to increase by about 13,412 AFY from the 2010 baseline (**Table B-3**).
- **Long-term (2045)** — normal water-year regional self-reliance is expected to increase by almost 42,724 AFY from the 2010 baseline (**Table B-3**).

The results show that EVMWD and its customers are measurably reducing reliance on the Delta and improving regional self-reliance.

1.4.2 Reduced Reliance on Supplies from the Delta Watershed

For reduced reliance on supplies from the Delta Watershed, the data used in this analysis represent the total regional efforts of Metropolitan, Western, and its member agencies and their customers (many of them retail agencies), and were developed in conjunction with EVMWD and other Metropolitan member agencies as part of the UWMP coordination process (as described in Section 5 of Metropolitan's 2020 UWMP). In accordance with UWMP requirements, Metropolitan's member agencies and their customers (many of them retail agencies) also report demands and supplies for their service areas in their respective UWMPs. The data reported by those agencies are not additive to the regional totals shown in Metropolitan's UWMP; rather, their reporting represents subtotals of the regional total and should be considered as such for the purposes of determining reduced reliance on the Delta.

Although the demands that Metropolitan's member agencies and their customers report in their UWMP's are a good reflection of the demands in their respective service areas, they do not adequately represent each water supplier's individual contributions to reduced reliance on the Delta. To calculate and report their reliance on water supplies from the Delta watershed, water suppliers that receive water from the Delta through other regional or wholesale water suppliers would need to determine the amount of Delta water they receive from the regional or wholesale supplier. Two specific pieces of information are needed to accomplish this: first is the quantity of demands on the regional or wholesale water supplier that accurately reflect a supplier's contributions to reduced reliance on the Delta and second is the quantity of a supplier's demands on the regional or wholesale water supplier that are met by supplies from the Delta watershed.

For water suppliers that make investments in regional projects or programs, it may be infeasible to quantify their demands on the regional or wholesale water supplier in a way that accurately reflects their individual contributions to reduced reliance on the Delta. Because of the extensive, long-standing, and successful implementation of regional demand management and local resource incentive programs in Metropolitan's service area, this infeasibility holds true for Metropolitan's members as well as their customers. For Metropolitan's service area, reduced reliance on supplies from the Delta watershed can only be accurately accounted for at the regional level.

The results show that as a region, Metropolitan and its members (including EVMWD), as well as their customers, are measurably reducing reliance on the Delta and improving regional self-reliance.

1.5 UWMP Implementation

In addition to the analysis and documentation described above, WR P1 subsection (c)(1)(B) requires that all programs and projects included in the UWMP that are locally cost-effective, technically feasible, and reduce reliance on the Delta are identified, evaluated, and implemented consistent with the implementation schedule. WR P1 (c)(1)(B) states that

> *(B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta[.]*

In accordance with Water Code Section 10631(f), water suppliers must already include in their UWMP a detailed description of expected projects and programs that they may implement to increase the amount of water supply available to them in normal and single-dry water years and for a period of drought lasting five consecutive years. The UWMP description must also identify specific projects, including a description of the increase in water supply that is expected to be available from each project, and include an estimate regarding the implementation timeline for each project or program.

Chapter 6 of EVMWD's 2020 UWMP summarizes the implementation plan and continued progress in developing a diversified water portfolio to meet the region's water needs.

1.6 2015 UWMP Appendix J

The information contained in this appendix is also intended to be a new Appendix J to EVMWD's 2015 UWMP, consistent with WR P1 subsection (c)(1)(C) (Cal. Code Regs. tit. 23, § 5003). EVMWD provided notice of the availability of the draft 2020 UWMP, 2021 Water Shortage Continency Plan (WSCP), and the new Appendix J to the 2015 UWMP and held a public hearing to consider adoption of the documents in accordance with California Water Code Sections 10621(b) and 10642, Government Code Section 6066, and Chapter 17.5 (starting with Section 7290) of Division 7 of Title 1 of the Government Code. The public review drafts of the 2020 UWMP, Appendix J to the 2015 UWMP, and the 2021 WSCP were posted on EVMWD's website, EVMWD.com, in advance of the public hearing on June 10, 2021. The notice of availability of the documents was sent to EVMWD's customers, as well as to cities and counties in EVMWD's service area. Copies of the notification letter sent to the customers, cities, and counties in EVMWD's service area are included in the 2020 UWMP **Appendix D**. Thus, this **Appendix B** to EVMWD's 2020 UWMP, which was adopted with EVMWD's 2020 UWMP, will also be recognized and treated as **Appendix J** to EVMWD's 2015 UWMP.

EVMWD held a public hearing for the draft 2020 UWMP, draft **Appendix J** to the 2015 UWMP, and draft 2021 WSCP on June 10, 2021, at a regular Board of Directors meeting, which was held online due to COVID-19 concerns. EVMWD's Board of Directors determined that the 2020 UWMP and the 2021 WSCP accurately represent the water resources plan for EVMWD's service area. In addition, EVMWD's Board of Directors determined that **Appendix J** to both the 2015 UWMP and the 2020 UWMP includes all the elements described in Delta Plan Policy WR P1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (Cal. Code Regs. tit. 23, § 5003), which need to be included in a water supplier's UWMP to support a certification of consistency for a future covered action. As stated in Resolutions 21-06-01, 21-06-02, and 21-06-03, the EVMWD Board of Directors adopted the 2020 UWMP, **Appendix J** to the 2015 UWMP, and the 2021 WSCP, and authorized their submittal to the State of California. Copies of the resolutions are included in the 2020 UWMP **Appendix O**.

Table B-1. Optional Calculation of Water Use Efficiency

Service Area Water Use Efficiency Demands (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands with Water Use Efficiency Accounted For	43,476	46,707	42,795	38,938	42,000	45,319	48,085	50,967
Non-Potable Water Demands	7,643	9,415	9,870	9,113	9,870	10,706	10,797	10,797
Potable Service Area Demands with Water Use Efficiency Accounted For	35,833	37,292	32,925	29,825	32,130	34,613	37,288	40,170

Total Service Area Population	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Population	123,375	149,300	163,984	176,657	190,310	205,018	220,863	237,932

Water Use Efficiency Since Baseline (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Per Capita Water Use (GPCD)	259	223	179	151	151	151	151	151
Change in Per Capita Water Use from Baseline (GPCD)		(36)	(80)	(109)	(109)	(109)	(109)	(109)
Estimated Water Use Efficiency Since Baseline		6,071	14,702	21,483	23,144	24,932	26,859	28,935

Table B-2. Calculation of Service Area Water Demands without Water Use Efficiency

Table 2: Calculation of Service Area Water Demands Without Water Use Efficiency

Total Service Area Water Demands (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands with Water Use Efficiency Accounted For	43,476	46,707	42,795	38,938	42,000	45,319	48,085	50,967
Reported Water Use Efficiency or Estimated Water Use Efficiency Since Baseline		6,071	14,702	21,483	23,144	24,932	26,859	28,935
Service Area Water Demands without Water Use Efficiency Accounted For	43,476	52,778	57,497	60,421	65,144	70,252	74,944	79,902

Table B-3. Calculation of Supplies Contributing to Regional Self-Reliance

Water Supplies Contributing to Regional Self-Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Water Use Efficiency	-	6,071	14,702	21,483	23,144	24,932	26,859	28,935
Water Recycling	308	1,236	1,204	1,837	1,837	1,837	1,837	1,837
Stormwater Capture and Use								
Advanced Water Technologies								
Conjunctive Use Projects								
Local and Regional Water Supply and Storage Projects	8,900	11,650	11,650	11,825	11,825	12,575	13,515	14,545
Other Programs and Projects the Contribute to Regional Self-Reliance	2,345	6,008	6,590	7,276	8,033	8,869	8,960	8,960
Water Supplies Contributing to Regional Self-Reliance	11,553	24,965	34,146	42,421	44,839	48,213	51,171	54,277

Service Area Water Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands without Water Use Efficiency Accounted For	43,476	52,778	57,497	60,421	65,144	70,252	74,944	79,902

Change in Regional Self Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Water Supplies Contributing to Regional Self-Reliance	11,553	24,965	34,146	42,421	44,839	48,213	51,171	54,277
Change in Water Supplies Contributing to Regional Self-Reliance		13,412	22,593	30,868	33,286	36,660	39,618	42,724

Table B-4. Calculation of Reliance on Water Supplies from the Delta Watershed

Table 4: Calculation of Reliance on Water Supplies from the Delta Watershed								
Water Supplies from the Delta Watershed (Acre-Feet)	**Baseline (2010)**	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045 (Optional)**
CVP/SWP Contract Supplies	1,472,000	1,029,000	984,000	1,133,000	1,130,000	1,128,000	1,126,000	1,126,000
Delta/Delta Tributary Diversions								
Transfers and Exchanges	20,000	44,000	91,000	58,000	52,000	52,000	52,000	52,000
Other Water Supplies from the Delta Watershed								
Total Water Supplies from the Delta Watershed	1,492,000	1,073,000	1,075,000	1,191,000	1,182,000	1,180,000	1,178,000	1,178,000
Service Area Water Demands without Water Use Efficiency (Acre-Feet)	**Baseline (2010)**	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045 (Optional)**
Service Area Water Demands without Water Use Efficiency Accounted For	5,493,000	5,499,000	5,219,000	4,938,000	5,019,000	5,143,000	5,248,000	5,361,000
Change in Supplies from the Delta Watershed (Acre-Feet)	**Baseline (2010)**	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045 (Optional)**
Water Supplies from the Delta Watershed	1,492,000	1,073,000	1,075,000	1,191,000	1,182,000	1,180,000	1,178,000	1,178,000
Change in Water Supplies from the Delta Watershed		(419,000)	(417,000)	(301,000)	(310,000)	(312,000)	(314,000)	(314,000)
Percent Change in Supplies from the Delta Watershed (As a Percent of Demand w/out WUE)	**Baseline (2010)**	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045 (Optional)**
Percent of Water Supplies from the Delta Watershed	27.2%	19.5%	20.6%	24.1%	23.6%	22.9%	22.4%	22.0%
Change in Percent of Water Supplies from the Delta Watershed		-7.6%	-6.6%	-3.0%	-3.6%	-4.2%	-4.7%	-5.2%

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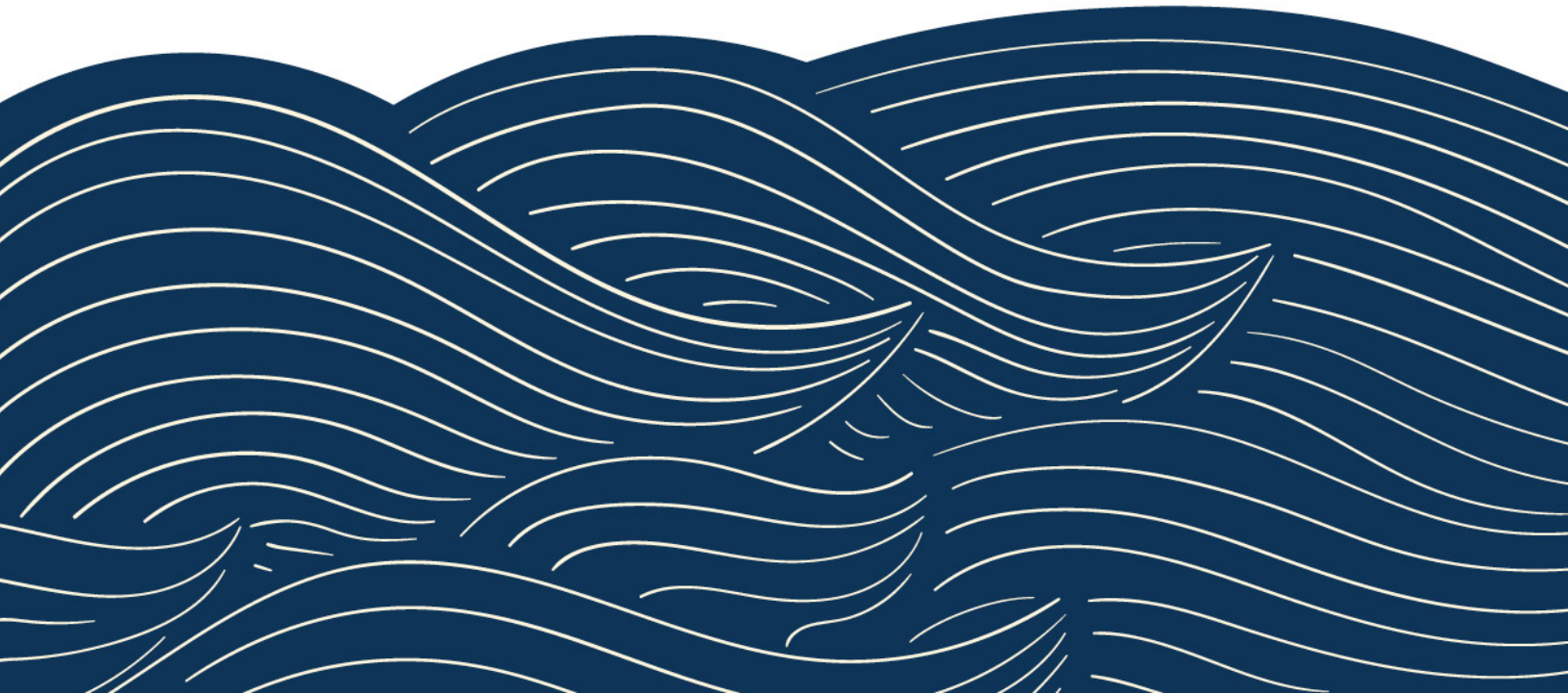
2020 DWR Review Sheet Checklist



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2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
Chapter 1	10615	A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities.	Introduction and Overview	Chapter 1
Chapter 1	10630.5	Each plan shall include a simple description of the supplier's plan including water availability, future requirements, a strategy for meeting needs, and other pertinent information. Additionally, a supplier may also choose to include a simple description at the beginning of each chapter.	Summary	Chapter 1
Section 2.2	10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Chapter 2.1
Section 2.6	10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Chapter 2.3
Section 2.6.2	10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan and contingency plan.	Plan Preparation	Chapter 2.3
Section 2.6, Section 6.1	10631(h)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) - if any - with water use projections from that source.	System Supplies	Chapter 2.2 & 2.3
Section 2.6	10631(h)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Chapter 2.2 & 2.3
Section 3.1	10631(a)	Describe the water supplier service area.	System Description	Chapter 3
Section 3.3	10631(a)	Describe the climate of the service area of the supplier.	System Description	Chapter 3.3
Section 3.4	10631(a)	Provide population projections for 2025, 2030, 2035, 2040 and optionally 2045.	System Description	Chapter 3.4.1
Section 3.4.2	10631(a)	Describe other social, economic, and demographic factors affecting the supplier's water management planning.	System Description	Chapter 3.4
Sections 3.4 and 5.4	10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Chapter 3.4.1 & Chapter 5
Section 3.5	10631(a)	Describe the land uses within the service area.	System Description	Chapter 3.5
Section 4.2	10631(d)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Chapter 4.2
Section 4.2.4	10631(d)(3)(C)	Retail suppliers shall provide data to show the distribution loss standards were met.	System Water Use	Chapter 4.2.3
Section 4.2.6	10631(d)(4)(A)	In projected water use, include estimates of water savings from adopted codes, plans and other policies or laws.	System Water Use	Chapter 4.2.4 and Chapter 4.3
Section 4.2.6	10631(d)(4)(B)	Provide citations of codes, standards, ordinances, or plans used to make water use projections.	System Water Use	Chapter 4.2.4
Section 4.3.2.4	10631(d)(3)(A)	Report the distribution system water loss for each of the 5 years preceding the plan update.	System Water Use	Chapter 4.2.3
Section 4.4	10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Chapter 4.3
Section 4.5	10635(b)	Demands under climate change considerations must be included as part of the drought risk assessment.	System Water Use	Chapter 4.4, Chapter 6.2.10, & Chapter 7
Chapter 5	10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Chapter 5
Chapter 5	10608.24(a)	Retail suppliers shall meet their water use target by December 31, 2020.	Baselines and Targets	Chapter 5
Section 5.2	10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Not Applicable
Section 5.5	10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Not Applicable

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
Section 5.5 and Appendix E	10608.4	Retail suppliers shall report on their compliance in meeting their water use targets. The data shall be reported using a standardized form in the SBX7-7 2020 Compliance Form.	Baselines and Targets	Chapter 5 and Appendix I
Sections 6.1 and 6.2	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought.	System Supplies	Chapter 6.1
Sections 6.1	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought, *including changes in supply due to climate change.*	System Supplies	Chapter 6 and Chapter 7
Section 6.1	10631(b)(2)	When multiple sources of water supply are identified, describe the management of each supply in relationship to other identified supplies.	System Supplies	Chapter 6.2.2
Section 6.1.1	10631(b)(3)	Describe measures taken to acquire and develop planned sources of water.	System Supplies	Chapter 6.2
Section 6.2.8	10631(b)	Identify and quantify the existing and planned sources of water available for 2020, 2025, 2030, 2035, 2040 and optionally 2045.	System Supplies	Chapter 6.2
Section 6.2	10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Chapter 6.1 and 6.2
Section 6.2.2	10631(b)(4)(A)	Indicate whether a groundwater sustainability plan or groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Chapter 6.2.2
Section 6.2.2	10631(b)(4)(B)	Describe the groundwater basin.	System Supplies	Chapter 6.2.2
Section 6.2.2	10631(b)(4)(B)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Chapter 6.2.2
Section 6.2.2.1	10631(b)(4)(B)	For unadjudicated basins, indicate whether or not the department has identified the basin as a high or medium priority. Describe efforts by the supplier to coordinate with sustainability or groundwater agencies to achieve sustainable groundwater conditions.	System Supplies	Chapter 6.2.2
Section 6.2.2.4	10631(b)(4)(C)	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	System Supplies	Chapter 6.2.2
Section 6.2.2	10631(b)(4)(D)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Chapter 6.2.2
Section 6.2.7	10631(c)	Describe the opportunities for exchanges or transfers of water on a short-term or long- term basis.	System Supplies	Chapter 6.2.7
Section 6.2.5	10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Chapter 6.2.5
Section 6.2.5	10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Chapter 6.2.5
Section 6.2.5	10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Chapter 6.2.5
Section 6.2.5	10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	Chapter 6.2.5
Section 6.2.5	10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	Chapter 6.2.5
Section 6.2.5	10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Chapter 6.2.5
Section 6.2.6	10631(g)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Chapter 6.2.6
Section 6.2.5	10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area with quantified amount of collection and treatment and the disposal methods.	System Supplies (Recycled Water)	Chapter 6.2.5
Section 6.2.8, Section 6.3.7	10631(f)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and for a period of drought lasting 5 consecutive water years.	System Supplies	Chapter 6.2 and Chapter 7.1.1, Chapter 7.1.3

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
Section 6.4 and Appendix O	10631.2(a)	The UWMP must include energy information, as stated in the code, that a supplier can readily obtain.	System Suppliers, Energy Intensity	Chapter 6.3
Section 7.2	10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Chapter 7.1
Section 7.2.4	10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Chapter 7.1.5
Section 7.3	10635(a)	Service Reliability Assessment: Assess the water supply reliability during normal, dry, and a drought lasting five consecutive water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Chapter 7.1
Section 7.3	10635(b)	Provide a drought risk assessment as part of information considered in developing the demand management measures and water supply projects.	Water Supply Reliability Assessment	Chapter 7.2
Section 7.3	10635(b)(1)	Include a description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts 5 consecutive years.	Water Supply Reliability Assessment	Chapter 7.2.1
Section 7.3	10635(b)(2)	Include a determination of the reliability of each source of supply under a variety of water shortage conditions.	Water Supply Reliability Assessment	Chapter 7
Section 7.3	10635(b)(3)	Include a comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.	Water Supply Reliability Assessment	Chapter 7
Section 7.3	10635(b)(4)	Include considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.	Water Supply Reliability Assessment	Chapter 7.1.2
Chapter 8	10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water Shortage Contingency Planning	Appendix A
Chapter 8	10632(a)(1)	Provide the analysis of water supply reliability (from Chapter 7 of Guidebook) in the WSCP	Water Shortage Contingency Planning	Appendix A Section 1.1
Section 8.10	10632(a)(10)	Describe reevaluation and improvement procedures for monitoring and evaluation the water shortage contingency plan to ensure risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented.	Water Shortage Contingency Planning	Appendix A Section 1.2
Section 8.2	10632(a)(2)(A)	Provide the written decision-making process and other methods that the supplier will use each year to determine its water reliability.	Water Shortage Contingency Planning	Appendix A Section 1.2
Section 8.2	10632(a)(2)(B)	Provide data and methodology to evaluate the supplier's water reliability for the current year and one dry year pursuant to factors in the code.	Water Shortage Contingency Planning	Appendix A Section 1.2
Section 8.3	10632(a)(3)(A)	Define six standard water shortage levels of 10, 20, 30, 40, 50 percent shortage and greater than 50 percent shortage. These levels shall be based on supply conditions, including percent reductions in supply, changes in groundwater levels, changes in surface elevation, or other conditions. The shortage levels shall also apply to a catastrophic interruption of supply.	Water Shortage Contingency Planning	Appendix A Section 1.3
Section 8.3	10632(a)(3)(B)	Suppliers with an existing water shortage contingency plan that uses different water shortage levels must cross reference their categories with the six standard categories.	Water Shortage Contingency Planning	Appendix A Section 1.3
Section 8.4	10632(a)(4)(A)	Suppliers with water shortage contingency plans that align with the defined shortage levels must specify locally appropriate supply augmentation actions.	Water Shortage Contingency Planning	Appendix A Section 1.3
Section 8.4	10632(a)(4)(B)	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water Shortage Contingency Planning	Appendix A Section 1.4.1
Section 8.4	10632(a)(4)(C)	Specify locally appropriate operational changes.	Water Shortage Contingency Planning	Appendix A Section 1.4.3
Section 8.4	10632(a)(4)(D)	Specify additional mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions are appropriate to local conditions.	Water Shortage Contingency Planning	Appendix A Section 1.4.4
Section 8.4	10632(a)(4)(E)	Estimate the extent to which the gap between supplies and demand will be reduced by implementation of the action.	Water Shortage Contingency Planning	Appendix A Section 1.4.1

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
Section 8.4.6	10632.5	The plan shall include a seismic risk assessment and mitigation plan.	Water Shortage Contingency Plan	Appendix A Section 1.4.5 and 1.4.6
Section 8.5	10632(a)(5)(A)	Suppliers must describe that they will inform customers, the public and others regarding any current or predicted water shortages.	Water Shortage Contingency Planning	Appendix A Section 1.5
Section 8.5 and 8.6	10632(a)(5)(B) 10632(a)(5)(C)	Suppliers must describe that they will inform customers, the public and others regarding any shortage response actions triggered or anticipated to be triggered and other relevant communications.	Water Shortage Contingency Planning	Appendix A Section 1.5
Section 8.6	10632(a)(6)	Retail supplier must describe how it will ensure compliance with and enforce provisions of the WSCP.	Water Shortage Contingency Planning	Appendix A Section 1.6
Section 8.7	10632(a)(7)(A)	Describe the legal authority that empowers the supplier to enforce shortage response actions.	Water Shortage Contingency Planning	Appendix A Section 1.7
Section 8.7	10632(a)(7)(B)	Provide a statement that the supplier will declare a water shortage emergency Water Code Chapter 3.	Water Shortage Contingency Planning	Appendix A Section 1.7
Section 8.7	10632(a)(7)(C)	Provide a statement that the supplier will coordinate with any city or county within which it provides water for the possible proclamation of a local emergency.	Water Shortage Contingency Planning	Appendix A Section 1.7
Section 8.8	10632(a)(8)(A)	Describe the potential revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Appendix A Section 1.8
Section 8.8	10632(a)(8)(B)	Provide a description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Appendix A Section 1.8
Section 8.8	10632(a)(8)(C)	Retail suppliers must describe the cost of compliance with Water Code Chapter 3.3: Excessive Residential Water Use During Drought	Water Shortage Contingency Planning	Appendix A Section 1.8
Section 8.9	10632(a)(9)	Retail suppliers must describe the monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance.	Water Shortage Contingency Planning	Appendix A Section 1.9
Section 8.11	10632(b)	Analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.	Water Shortage Contingency Planning	Appendix A Section 1.11
Sections 8.12 and 10.4	10635(c)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 30 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Appendix A Section 1.12
Section 8.14	10632(c)	Make available the Water Shortage Contingency Plan to customers and any city or county where it provides water within 30 after adopted the plan.	Water Shortage Contingency Planning	Appendix A Section 1.12
Sections 9.2 and 9.3	10631(e)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Chapter 9
Chapter 10	10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets (recommended to discuss compliance).	Plan Adoption, Submittal, and Implementation	To be Completed per Chapter 10.3
Section 10.2.1	10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Reported in Table 10-1.	Plan Adoption, Submittal, and Implementation	Chapter 10.2.1
Section 10.4	10621(f)	Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021.	Plan Adoption, Submittal, and Implementation	Chapter 10.4
Sections 10.2.2, 10.3, and 10.5	10642	Provide supporting documentation that the urban water supplier made the plan and contingency plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan and contingency plan.	Plan Adoption, Submittal, and Implementation	Appendix D
Section 10.2.2	10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Chapter 10 and Appendix D

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
Section 10.3.2	10642	Provide supporting documentation that the plan and contingency plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Appendix O
Section 10.4	10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	To be completed per Chapter 10.4
Section 10.4	10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	To be completed per Chapter 10.5
Sections 10.4.1 and 10.4.2	10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	To be completed per Chapter 10.6
Section 10.5	10645(a)	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	To be completed per Chapter 10.6
Section 10.5	10645(b)	Provide supporting documentation that, not later than 30 days after filing a copy of its water shortage contingency plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	To be completed per Chapter 10.6
Section 10.6	10621(c)	If supplier is regulated by the Public Utilities Commission, include its plan and contingency plan as part of its general rate case filings.	Plan Adoption, Submittal, and Implementation	To be completed per Chapter 10.6
Section 10.7.2	10644(b)	If revised, submit a copy of the water shortage contingency plan to DWR within 30 days of adoption.	Plan Adoption, Submittal, and Implementation	To be completed per Chapter 10.6

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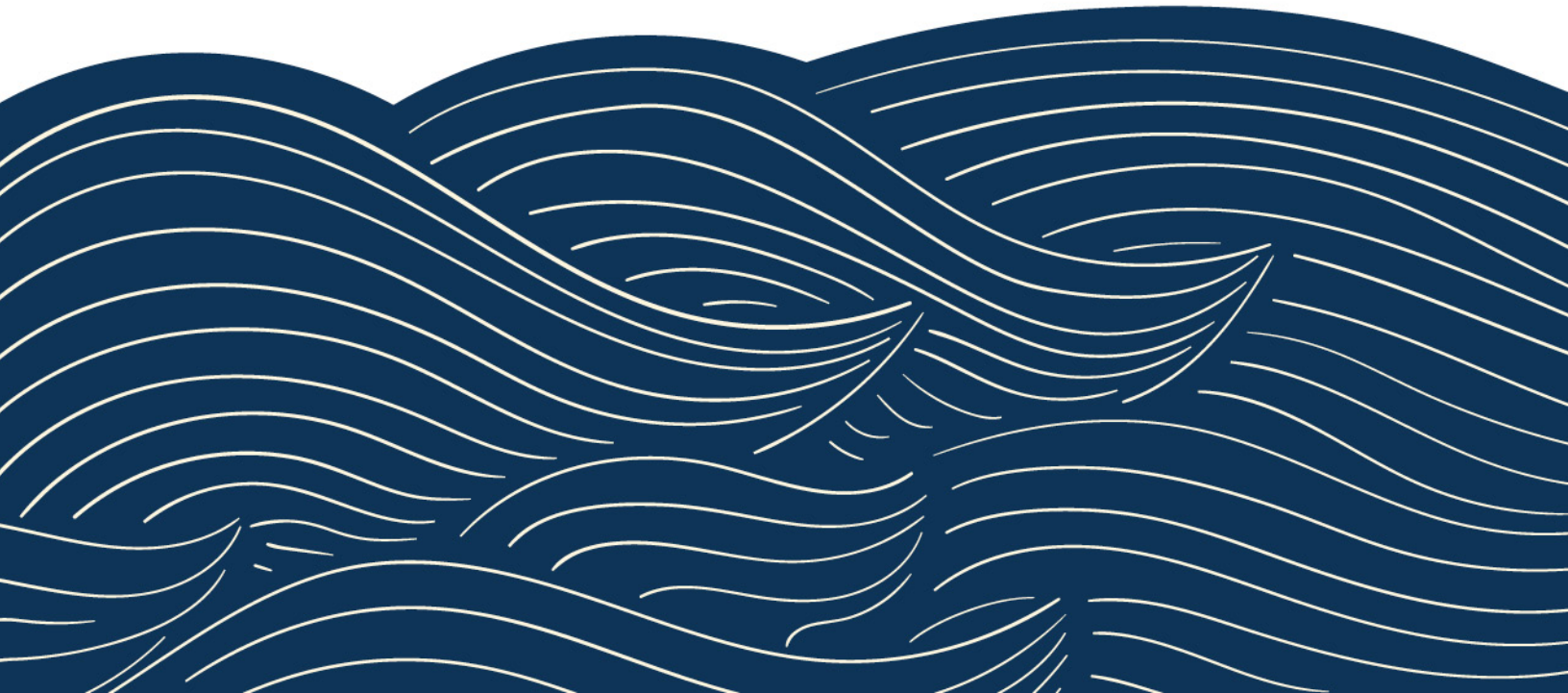
D

60-Day Notification Notices and Public Hearing Notices



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Appendix D contains the 60-day and public hearing notices provided to cities and counties within the EVMWD service area. EVMWD also sent these notices to neighboring water agencies, regulatory agencies, Western, and Metropolitan, and sent public hearing notices to several tribes and environmental and social groups. Only the letters sent to cities and counties are included in this appendix, as they conveyed the same information.

This appendix also includes proof that two public notices were published in local newspapers two weeks in advance, with at least five days between publications.

This appendix is organized as followed:

1. Notice to the Public – Newspaper Receipts. These notices were published on May 25, 2021, and June 1, 2021.
2. Notice of Public Hearing to Cities and Counties sent on May 18, 2021
3. 60-Day Notice provided on March 26, 2021

The letters are organized as presented in the table shown below.

Notification to Cities and Counties

CITY	60 DAY NOTICE	NOTICE OF PUBLIC HEARING
City of Canyon Lake	Yes	Yes
City of Corona	Yes	Yes
City of Lake Elsinore	Yes	Yes
City of Murrieta	Yes	Yes
City of Wildomar	Yes	Yes
COUNTY	**60 DAY NOTICE**	**NOTICE OF PUBLIC HEARING**
Riverside County Flood Control and Water Conservation District	Yes	Yes
Riverside County Planning Department	Yes	Yes

ELSINORE VALLEY MUNICIPAL WATER DISTRICT (EVMWD)
PUBLIC HEARING NOTICE
2020 URBAN WATER MANAGEMENT PLAN, WATER SHORTAGE CONTINGENCY PLAN, AND ADDENDUM TO THE 2015 URBAN WATER MANAGEMENT PLAN

The Elsinore Valley Municipal Water District ("EVMWD") is currently involved in a review and update process to prepare its 2020 Urban Water Management Plan ("UWMP") per the California Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. An update of EVMWD's UWMP is required every five (5) years. The 2020 UWMP Update will reflect the growth that has occurred since the adoption of the 2015 UWMP, EVMWD's plan to reliably meet the water needs within its service area during normal, single-dry, and multiple-dry year periods over the next 20-year planning horizon and beyond, and compliance with the SB X7-7 2020. In addition, EVMWD prepared the Draft 2021 Water Shortage Contingency Plan ("WSCP") to document EVMWD's plans to manage and mitigate an actual water shortage condition, should one occur because of drought or other impacts on water supplies. The Draft Addendum to the 2015 UWMP is a requirement of the Delta Plan for agencies that receive water from the Sacramento–San Joaquin Delta (Delta) to demonstrate consistency with the Delta Plan policy to reduce reliance on the Delta through improved regional water self-reliance.

Notice is hereby given that on **June 10, 2021**, at **4:00 P.M**., the EVMWD Board of Directors will conduct a virtual public hearing to receive public comments and consider adoption of the Draft 2020 UWMP, Draft 2021 WSCP, and Draft 2015 UWMP Addendum. Following the public hearing, the EVMWD Board of Directors may adopt the Draft 2020 UWMP, Draft 2021 WSCP, and Draft 2015 UWMP Addendum with the recommended modifications as a result of public input.

The agenda and access information for the **June 10, 2021**, EVMWD Board Meeting will be posted to EVMWD's website at least 72 hours before the Public Hearing at **https://www.evmwd.com/board-of-directors/agendas-and-packets**. Copies of the Draft 2020 UWMP, Draft 2021 WSCP, and Draft 2015 UWMP Addendum will be available for public review beginning on **May 21, 2021,** and can be downloaded at **https://www.evmwd.com/**. All comments must be received by **June 10, 2021**, or delivered verbally at the above said meeting. Provide any written comments to:

Send Comments To: Elsinore Valley Municipal Water District
31315 Chaney Street
Lake Elsinore, CA 92530
Attn: Jesus Gastelum

If you have any questions, comments, or input, please contact Jesus Gastelum, Senior Water Resources Planner Engineer, via e-mail at jgastelum@evmwd.net or by phone at (951) 674-3146 ext. 8399.

Nothing below this line is to be published. Notes only.

For Publication May 25 and June 1, 2021

(Guidelines for publication)

6066. Publication of notice pursuant to this section shall be once a week for two successive weeks. Two publications in a newspaper published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates, are sufficient. The period of notice commences upon the first day of publication and terminates at the end of the fourteenth day, including therein the first day.

Advertising Order Confirmation

The Press Enterprise

Ad Order Number	*Customer*	*Payor Customer*	*PO Number*
0011464185	ELSINORE VALLEY MWD	ELSINORE VALLEY MWD	
Sales Representative	*Customer Account*	*Payor Account*	*Ordered By*
Nick Eller	5209159	5209159	Terese Quintanar
Order Taker	*Customer Address*	*Payor Address*	*Customer Fax*
Nick Eller	PO BOX 3000 LAKE ELSINORE, CA 92531	PO BOX 3000 LAKE ELSINORE, CA 92531	
Order Source	*Customer Phone*	*Payor Phone*	*Customer EMail*
Select Source	951-674-3146	951-674-3146	ap@evmwd.net

Current Queue	*Invoice Text*
Ready	UWMP Public Notice

Tear Sheets	*Affidavits*	*Blind Box*	*Materials*	*Promo Type*	*Special Pricing*
0	0				

Ad Number	Ad Size	Color	Production Color	Ad Attributes	Production Method	Production Notes
0011464185-01	4 X 71 Li				AdBooker	

External Ad Number	Pick Up	Ad Type	Released for Publication
		Legal Liner	

ELSINORE VALLEY MUNICIPAL WATER DISTRICT (EVMWD)
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Press-Enterprise: 5/25, 6/01

Product	Requested Placement	Requested Position	Run Dates	# Inserts
Daily Bulletin	Legals CLS LA-SB-PE	General IE - 1076~	05/25/21, 06/01/21	2
PE Riverside:Full Run	Legals CLS LA-SB-PE	General IE - 1076~	05/25/21, 06/01/21	2
SB Sun	Legals CLS NP	General NP - 1076~	05/25/21, 06/01/21	2

Order Charges:

Net Amount	Tax Amount	Total Amount	Payment Amount	Amount Due
1,042.40	0.00	1,042.40	0.00	**$1,042.40**

If this confirmation includes an advertising proof, please check your proof carefully for errors, spelling, and/or typos. Errors not marked on the returned proof are not subject to credit or refunds.

Please note: To meet our printer's deadline, we must have your proof returned by the published deadline, and as indicated by your sales rep.

Please note: If you pay by bank card, your card statement will show the merchant as "SoCal Newspaper Group".

Elsinore Valley Municipal Water District

Our Mission…
EVMWD will provide reliable, cost-effective, high quality water and wastewater services that are dedicated to the people we serve.

3/26/2021

Chris Mann
City Manager
City of Canyon Lake
31516 Railroad Canyon Road
Canyon Lake, CA 92587
chrismann@cityofcanyonlake.com

2020 URBAN WATER MANAGEMENT PLAN UPDATE NOTIFICATION

Dear Chris Mann,

The Elsinore Valley Municipal Water District (EVMWD) is in the process of preparing and updating its 2020 Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. An update of EVMWD's UWMP is required every five (5) years. The 2020 UWMP Update will reflect the growth that has occurred since the adoption of the 2015 UWMP, forecasted growth within EVMWD's service area, and EVMWD's plan to reliably meet the water needs within its service area, and compliance with the SB X7-7 2020.

EVMWD is also considering an Addendum to its 2015 UWMP to demonstrate consistency with the Delta Plan Policy to Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (California Code Reg., tit. 23, § 5003). As part of the new requirements, EVMWD is also planning on adopting a Water Shortage Contingency Plan (WSCP), which must be included as part of the 2020 UWMP. This document will describe how EVMWD will respond to foreseeable and unforeseeable water shortages.

Water Code section 10621(b) requires an urban water supplier updating its UWMP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing. This letter serves as EVMWD's official notice of preparation and intent to adopt the UWMP, WSCP, and 2015 UWMP Addendum before the July 1, 2021 deadline.

A copy of EVMWD's draft 2020 UWMP, WSCP, and 2015 UWMP Addendum will be available for review on the EVMWD's website in spring of 2021, and EVMWD will subsequently hold a noticed public hearing on the 2020 UWMP, WSCP, and 2015 UWMP Addendum in advance of its proposed adoption. EVMWD invites you to submit comments and consult with EVMWD regarding these plans.

The EVMWD's website (www.evmwd.com) will give updates on the 2020 UWMP and WSCP. If you have any questions, comments, or input, please contact Jesus Gastelum, Senior Water Resources Planner Engineer, via email at jgastelum@evmwd.net or by phone at (951) 674-3146 ext. 8201.

Sincerely,

Parag Kalaria, P.E., PMP
Water Resources Manager
Elsinore Valley Municipal Water District

Elsinore Valley Municipal Water District

Our Mission…

EVMWD will provide reliable, cost-effective, high quality water and wastewater services that are dedicated to the people we serve.

May 18, 2021

SENT VIA E-MAIL

Chris Mann
City Manager
City of Canyon Lake
31516 Railroad Canyon Road
Canyon Lake, CA 92587
chrismann@cityofcanyonlake.com

SUBJECT: ELSINORE VALLEY MUNICIPAL WATER DISTRICT PUBLIC HEARING NOTICE; 2020 URBAN WATER MANAGEMENT PLAN, WATER SHORTAGE CONTINGENCY PLAN, AND ADDENDUM TO THE 2015 URBAN WATER MANAGEMENT PLAN

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This letter serves as EVMWD's official notice of public hearing for the 2020 UWMP, 2021 WSCP, and 2015 UWMP Addendum pursuant to Water Code section 10621(b).

The public hearing is intended to provide the public and public agencies the opportunity to comment on the Draft 2020 UWMP, 2021 WSCP, and 2015 UWMP Addendum before adopting these documents. The public hearing is scheduled to be held on **June 10, 2021**, at **4:00 PM** at the following address:

Public Hearing Location: Elsinore Valley Municipal Water District (EVMWD)
Lake Elsinore, CA 92530
Please note: Due to State Mandates, virtual attendance of the Public Hearing may be required. In such case, participation information will be provided on the Agenda for the **June 10, 2021**, EVMWD Board Meeting, which will be posted to EVMWD's website at least 72 hours before the Public Hearing, at: **https://www.evmwd.com/board-of-directors/agendas-and-packets**.

Copies of EVMWD's Draft 2020 UWMP, 2021 WSCP, and 2015 UWMP Addendum are currently scheduled to be available for public review and comment by **Friday, May 21, 2021,** at EVMWD's office during normal business hours and online at **https://www.evmwd.com/**. EVMWD invites you to submit comments and consult with EVMWD regarding these plans. Public input and coordination are encouraged and will be considered throughout the process of preparing and completing EVMWD's 2020 UWMP, 2021 WSCP, and 2015 UWMP Addendum (See, e.g., Water Code §§ 10620(d)(2); 10621(b); 10642.) All comments must be received by **June 10, 2021**, or delivered verbally at the above said meeting. Provide any written comments to:

Send Comments To: Elsinore Valley Municipal Water District
31315 Chaney Street
Lake Elsinore, CA 92530
Attn: Jesus Gastelum

Thank you for your cooperation and involvement in the EVMWD's UWMP, 2021 WSCP, and 2015 Addendum process. If you have any questions, comments, or input, please contact Jesus Gastelum, Senior Water Resources Planner Engineer, via e-mail at jgastelum@evmwd.net or by phone at (951) 674-3146 ext. 8399.

Sincerely,

Parag Kalaria, P.E., PMP
Water Resources Manager
Elsinore Valley Municipal Water District

Elsinore Valley Municipal Water District

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3/26/2021

Katie Hockett
Assistant General Manager
City of Corona
755 Public Safety Way
Corona, CA 92880
Katie.Hockett@CoronaCA.gov

2020 URBAN WATER MANAGEMENT PLAN UPDATE NOTIFICATION

Dear Katie Hockett,

The Elsinore Valley Municipal Water District (EVMWD) is in the process of preparing and updating its 2020 Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. An update of EVMWD's UWMP is required every five (5) years. The 2020 UWMP Update will reflect the growth that has occurred since the adoption of the 2015 UWMP, forecasted growth within EVMWD's service area, and EVMWD's plan to reliably meet the water needs within its service area, and compliance with the SB X7-7 2020.

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Water Code section 10621(b) requires an urban water supplier updating its UWMP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing. This letter serves as EVMWD's official notice of preparation and intent to adopt the UWMP, WSCP, and 2015 UWMP Addendum before the July 1, 2021 deadline.

A copy of EVMWD's draft 2020 UWMP, WSCP, and 2015 UWMP Addendum will be available for review on the EVMWD's website in spring of 2021, and EVMWD will subsequently hold a noticed public hearing on the 2020 UWMP, WSCP, and 2015 UWMP Addendum in advance of its proposed adoption. EVMWD invites you to submit comments and consult with EVMWD regarding these plans.

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Parag Kalaria, P.E., PMP
Water Resources Manager
Elsinore Valley Municipal Water District

Elsinore Valley Municipal Water District

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May 18, 2021

SENT VIA E-MAIL

Katie Hockett
Assistant General Manager
City of Corona
755 Public Safety Way
Corona, CA 92880
Katie.Hockett@CoronaCA.gov

SUBJECT: ELSINORE VALLEY MUNICIPAL WATER DISTRICT PUBLIC HEARING NOTICE; 2020 URBAN WATER MANAGEMENT PLAN, WATER SHORTAGE CONTINGENCY PLAN, AND ADDENDUM TO THE 2015 URBAN WATER MANAGEMENT PLAN

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Parag Kalaria, P.E., PMP
Water Resources Manager
Elsinore Valley Municipal Water District

Elsinore Valley Municipal Water District

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3/26/2021

Nicole Dailey
Assistant to the City Manager
City of Lake Elsinore
130 South Main St.
Lake Elsinore, CA 92530
ndailey@lake-elsinore.org

2020 URBAN WATER MANAGEMENT PLAN UPDATE NOTIFICATION

Dear Nicole Dailey,

The Elsinore Valley Municipal Water District (EVMWD) is in the process of preparing and updating its 2020 Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. An update of EVMWD's UWMP is required every five (5) years. The 2020 UWMP Update will reflect the growth that has occurred since the adoption of the 2015 UWMP, forecasted growth within EVMWD's service area, and EVMWD's plan to reliably meet the water needs within its service area, and compliance with the SB X7-7 2020.

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Water Resources Manager
Elsinore Valley Municipal Water District

Elsinore Valley Municipal Water District

Our Mission…

EVMWD will provide reliable, cost-effective, high quality water and wastewater services that are dedicated to the people we serve.

May 18, 2021

SENT VIA E-MAIL

Nicole Dailey
Assistant to the City Manager
City of Lake Elsinore
130 South Main St.
Lake Elsinore, CA 92530
ndailey@lake-elsinore.org

SUBJECT: ELSINORE VALLEY MUNICIPAL WATER DISTRICT PUBLIC HEARING NOTICE; 2020 URBAN WATER MANAGEMENT PLAN, WATER SHORTAGE CONTINGENCY PLAN, AND ADDENDUM TO THE 2015 URBAN WATER MANAGEMENT PLAN

Dear Nicole Dailey,

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This letter serves as EVMWD's official notice of public hearing for the 2020 UWMP, 2021 WSCP, and 2015 UWMP Addendum pursuant to Water Code section 10621(b).

951.674.3146
Fax 951.674.9872
www.evmwd.com

31315 Chaney Street
P.O. Box 3000
Lake Elsinore, CA 92530

The public hearing is intended to provide the public and public agencies the opportunity to comment on the Draft 2020 UWMP, 2021 WSCP, and 2015 UWMP Addendum before adopting these documents. The public hearing is scheduled to be held on **June 10, 2021**, at **4:00 PM** at the following address:

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Lake Elsinore, CA 92530
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Send Comments To: Elsinore Valley Municipal Water District
31315 Chaney Street
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Attn: Jesus Gastelum

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Sincerely,

Parag Kalaria, P.E., PMP
Water Resources Manager
Elsinore Valley Municipal Water District

Elsinore Valley Municipal Water District

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3/26/2021

Jarrett Ramaiya
City Planner
City of Murrieta
1 Town Square
Murrieta, CA 92562
jramaiya@MurrietaCA.gov

2020 URBAN WATER MANAGEMENT PLAN UPDATE NOTIFICATION

Dear Jarrett Ramaiya,

The Elsinore Valley Municipal Water District (EVMWD) is in the process of preparing and updating its 2020 Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. An update of EVMWD's UWMP is required every five (5) years. The 2020 UWMP Update will reflect the growth that has occurred since the adoption of the 2015 UWMP, forecasted growth within EVMWD's service area, and EVMWD's plan to reliably meet the water needs within its service area, and compliance with the SB X7-7 2020.

EVMWD is also considering an Addendum to its 2015 UWMP to demonstrate consistency with the Delta Plan Policy to Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (California Code Reg., tit. 23, § 5003). As part of the new requirements, EVMWD is also planning on adopting a Water Shortage Contingency Plan (WSCP), which must be included as part of the 2020 UWMP. This document will describe how EVMWD will respond to foreseeable and unforeseeable water shortages.

Water Code section 10621(b) requires an urban water supplier updating its UWMP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing. This letter serves as EVMWD's official notice of preparation and intent to adopt the UWMP, WSCP, and 2015 UWMP Addendum before the July 1, 2021 deadline.

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Jarrett Ramaiya
City Planner
City of Murrieta
1 Town Square
Murrieta, CA 92562
jramaiya@MurrietaCA.gov

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3/26/2021

Gary Nordquist
City Manager
City of Wildomar
23873 Clinton Keith Rd. Ste 201
Wildomar, CA 92595
gnordquist@cityofwildomar.org

2020 URBAN WATER MANAGEMENT PLAN UPDATE NOTIFICATION

Dear Gary Nordquist,

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May 18, 2021

SENT VIA E-MAIL

Gary Nordquist
City Manager
City of Wildomar
23873 Clinton Keith Rd, Ste 201
Wildomar, CA 92595
gnordquist@cityofwildomar.org

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3/26/2021

Steve Weiss, AICP
Planning Director
Riverside County Planning Department
4080 Lemon Street 12th Floor
Riverside, CA 92502-1409
planning@rivco.org

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Riverside County Planning Department
4080 Lemon Street 12th Floor
Riverside, CA 92502-1409
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3/26/2021

Jason Uhley
General Manager
Riverside County Flood Control and Water Conservation District
1995 Market Street
Riverside, CA 92501
juhley@rivco.org

2020 URBAN WATER MANAGEMENT PLAN UPDATE NOTIFICATION

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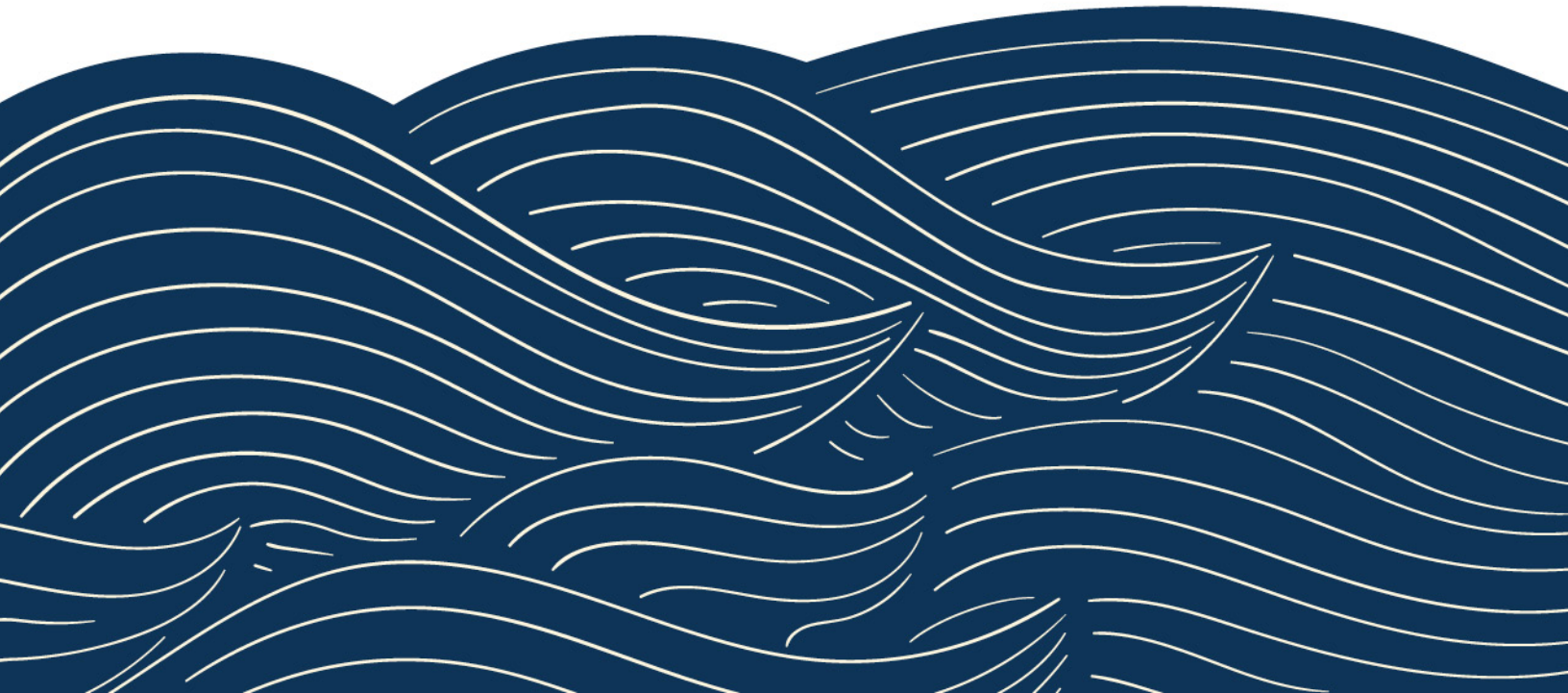
Water Resources Manager
Elsinore Valley Municipal Water District

E

County Water Company Annexation Information



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Appendix E (Table E-1) contains the available connection water use for the County Water Company of Riverside, which was annexed into EVMWD's service boundary in 2017 to address high nitrate levels in this drinking water supply. A grant application is provided to provide additional information on the annexation.

Table E-1. Connection and Water Use for the County Water Company of Riverside

	2017	2018	2019	2020	2021
Connections (#)	112	117	120	124	121
Water Use (AFY)	54	25	25	28	6

APPLICATION TO THE RIVERSIDE LOCAL AGENCY FORMATION COMMISSION

PROPOSAL:	**FOR LAFCO USE ONLY**
	☐ Petition, or ☐ Resolution
	☐ Application Complete
	☐ Map / Legal Description
APPLICANT	☐ Maps
Name: Elsinore Valley Municipal Water District	☐ Plan of Services (1 copy unbound)
Address: 31315 Chaney Street	☐ Environmental Docs (1 copy– unbound)
City, State, Zip: Lake Elsinore, CA 92530	☐ F & G Fee Exempt, or ☐ Receipt
Phone: 951-674-3146 *Fax:* 951-674-9872 *E-mail:*	☐ Prop. Tax Reso. ☐ Master ☐ Indiv.
CONTACT PERSON/AGENT	☐ LAFCO Fees ☐ Legal Descript. Dep.
Name: Greg Morrison	☐ City Pre-zoning Ordinance
Address: 31315 Chaney Street	☐ Fiscal (city >100 ac.) (1 copy- unbound)
City, State, Zip: Lake Elsinore, CA 92530	☐ S. O. I. Factors
Phone: 951-894-8702 *Fax:* 951-674-9872 *E-mail:* gmorrison@	☐ Mailing Labels

evmwd.net

NOTICES: List below the names and addresses of persons to whom notices and staff reports should be directed (3 maximum).

Name: Paul Jones Telephone/Fax: 951-928-3777

Address: P.O. BOX 8300 City, State, Zip: Perris, CA 92572

Name: _____ Telephone/Fax: _____

Address: _____ City, State, Zip: _____

Name: _____ Telephone/Fax: _____

Address: _____ City, State, Zip: _____

Provide six sets of mailing labels for persons to whom notices and reports are to be sent.

Does this proposal have the consent of 100 percent of the affected property owners? Yes ☐ No ☒

If yes, include written statements of consent and proof of ownership (assessor roll printout, grant deed, etc).

Also, attach all correspondence to/from existing residents and/or property owners.

AREA DATA

General Location: The current service area of County Water Company is comprised of sections 17 and 18 of Township 6 South, Range 3 West in the county of Riverside. The entire service area of County Water Company is bounded by Bundy Canyon Rd.		
Topography and significant physical features:		
Acreage: ±364 acres	***Estimated Dwelling Units:*** ±140	***Estimated Population:*** 420

Describe the proximity of the subject area to currently developed areas.

LAND USE APPROVALS	COUNTY	CITY
General Plan Designations	Riverside	NA
Zoning or Pre-Zoning	Residential	NA
Subdivisions	NA	NA

Is any portion of the subject territory within a redevelopment area? Yes ☐ No ☒

Is any portion of the subject territory subject to a Williamson Act Contract (Agricultural Preserve)? Yes ☐ No ☒

If yes, Contract/Preserve Number: _____ **Date established:** _____

List all amendments by date: _____, _____, _____

Date Notice of Non-Renewal filed: _____

Has the city filed a protest pursuant to government code section 51243.5? Yes ☐ No ☐

Provide an official map of the Agricultural Preserve.

The City ☐ will succeed ☐ will not succeed to the contract.

Applicant shall defend, indemnify and hold harmless the Riverside County Local Agency Formation Commission (LAFCO), its officers, agents and employees from any claim, action or proceeding, and for any damages, penalties, fines or other costs imposed on or incurred by LAFCO wherein LAFCO, its officers, agents or employees should be named as a party in any litigation or administrative proceeding in connection with this application. Applicant agrees that LAFCO has the right to appoint its own counsel for its defense and conduct its own defense in the manner it deems in its best interest and taking such action shall not limit Applicant's obligation to indemnify and reimburse LAFCO, its officers, agents and employees.

Furthermore, I hereby certify that the statements and information presented within this application and associated attachments are true and correct to the best of my knowledge and belief. I acknowledge that anyone who is involved with any annexation to be considered by the Commission and who has made a contribution of more than $250 in the past twelve months to any member of the Commission must disclose the Commission member to whom the contribution was made and the matter of consideration with which they are involved. Furthermore, the Agent designated herein is hereby authorized to act on behalf of the Applicant for the purpose of processing this application until such time as written notice to the contrary is provided by the Applicant to the Executive Officer of the Riverside LAFCO.

Signature of Agent — Date: 10/30/13

GREG MORRISON
Printed Name of Agent and Firm (if applicable)

Signature of Applicant — Date: 10/30/13

JOHN D. VEGA
Printed Name of Applicant

REVISED 05/2013

Elsinore Valley Municipal Water District

Our Mission...

EVMWD will provide reliable, cost-effective, high quality water and wastewater services that are dedicated to the people we serve.

EVMWD Extra-Territorial Service Request Plan of Services

Currently, customers of the privately owned County Water Company of Riverside (CWC) receive their water from a single well located just south of Bundy Canyon Road. The water quality has exceeded the California Department of Public Health (CDPH) standards for nitrate contamination and the CWC customers have been advised for several years to not drink the water, wash dishes with it nor use it for cooking. The water can be used for bathing, laundry, showering and outside irrigation since none of those activities involve ingestion of the water.

Nitrate contamination of water can lead to significant health problems particularly for infants and small children.

Even though the owners of the CWC have known of the water quality problem for several years, they have not taken steps to correct the situation, which has finally led to both the CDPH and the County Riverside Health Department to begin the process of taking corrective actions to have safe water made available to the customers of CWC.

The Elsinore Valley Municipal Water District (EVMWD), in cooperation with the CDPH and Eastern Municipal Water District (EMWD) propose to annex part of the service area of the CWD in eastern Riverside County. The current service area of the CWD is comprised of Sections 17 and 18 of Township 6 South, Range 3 West in the County of Riverside. The entire CWC Service area is bounded by Bundy Canyon Road on the south, Pine Avenue on the west, Garabani Road/Hemlock Street on the north and Murrieta Road on the east. See Exhibit 1 (EVMWD Service Area Map Showing County Water Company). The west half of the service area is Section 18 which is in the city of Wildomar; the east half of the service area is in Section 17 which is in the City of Menifee. There are approximately 140 customers in the CWC service area. The majority (80%+) will be served by EVMWD. Information from the City of Wildomar indicates that the area to be served by EVMWD is zoned primarily Rural Residential (RR) with some areas of Rural Agriculture (R-A).

The portion of the existing CWC service area to be annexed by EMWD is Section 17; the portion of the CWC service area to be annexed by EVMWD is the south half of Section 18 which measures about 315 acres. The south half of Section 18 is adjacent to Bundy Canyon Road and contains the majority of the CWC customers.

EVMWD and EMWD are both in the process of securing grants and funding from the CDPH to move forward with several solutions. First is the design and construction of a lifeline pipeline from the EVMWD service area south of CWC to a connection to the CWC water distribution system. This will provide potable water on an interim basis until a final solution can be designed and constructed.

951.674.3146
Fax 951.674.9872
www.evmwd.com

31315 Chaney Street
P.O. Box 3000
Lake Elsinore, CA 92530

STATE OF CALIFORNIA - THE RESOURCES AGENCY
DEPARTMENT OF FISH AND GAME

ENVIRONMENTAL FILING FEE CASH RECEIPT

Receipt #: 201300651

State Clearinghouse # (if applicable): _____

Lead Agency: ELSINORE VALLEY MUNICIPAL WATER DISTRICT *Date:* 10/16/2013

County Agency of Filing: Riverside *Document No:* 201300651

Project Title: COUNTY WATER COMPANY OF RIVERSIDE POTABLE WATER SYSTEM IMPROVEMENT

Project Applicant Name: ELSINORE VALLEY MUNICIPAL WATER DISTRICT *Phone Number:* 951 674-3146

Project Applicant Address: 31315 CHANEY ST LAKE ELSINORE CA 92531

Project Applicant: Local Public Agency

CHECK APPLICABLE FEES:

☐ *Environmental Impact Report*	
☐ *Negative Declaration*	
☐ *Application Fee Water Diversion (State Water Resources Control Board Only)*	
☐ *Project Subject to Certified Regulatory Programs*	
☒ *County Administration Fee*	$50.00
☐ *Project that is exempt from fees (DFG No Effect Determination (Form Attached))*	
☒ *Project that is exempt from fees (Notice of Exemption)*	
Total Received	$50.00

Signature and title of person receiving payment: _____

Notes:

NOTICE OF EXEMPTION

To: ■ Office of Planning and Research
1400 Tenth Street
P. O. Box 3044
Sacramento, CA 95812-3044

■ County Clerk
County of Riverside
2724 Gateway Drive
P. O. Box 751
Riverside, CA 92502-0751

From: Elsinore Valley Municipal Water District
31315 Chaney Street
Lake Elsinore, CA 92531

Project Title: **County Water Company (CWC) of Riverside Potable Water System Improvement Project**

Project Location – Specific: CWC is approximately 1,280 acres of area, and is bounded by Bundy Canyon Road on the south, Canyon Hills Development (Lake Elsinore) on the north, Geary Street/Skyhawk Lane on the east, and Pine Avenue on the west. EVMWD's project is located in the western part of CWC in the City of Wildomar, north of Bundy Canyon Road, west of Sunset Avenue, south of Hemlock Street, and east of Pine Avenue.

Project Location – City: Bisected by the boundary between Menifee and Wildomar

Project Location – County: Riverside

Description of Nature, Purpose, and Beneficiaries of Project: The proposed project includes the consolidation of the County Water Company of Riverside into the water systems of Eastern Municipal Water District (EMWD) and Elsinore Valley Municipal Water District (EVMWD) for approximately 150 existing customers. This project enables EMWD to service the east half of the current CWC system and EVMWD to service the west half of the current CWC system. Each district would extend service lines from existing facilities to the CWC system and interconnect in various locations. CWC's existing well would be taken out of service and destroyed, using the California Department of Public Health (CDPH) well destruction standard.

EVMWD's portion of the project proposes to construct approximately 4,600 lineal feet (LF) of 12-inch pipeline in one segment. EVMWD's project also proposes a nominal number of fire hydrants, mainline valves, and air valves to be added to the existing CWC distribution system to increase the level of service. Additionally, the project proposes a hydro-pneumatic booster system (pumps and a tank), and necessary appurtenances would be added to both CWC and EVMWD facilities to maintain service pressure at higher elevations.

Name of Public Agency Approving Project: Elsinore Valley Municipal Water District

Name of Person or Agency Carrying Out Project: Elsinore Valley Municipal Water District

Exempt Status: *(check one)*

- ☐ Ministerial (Section 21080(b)(1); 15268);
- ☐ Declared Emergency (Section 21080(b)(3); 15269(a));
- ☐ Emergency Project (Section 21080(b)(4); 15269(b)(c));
- ☑ Categorical Exemption Existing Facilities (Section 15301(b); 15303(d),(e))
- ☑ Statutory Exemption (Section 21080.21)

Reasons why project is exempt: The purpose of the project is to consolidate the CWC into EMWD and EVMWD water systems to provide service to approximately 150 existing customers. EVMWD's portion of the project includes one segment of pipeline to be constructed within the public rights-of-way, is less than one mile in length and meets the criteria for a statutory exemption under Section 21080.21 of CEQA. The project also includes fire hydrants, valves, hydro-pneumatic booster system, and necessary appurtenances. Under CEQA Guidelines 15301 and 15303, exemptions exist as follows:

21080.21 Right-of-Way Pipeline Projects

The division does not apply to any project of less than one mile in length within a public street or highway or any other public right-of-way for the installation of a new pipeline or the maintenance, repair, restoration, reconditioning, relocation, replacement, removal, or demolition of an existing pipeline. For purposes of this section, "pipeline" includes subsurface facilities but does not include any surface facility related to the operation of the underground facility.

15301. Existing Facilities

Class 1 consists of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment or topographical features, involving negligible or expansion of use beyond that existing at the time of the lead agency's determination. The key consideration is whether the project involves negligible or no expansion of use. Examples are not limited to:

(b) Existing facilities or both investor and publicly-owned utilities used to provide electric power, natural gas, sewerage, or other public utility services;

15303. New Construction or Conversion of Small Structures

Class 3 consists of construction and location of limited numbers of new, small facilities or structures; installation of small new equipment and facilities in small structures; and the conversion of existing small structures from one use to another where only minor modifications are made in the exterior of the structure. The number of structures described in this section, are the maximum allowable on any legal parcel. Examples of this exemption include, but are not limited to:

(d) Water main, sewage, electrical, gas, and other utility extensions, including street improvements, of reasonable length to serve such construction.

(e) Accessory (appurtenant) structures

EVMWD Contact Person: Norris Brandt, Assistant General Manager **Phone:** 951.674.3146 ext. 8359

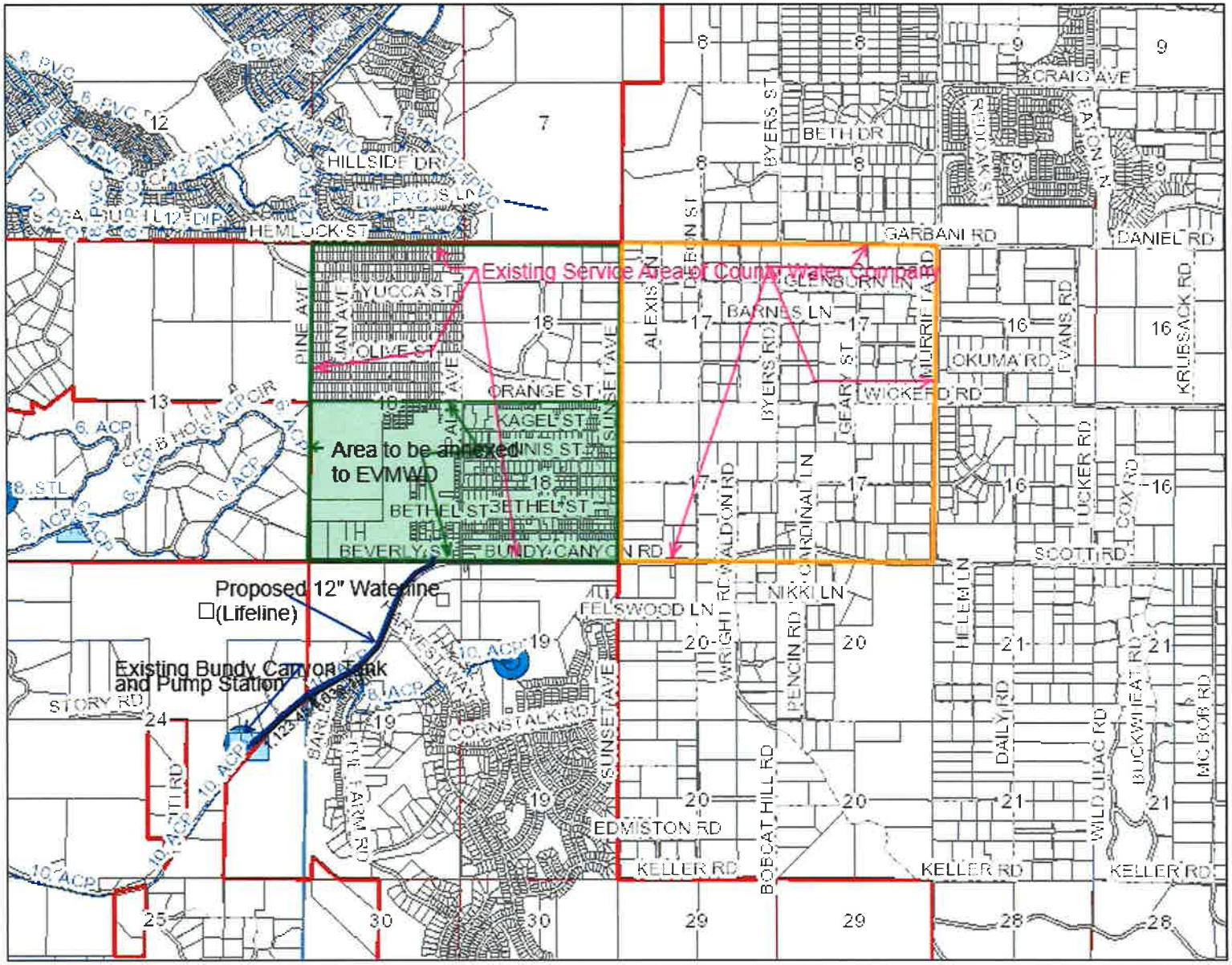
Norris Brandt, P.E.
Assistant General Manager

10-10-13
Date

Date received for filing at OPR:

Plan of Service County Water Company (Lifeline Service)

Elsinore Valley Municipal Water District



Legend

- EVMWD Boundary
- Highways
- Street Centerlines
- Parcels
- Waterbodies
- Label Sections
- Sections
- Township & Range
- Label Pressure Main
- Pressure Main
  - Distribution Main
  - Transmission Main
  - Air Release
  - Blowoff
  - Hydrant Lateral
  - Unknown
  - Sampling Point
- Pump Station
- Reservoir

1: 29,422

4,903.6 0 2,451.81 4,903.6 Feet

Data Sources: EVMWD, County of Riverside

This application has been provided to give a visual display of District facilities and related geographic information. To be sure of complete accuracy, please check with Engineering staff for the most up to date information.

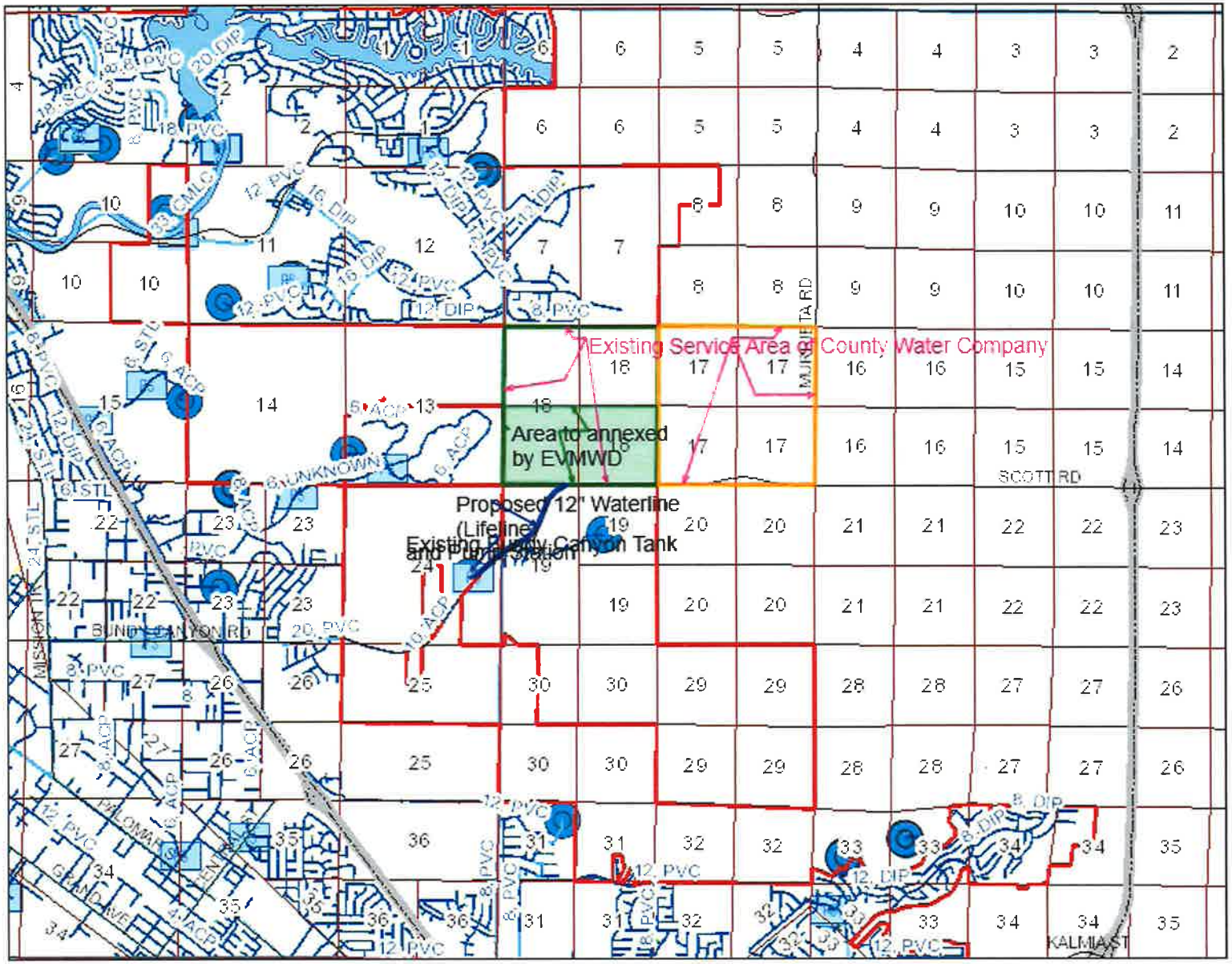
10/23/2013 9:52:50 AM

Notes

County Water Company Service Area is comprised of Sections 17 & 18

EVMWD Service Area Map Showing County Water Company

Elsinore Valley Municipal Water District



Legend

- EVMWD Boundary
- Major Roads
- Highways
- Waterbodies
- Label Sections
- Sections
- Township & Range
- Label Pressure Main
- Pressure Main
  - Distribution Main
  - Transmission Main
  - Air Release
  - Blowoff
  - Hydrant Lateral
  - Unknown
  - Sampling Point
- Pump Station
- Reservoir

1: 58,843

9,807.2 0 4,903.62 9,807.2 Feet

Data Sources: EVMWD, County of Riverside

This application has been provided to give a visual display of District facilities and related geographic information. To be sure of complete accuracy, please check with Engineering staff for the most up to date information.

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Notes

County Water Company Service Area is comprised of Sections 17 & 18

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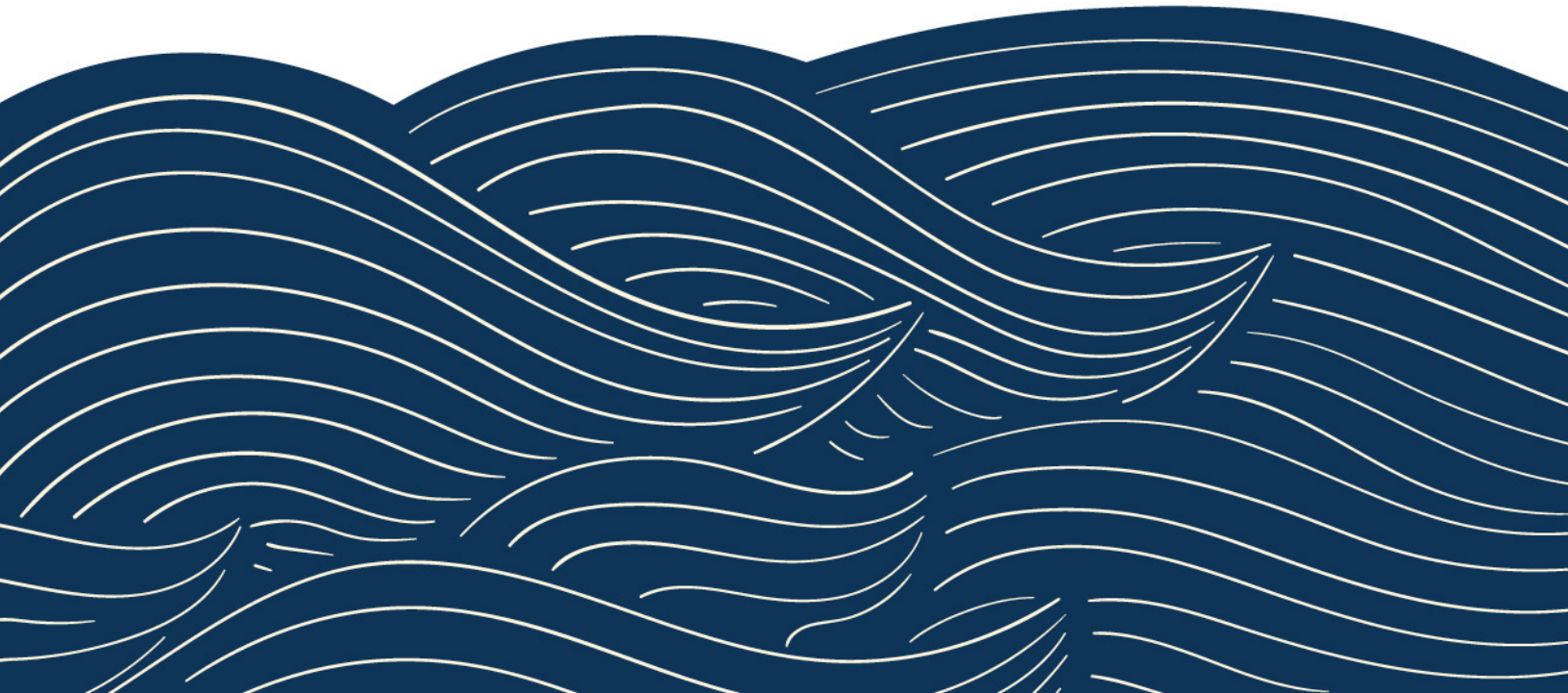
DWR Population Tool Outputs



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Appendix E contains DWR Population Tool Outputs for the EVMWD's current service area and the annexation area. As discussed in Chapter 3, the DWR Population Tool allows a modification to calculate the 2020 population by multiplying the 2010 ppc by the number of connections in 2020. The 2010 ppc factor for the current area was used to estimate the 2020 population. This appendix is organized as followed:

1. EVMWD current service area DWP Population Tool Outputs
2. County Water Company of Riverside (i.e., annexed area) DWR Population Tool Outputs

WUEdata - Elsinore Valley Municipal Water District

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Confirmation Information

Generated By	Water Supplier Name	Confirmation #	Generated On
Antonia	Elsinore Valley Municipal Water District	6301007926	4/8/2021 3:23:13 PM

Boundary Information

Census Year	Boundary Filename	Internal Boundary ID
1990	EVMWD_Service_Area_2020.kml	1527
2000	EVMWD_Service_Area_2020.kml	1527
2010	EVMWD_Service_Area_2020.kml	1527
1990	EVMWD_Service_Area_2020.kml	1527
2000	EVMWD_Service_Area_2020.kml	1527
2010	EVMWD_Service_Area_2020.kml	1527
1990	EVMWD_Service_Area_2020.kml	1527
2000	EVMWD_Service_Area_2020.kml	1527
2010	EVMWD_Service_Area_2020.kml	1527
1990	EVMWD_Service_Area_2020.kml	1527
2000	EVMWD_Service_Area_2020.kml	1527
2010	EVMWD_Service_Area_2020.kml	1527

Baseline Period Ranges

10 to 15-year baseline period

Number of years in baseline period:	10
Year beginning baseline period range:	1999
Year ending baseline period range[1]:	2008

5-year baseline period

Year beginning baseline period range:	2003
Year ending baseline period range[2]:	2007

[1] The ending year must be between December 31, 2004 and December 31, 2010.

[2] The ending year must be between December 31, 2007 and December 31, 2010.

Persons per Connection

Year	Census Block Level Total Population	Number of Connections *	Persons per Connection
1990	56,883		3.00
1991	-	-	3.04
1992	-	-	3.08
1993	-	-	3.12
1994	-	-	3.15
1995	-	-	3.19
1996	-	-	3.23
1997	-	-	3.27
1998	-	-	3.31
1999	-	-	3.35
2000	86,856	25639	3.39
2001	-	-	3.43
2002	-	-	3.47
2003	-	-	3.51
2004	-	-	3.55
2005	-	-	3.58
2006	-	-	3.62
2007	-	-	3.66
2008	-	-	3.70
2009	-	-	3.74
2010	133,823	35444	3.78
2011	-	-	3.39
2012	-	-	3.39
2013	-	-	3.39
2014	-	-	3.39
2015	-	-	3.39
2020	-	-	4.16 **

Population Using Persons-Per-Connection

Year		Number of Connections *	Persons per Connection	Total Population
10 to 15 Year Baseline Population Calculations				
Year 1	1999		3.35	
Year 2	2000	25639	3.39	**86,856**
Year 3	2001		3.43	
Year 4	2002		3.47	
Year 5	2003		3.51	
Year 6	2004		3.55	
Year 7	2005		3.58	
Year 8	2006		3.62	
Year 9	2007		3.66	
Year 10	2008		3.70	
5 Year Baseline Population Calculations				
Year 1	2003		3.51	
Year 2	2004		3.55	
Year 3	2005		3.58	
Year 4	2006		3.62	
Year 5	2007		3.66	
2020 Compliance Year Population Calculations				
2020			4.16 **	

Hide Print Confirmation

WUEdata - Elsinore Valley Municipal Water District

Sign Out

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Confirmation Information

Generated By	Water Supplier Name	Confirmation #	Generated On
Antonia	Elsinore Valley Municipal Water District	9812650382	4/11/2021 7:33:27 PM

Boundary Information

Census Year	Boundary Filename	Internal Boundary ID
1990	EVMWD_Annexed.kml	1604
2000	EVMWD_Annexed.kml	1604
2010	EVMWD_Annexed.kml	1604
1990	EVMWD_Annexed.kml	1604
2000	EVMWD_Annexed.kml	1604
2010	EVMWD_Annexed.kml	1604
1990	EVMWD_Annexed.kml	1604
2000	EVMWD_Annexed.kml	1604
2010	EVMWD_Annexed.kml	1604
1990	EVMWD_Annexed.kml	1604
2000	EVMWD_Annexed.kml	1604
2010	EVMWD_Annexed.kml	1604

Baseline Period Ranges

10 to 15-year baseline period

Number of years in baseline period:	10
Year beginning baseline period range:	1999
Year ending baseline period range[1]:	2008

5-year baseline period

Year beginning baseline period range:	2003
Year ending baseline period range[2]:	2007

[1] The ending year must be between December 31, 2004 and December 31, 2010.
[2] The ending year must be between December 31, 2007 and December 31, 2010.

Persons per Connection

Year	Census Block Level Total Population	Number of Connections *	Persons per Connection
1990	338		**4.45**
1991	-	-	4.45
1992	-	-	4.45
1993	-	-	4.45
1994	-	-	4.45
1995	-	-	4.45
1996	-	-	4.45
1997	-	-	4.45
1998	-	-	4.45
1999	-	-	4.45
2000	399		**4.45**
2001	-	-	4.45
2002	-	-	4.45
2003	-	-	4.45
2004	-	-	4.45
2005	-	-	4.45
2006	-	-	4.45
2007	-	-	4.45
2008	-	-	4.45
2009	-	-	4.45
2010	534	120	**4.45**
2011	-	-	4.45
2012	-	-	4.45
2013	-	-	4.45
2014	-	-	4.45
2015	-	-	4.45
2020	**-**	**-**	**4.45 ****

Population Using Persons-Per-Connection

Year		Number of Connections *	Persons per Connection	Total Population
10 to 15 Year Baseline Population Calculations				
Year 1	1999		4.45	
Year 2	2000		4.45	
Year 3	2001		4.45	
Year 4	2002		4.45	
Year 5	2003		4.45	
Year 6	2004		4.45	
Year 7	2005		4.45	
Year 8	2006		4.45	
Year 9	2007		4.45	
Year 10	2008		4.45	
5 Year Baseline Population Calculations				
Year 1	2003		4.45	
Year 2	2004		4.45	
Year 3	2005		4.45	
Year 4	2006		4.45	
Year 5	2007		4.45	
2020 Compliance Year Population Calculations				
2020		120	4.45 **	**534**

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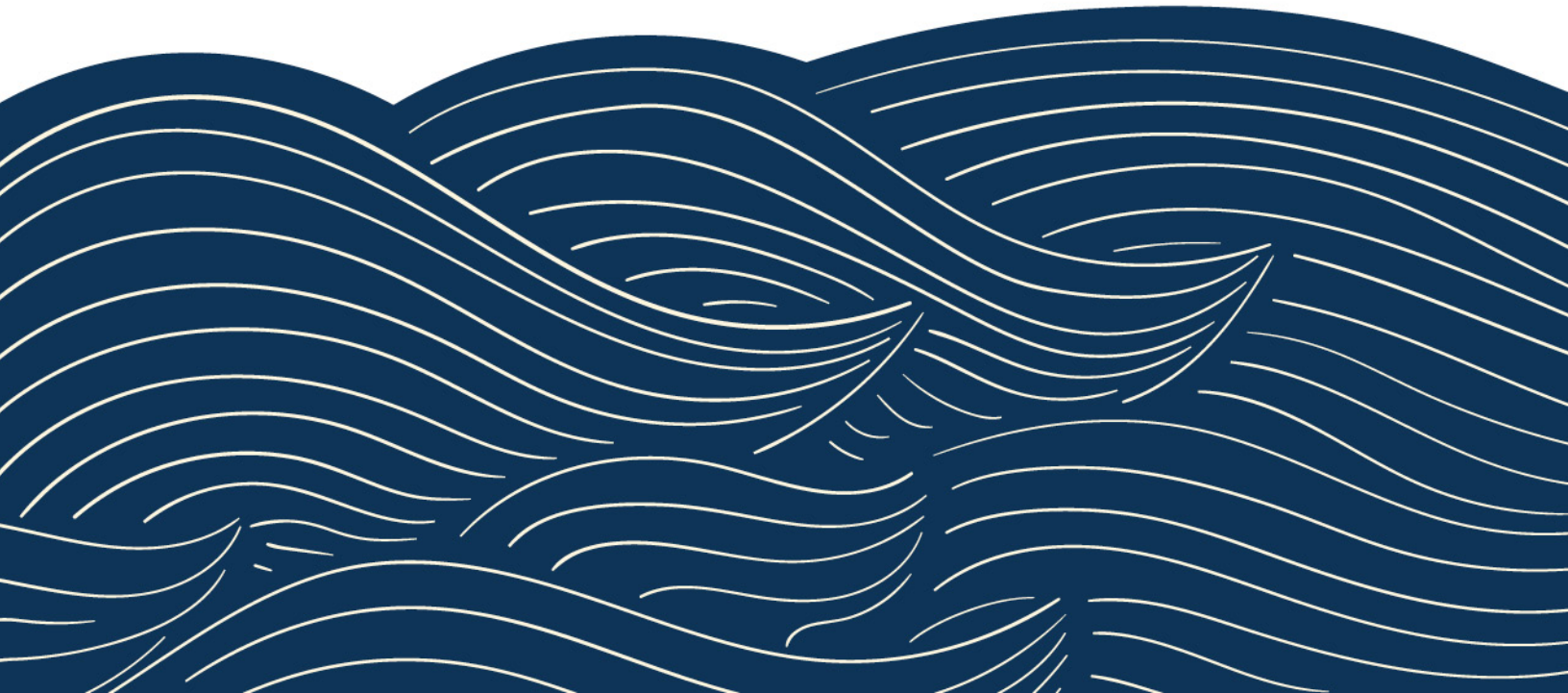
AWWA Water Loss Audits



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AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0

? Click to access definition
\+ Click to add a comment

Water Audit Report for: Elsinore Valley Municipal Water District (CA3310012)
Reporting Year: 2016 | 1/2016 - 12/2016

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

<---------- Enter grading in column 'E' and 'J' --------->

WATER SUPPLIED

	Grading	Volume		Master Meter and Supply Error Adjustments Grading	Pcnt:	Value:	
Volume from own sources:	5	6,421.670	acre-ft/yr	3			acre-ft/yr
Water imported:	7	15,945.100	acre-ft/yr	5			acre-ft/yr
Water exported:	5	324.610	acre-ft/yr	2			acre-ft/yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 22,042.160 acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

	Grading	Volume		Pcnt:	Value:	
Billed metered:	7	20,567.750	acre-ft/yr			
Billed unmetered:	n/a	0.000	acre-ft/yr			
Unbilled metered:	2	293.130	acre-ft/yr			
Unbilled unmetered:		275.527	acre-ft/yr	1.25%		acre-ft/yr

Use buttons to select percentage of water supplied **OR** value

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

AUTHORIZED CONSUMPTION: 21,136.407 acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption): 905.753 acre-ft/yr

Apparent Losses

	Grading	Volume		Pcnt:	Value:	
Unauthorized consumption:		55.105	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	2	85.882	acre-ft/yr	0.41%		acre-ft/yr
Systematic data handling errors:		51.419	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 192.406 acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 713.347 acre-ft/yr

WATER LOSSES: 905.753 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: 1,474.410 acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

	Grading	Value	
Length of mains:	9	717.0	miles
Number of active AND inactive service connections:	8	44,043	
Service connection density:		61	conn./mile main
Are customer meters typically located at the curbstop or property line?		Yes	
Average length of customer service line:			

(length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

	Grading	Value	
Average operating pressure:	10	84.0	psi

COST DATA

	Grading	Value	
Total annual cost of operating water system:	10	$37,300,780	$/Year
Customer retail unit cost (applied to Apparent Losses):	9	$2.77	$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	7	$993.00	$/acre-ft

☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 63 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Water imported
2: Unbilled metered
3: Customer metering inaccuracies

AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0

American Water Works Association.

? Click to access definition

\+ Click to add a comment

Water Audit Report for: Elsinore valley Municipal Water District (CA3310012)

Reporting Year: 2017 1/2017 - 12/2017

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

Master Meter and Supply Error Adjustments

WATER SUPPLIED

<---------- Enter grading in column 'E' and 'J' ---------->

					Pcnt:	Value:	
Volume from own sources:	7	4,575.000	acre-ft/yr	3	1.13%		acre-ft/yr
Water imported:	8	18,322.000	acre-ft/yr	3			acre-ft/yr
Water exported:	7	294.130	acre-ft/yr	5	0.56%		acre-ft/yr

Enter negative % or value for under-registration

Enter positive % or value for over-registration

WATER SUPPLIED: 22,553.388 acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

				Pcnt:	Value:	
Billed metered:	7	21,209.740	acre-ft/yr			
Billed unmetered:	n/a	0.000	acre-ft/yr			
Unbilled metered:	3	97.490	acre-ft/yr			
Unbilled unmetered:	5	56.383	acre-ft/yr		56.383	acre-ft/yr

Use buttons to select percentage of water supplied **OR** value

AUTHORIZED CONSUMPTION: 21,363.613 acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption) 1,189.775 acre-ft/yr

Apparent Losses

				Pcnt:	Value:	
Unauthorized consumption:		56.383	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	6	215.225	acre-ft/yr	1.00%		acre-ft/yr
Systematic data handling errors:		53.024	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 324.632 acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 865.142 acre-ft/yr

WATER LOSSES: 1,189.775 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: 1,343.648 acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	7	723.0	miles
Number of active AND inactive service connections:	8	45,810	
Service connection density:		63	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

(length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line:

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: 9 84.0 psi

COST DATA

Total annual cost of operating water system:	10	$38,561,616	$/Year
Customer retail unit cost (applied to Apparent Losses):	10	$2.97	$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	5	$972.00	$/acre-ft

☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 70 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Water imported

2: Unbilled metered

3: Variable production cost (applied to Real Losses)

AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0

? Click to access definition
\+ Click to add a comment

Water Audit Report for: Elsinore valley Municipal Water District (CA3310012)
Reporting Year: 2018 | 1/2018 - 12/2018

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

<---------- Enter grading in column 'E' and 'J' ---------->

Master Meter and Supply Error Adjustments

WATER SUPPLIED

			Pcnt:	Value:	
Volume from own sources:	5	5,193.630 acre-ft/yr	3	0.00%	acre-ft/yr
Water imported:	8	18,803.620 acre-ft/yr	3	0.00%	acre-ft/yr
Water exported:	n/a	0.000 acre-ft/yr			acre-ft/yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 23,997.250 acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

			Pcnt:	Value:	
Billed metered:	7	22,573.480 acre-ft/yr			
Billed unmetered:	n/a	0.000 acre-ft/yr			
Unbilled metered:	3	61.790 acre-ft/yr			
Unbilled unmetered:	5	23.997 acre-ft/yr		23.997	acre-ft/yr

Use buttons to select percentage of water supplied **OR** value

AUTHORIZED CONSUMPTION: 22,659.267 acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption) 1,337.983 acre-ft/yr

Apparent Losses

			Pcnt:	Value:	
Unauthorized consumption:		59.993 acre-ft/yr	0.25%		acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	6	393.797 acre-ft/yr	1.71%		acre-ft/yr
Systematic data handling errors:	5	56.434 acre-ft/yr	0.25%		acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 510.224 acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 827.759 acre-ft/yr

WATER LOSSES: 1,337.983 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: 1,423.770 acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	7	728.0 miles
Number of active AND inactive service connections:	9	46,087
Service connection density:		63 conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line: (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: 9 | 84.0 psi

COST DATA

Total annual cost of operating water system:	10	$43,986,382	$/Year
Customer retail unit cost (applied to Apparent Losses):	10	$3.02	$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	5	$1,181.00	$/acre-ft

☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 69 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Water imported
2: Unbilled metered
3: Variable production cost (applied to Real Losses)

AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0

? Click to access definition
\+ Click to add a comment

Water Audit Report for: Elsinore valley Municipal Water District (CA3310012)
Reporting Year: 2019 1/2019 - 12/2019

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

Master Meter and Supply Error Adjustments

WATER SUPPLIED

<---------- Enter grading in column 'E' and 'J' ---------->

					Pcnt:	Value:	
Volume from own sources:	5	6,028.000	acre-ft/yr	3			acre-ft/yr
Water imported:	5	16,177.000	acre-ft/yr	3		-550.000	acre-ft/yr
Water exported:	n/a	0.000	acre-ft/yr				acre-ft/yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 22,755.000 acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

				Pcnt:	Value:	
Billed metered:	7	20,749.570	acre-ft/yr			acre-ft/yr
Billed unmetered:	n/a	0.000	acre-ft/yr			acre-ft/yr
Unbilled metered:	9	198.360	acre-ft/yr			acre-ft/yr
Unbilled unmetered:	5	56.888	acre-ft/yr		56.888	acre-ft/yr

Use buttons to select percentage of water supplied **OR** value

AUTHORIZED CONSUMPTION: 21,004.818 acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption) 1,750.183 acre-ft/yr

Apparent Losses

			Pcnt:	Value:	
Unauthorized consumption:	56.888	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	7	377.459	acre-ft/yr	1.77%	acre-ft/yr
Systematic data handling errors:	5	51.874	acre-ft/yr	0.25%	acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 486.221 acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 1,263.962 acre-ft/yr

WATER LOSSES: 1,750.183 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: 2,005.430 acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	9	735.0	miles
Number of active AND inactive service connections:	9	46,680	
Service connection density:		64	conn./mile main
Are customer meters typically located at the curbstop or property line?		Yes	
Average length of customer service line:			

(length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure:	7	84.0	psi

COST DATA

Total annual cost of operating water system:	10	$41,938,344	$/Year
Customer retail unit cost (applied to Apparent Losses):	10	$3.09	$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	5	$1,098.00	$/acre-ft

☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 66 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

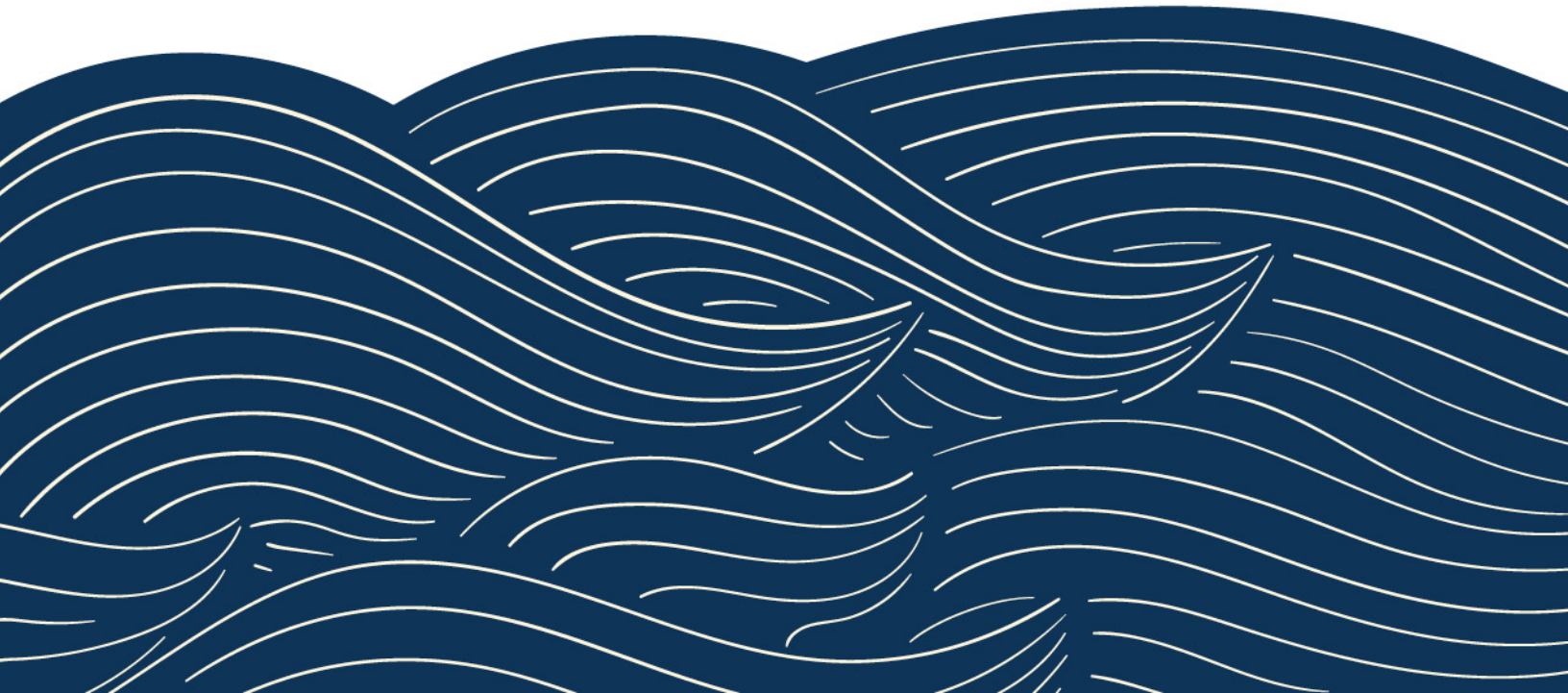
PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Water imported
2: Volume from own sources
3: Variable production cost (applied to Real Losses)

H

EVMWD Planned Development



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Planned Development Projects and Available Land

The District provided information about currently planned development projects being tracked by the District. The database included 215 planned projects that are at various stages of planning or review. The information included the acreage and the land use category, and for some projects the number of equivalent dwelling units (EDUs) was estimated.

WSC developed an estimated water demand for each of these planned development projects. If the development's record in the database included an estimated number of EDUs, the average demand was estimated using 500 gallons per day (gpd) per EDU. If the number of EDUs was not available, the average demand was estimated using values of gpd per acre that were obtained from the 2016 Water System Master Plan. The demand factors are summarized in Table 1.

Table 1. Demand Factors for Planned Development Projects

PLANNED DEVELOPMENT TYPE	ESTIMATED DEMAND (GPD PER ACRE)
Residential	2,000
Mixed Use	2,300
Commercial	2,500
Project with an equivalent number of EDUs defined in District database	500 gpd per EDU

The planned development projects are shown in Figure 1.

The total estimated demand for planned developments was determined as approximately 12,800 AFY. This value is approximately equal to the projected growth in demand through 2045 based on the forecast (including the planning buffer). For each of these planned development projects, it is not known exactly when they will be completed, or if they will exert the full demand currently estimated. At the same time, new development projects could be proposed for currently vacant parcels.

WSC added additional attributes to the District's shapefile of parcels, as shown in Figure 2. Parcels that had measured consumption in 2019 are considered to be currently developed, although they may be redeveloped at a higher density in the future. Parcels that intersect the planned development projects were identified using the shapefile of development projects provided by the District. As shown in Figure 2, there are still significant areas (approximately 30,000 acres) with no current consumption data and no planned development projects. Some of these areas have steep slopes, environmentally sensitive areas, or other factors affecting potential development. However, some of these areas could be developed in the future and contribute additional water demand beyond the amount identified for currently planned development projects.

In summary, the projected growth in demand through 2045 is not expected to exceed the available area for new development within the District's service area.

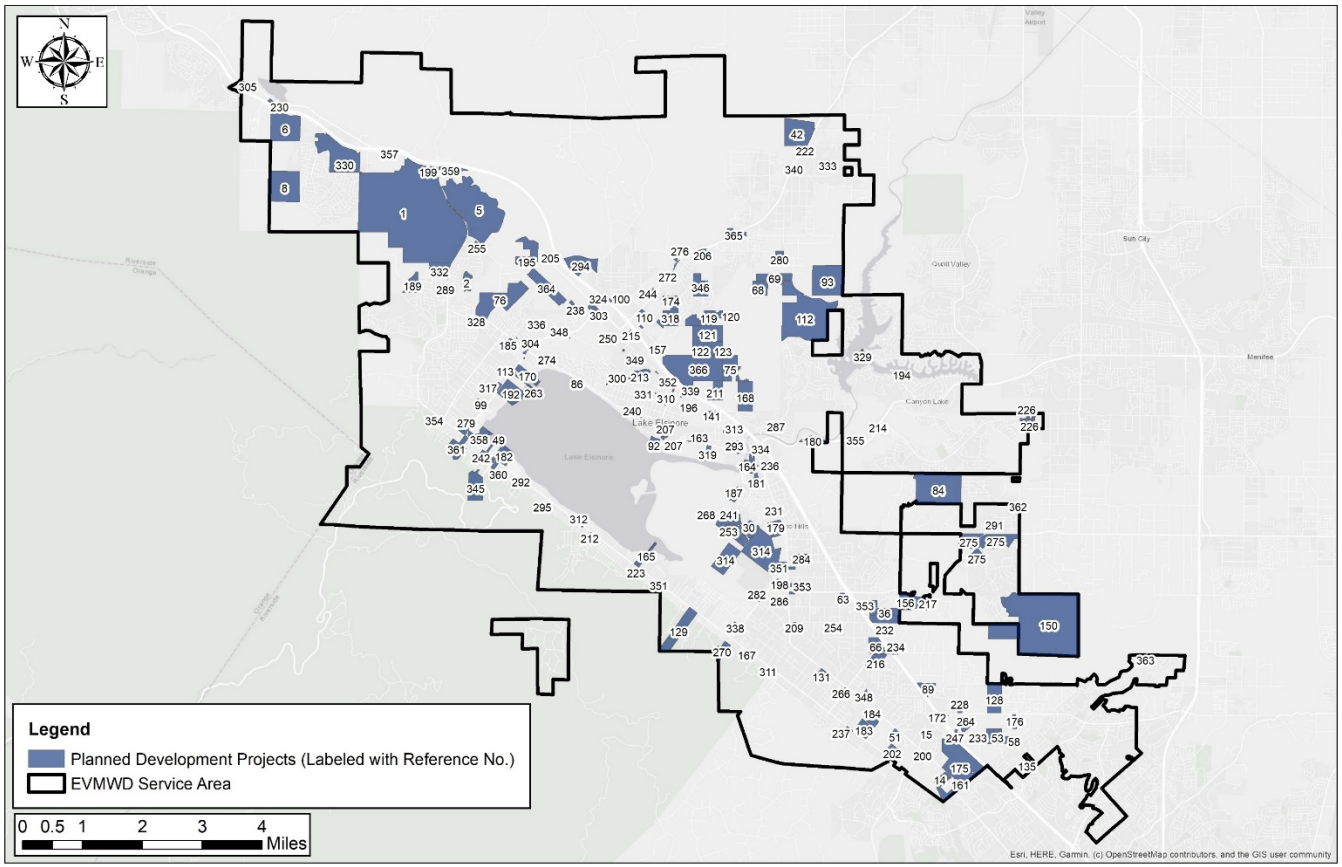

Figure 1 Planned Development Projects

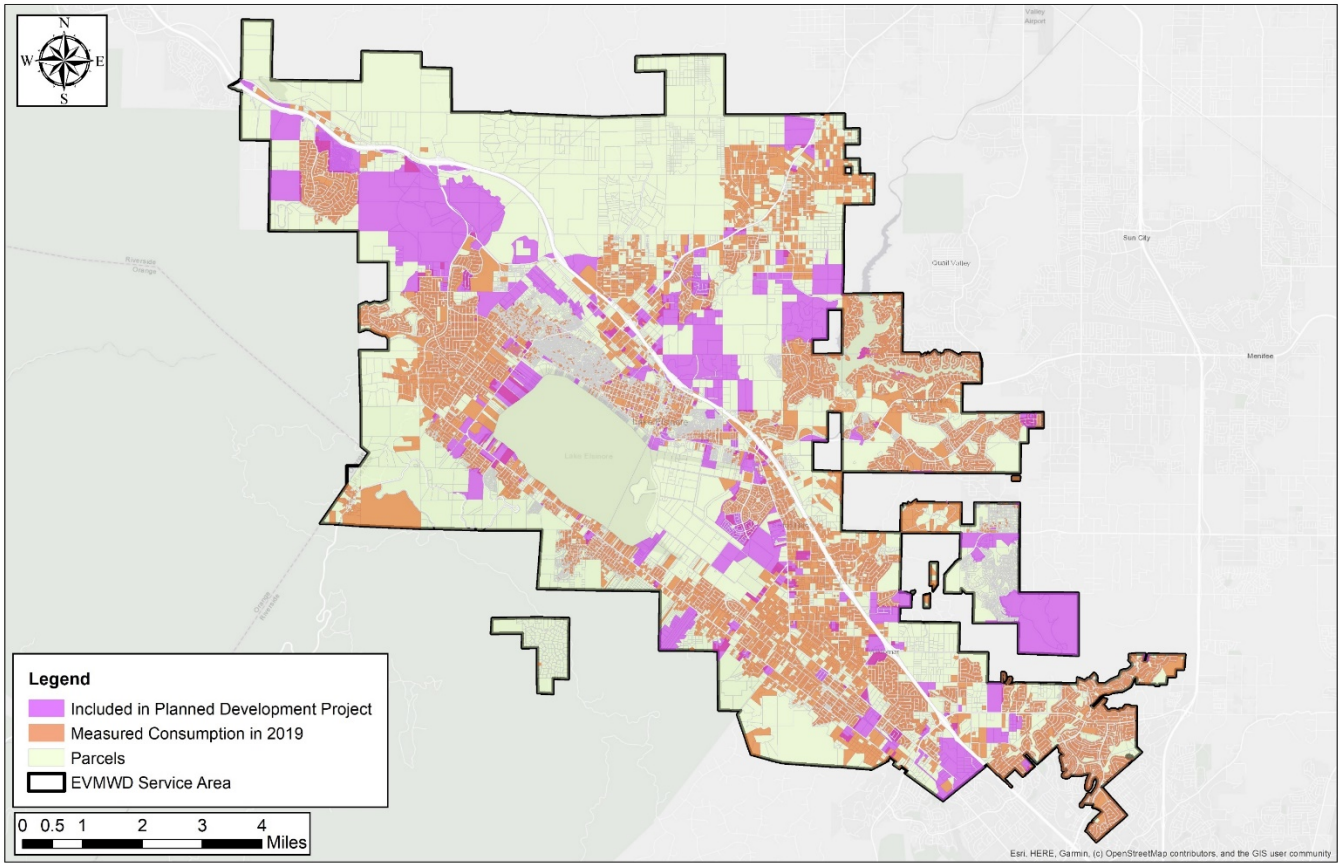

Figure 2. Parcels in EVMWD Service Area

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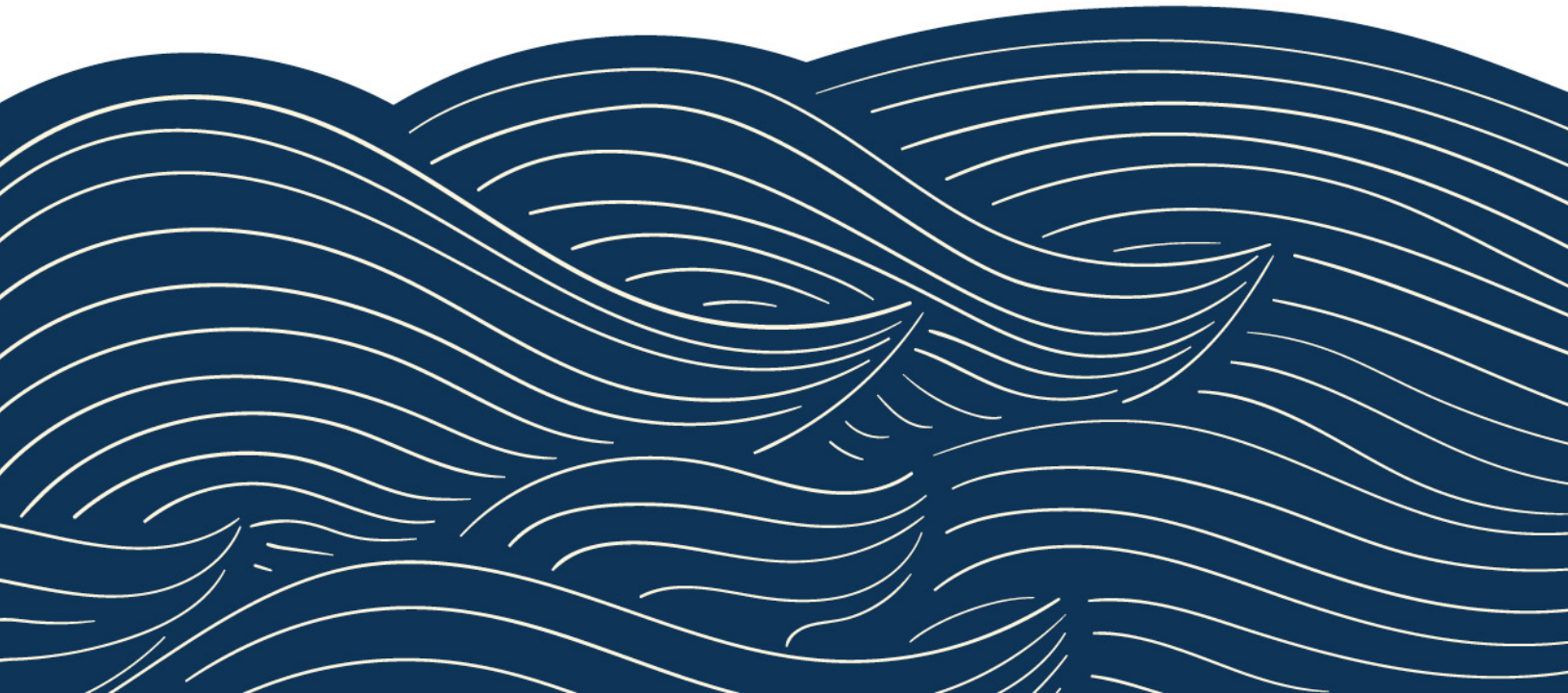
SBX7-7 Recalculations and Verification and Compliance Forms



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Appendix I contains the following:

1. SBX7-7 Recalculations for the Annexed area
2. SBX7-7 Verification Forms for Annexed Area
3. SBX7-7 Verification Forms for Pre-Annexed Area (i.e., 2015 UWMP forms)
4. SBX7-7 2020 Compliance Form (Combined)

1. SBX7-7 Recalculations for the Annexed area

As discussed in **Chapter 3**, on January 22, 2015, LAFCO approved the annexation of the territory known as the County Water Company of Riverside into EVMWD's service boundary to address high nitrate levels in this drinking water supply. Suppliers that expanded between the baseline period and 2020 must calculate the baseline and target for the annexed area. The calculations can be done by using one of three options:

1. Calculate and report the baseline, target, and compliance separately for the annexed and pre-annexed area. The 2020 target for the annexed area must be prorated based on the years of the annexation per the DWR 2020 UWMP Guidebook Appendix P, Section P.3.5. The supplier must submit separate SBX7-7 verification forms and SBX7-7 compliance forms for each area.
2. **Calculate and report the baseline and target separately, and then calculate a weighted average 2020 target. The 2020 target for the annexed area must be prorated based on the years of the annexation per the DWR 2020 UWMP Guidebook Section P.3.5. The supplier must submit separate SBX7-7 verification forms for each area.**
3. Calculate and report the baseline, target, and compliance for the combined area. The supplier must submit a new SBX7-7 verification form for the combined area.

Because the annexed area is a small percentage of the total residential connections, option 2 was selected. The assumptions and methodology to per option 2 are as followed:

1. Calculate and report the baseline and target separately.
    a. **Pre-annexation:** Assumed that the baseline and targets for EVMWD before the annexation are the same as the 2015 UWMP SBX7-7 Tables. The same tables are included.
    b. **Annexed area:** To establish the baseline 2017 information was used to estimate baseline and target. The 2017 volume delivered was 54 AFY and serve a population of 534. The baseline is 90 GPCD for the annexed area. Consistent with the pre-annexed baseline calculations, the annexed area target is based on SBX7-7 Method 1, which uses 80% of the 10-year base daily per capita average — in this case, the 2017 baseline, as historical data was not available. The target is 72 GPCD.
2. The DWR 2020 UWMP Guidebook Appendix P.3.5 states that *"a service area that expanded between baseline and 2020 due to the annexation/merger shall calculate a prorated target based upon the number of years since the Supplier became subject to UWMP requirements or between the annexation/merger and the end of 2020."* The proration steps are presented below.

    STEP 1: Calculate baselines and targets

    Baseline 2017=90 gpcd & Target is 72 gpcd

    STEP 2: Calculate the total GPCD reduction between baseline and 2020 target.

    90-72=18 gpcd

    STEP 3: Determine annual GPCD reduction required to meet the 2020 Target.

    a. Determine the mid-year of the baseline period.
        i. 2017 – new system
    b. Count number of years between mid-year of baseline period (from (a)) and 2020.
        i. 2020-2017=3 year
    c. Divide total deduction (Step 2) by number of years calculated in (b).
        i. 18/3= 5.9914

    STEP 4: Multiply the annual GPCD reduction (Step3) by the number of years that either the supplier has been subject to UWMP requirements or that the merged/annexed area was added to the existing service area.

    a. 2020-2017= 3 years*5.9914= 17.974

    STEP 5: Subtract the applicable GPCD reduction (STEP 4) from the baseline GPCD. This is the prorated 2020 target.

    b. 90-(17.974) = 71.898

    STEP 6: Report the 2020 Prorated Target (Step5) in SB X7-7 Table 7-F of the SB X7-7 Verification Form.

3. The weighted average target was calculated as presented in the table below.

STEP	PRE-ANNEXED AREA	ANNEXED AREA	NOTES
1	189	72	SBX7-7 Targets
2	163,450	534	2020 Populations
3	0.997	0.003	Population weight = population of system/total population
4	188.6187		Population weighted target (gpcd) = (SBX-7 Target * population weight) $_{\text{Pre-Annexed Area}}$ +(SBX-7 Target * population weight) $_{\text{Annexed Area}}$ +

4. Verification Forms for Annexed Area

SB X7-7 Table 0: Units of Measure Used in UWMP* *(select one from the drop down list)*
Acre Feet
**The unit of measure must be consistent with Submittal Table 2-3*
NOTES:

SB X7-7 Table-1: Baseline Period Ranges			
Baseline	**Parameter**	**Value**	**Units**
10- to 15-year baseline period	2008 total water deliveries	54	Acre Feet
	2008 total volume of delivered recycled water	-	Acre Feet
	2008 recycled water as a percent of total deliveries	0%	**See Note 1**
	Number of years in baseline period[1, 2]	10	Years
	Year beginning baseline period range	1999	
	Year ending baseline period range[3]	2008	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2003	
	Year ending baseline period range[4]	2007	

[1] *If the 2008 recycled water delivery is less than 10 percent of total water deliveries, then the 10-15year baseline period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater of total deliveries, the 10-15 year baseline period is a continuous 10- to 15-year period.*

[2] *The Water Code requires that the baseline period is between 10 and 15 years. However, DWR recognizes that some water suppliers may not have the minimum 10 years of baseline data.*

[3] *The ending year for the 10-15 year baseline period must be between December 31, 2004 and December 31, 2010.*

[4] *The ending year for the 5 year baseline period must be between December 31, 2007 and December 31, 2010.*

NOTES: Historical data not available. Used 2017 data to complete analysis.

SB X7-7 Table 2: Method for Population Estimates	
Method Used to Determine Population (may check more than one)	
☐	**1. Department of Finance** (DOF) or **American Community Survey** (ACS)
☐	**2. Persons-per-Connection Method**
☑	**3. DWR Population Tool**
☐	**4. Other** DWR recommends pre-review
NOTES:	

SB X7-7 Table 3: Service Area Population		
Year		Population
10 to 15 Year Baseline Population		
Year 1	1999	534
Year 2	1992	534
Year 3	1993	534
Year 4	1994	534
Year 5	1995	534
Year 6	1996	534
Year 7	1997	534
Year 8	1998	534
Year 9	1999	534
Year 10	2000	534
Year 11		
Year 12		
Year 13		
Year 14		
Year 15		
5 Year Baseline Population		
Year 1	2003	534
Year 2	2004	534
Year 3	2005	534
Year 4	2006	534
Year 5	2007	534
NOTES: Historical data not available. Assumed population has not changed since 2010. Population estimated using DWR Population Tool.		

SB X7-7 Table 4: Annual Gross Water Use *

Baseline Year *Fm SB X7-7 Table 3*		Volume Into Distribution System *This column will remain blank until SB X7-7 Table 4-A is completed.*	Deductions					Acre Feet
			Exported Water	Change in Dist. System Storage (+/-)	Indirect Recycled Water *This column will remain blank until SB X7-7 Table 4-B is completed.*	Water Delivered for Agricultural Use	Process Water *This column will remain blank until SB X7-7 Table 4-D is completed.*	Annual Gross Water Use
10 to 15 Year Baseline - Gross Water Use								
Year 1	1999	54			-		-	54
Year 2	1992	54			-		-	54
Year 3	1993	54			-		-	54
Year 4	1994	54			-		-	54
Year 5	1995	54			-		-	54
Year 6	1996	54			-		-	54
Year 7	1997	54			-		-	54
Year 8	1998	54			-		-	54
Year 9	1999	54			-		-	54
Year 10	2000	54			-		-	54
Year 11	0	-			-		-	-
Year 12	0	-			-		-	-
Year 13	0	-			-		-	-
Year 14	0	-			-		-	-
Year 15	0	-			-		-	-
10 - 15 year baseline average gross water use								**54**
5 Year Baseline - Gross Water Use								
Year 1	2003	54			-		-	54
Year 2	2004	54			-		-	54
Year 3	2005	54			-		-	54
Year 4	2006	54			-		-	54
Year 5	2007	54			-		-	54
5 year baseline average gross water use								**54**

* **Units of measure** (AF, MG , or CCF) must remain consistent throughout the UWMP, as reported in Table 2-3.

NOTES: Historical data not available. Used 2017 data to complete analysis.

SB X7-7 Table 4-A: Volume Entering the Distribution System(s)
Complete one table for each source.

Name of Source	EVMWD: Blend of water
This water source is:	
☑	The supplier's own water source
☑	A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System[1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	1999	54		54
Year 2	1992	54		54
Year 3	1993	54		54
Year 4	1994	54		54
Year 5	1995	54		54
Year 6	1996	54		54
Year 7	1997	54		54
Year 8	1998	54		54
Year 9	1999	54		54
Year 10	2000	54		54
Year 11	0			-
Year 12	0			-
Year 13	0			-
Year 14	0			-
Year 15	0			-
5 Year Baseline - Water into Distribution System				
Year 1	2003	54		54
Year 2	2004	54		54
Year 3	2005	54		54
Year 4	2006	54		54
Year 5	2007	54		54

[1] ***Units of measure*** *(AF, MG , or CCF) must remain consistent throughout the UWMP, as reported in Table 2-3.*

[2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES: Water supply is blend of all of EVMWD's supplies

SB X7-7 Table 5: Baseline Gallons Per Capita Per Day (GPCD)				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Annual Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	1999	534	54	90
Year 2	1992	534	54	90
Year 3	1993	534	54	90
Year 4	1994	534	54	90
Year 5	1995	534	54	90
Year 6	1996	534	54	90
Year 7	1997	534	54	90
Year 8	1998	534	54	90
Year 9	1999	534	54	90
Year 10	2000	534	54	90
Year 11	0	-	-	
Year 12	0	-	-	
Year 13	0	-	-	
Year 14	0	-	-	
Year 15	0	-	-	
10-15 Year Average Baseline GPCD				**90**
5 Year Baseline GPCD				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use
Year 1	2003	534	54	90
Year 2	2004	534	54	90
Year 3	2005	534	54	90
Year 4	2006	534	54	90
Year 5	2007	534	54	90
5 Year Average Baseline GPCD				**90**

NOTES: Historical data not available. Used 2017 data to complete analysis.

SB X7-7 Table 6: Baseline GPCD *From Table SB X7-7 Table 5*	*Summary*
10-15 Year Baseline GPCD	90
5 Year Baseline GPCD	90
NOTES: Historical data not available. Used 2017 data to complete analysis.	

SB X7-7 Table 7: 2020 Target Method *Select Only One*		
Target Method		**Supporting Tables**
☑	Method 1	SB X7-7 Table 7A
☐	Method 2	SB X7-7 Tables 7B, 7C, and 7D
☐	Method 3	SB X7-7 Table 7-E
☐	Method 4	Method 4 Calculator *Located in the WUE Data Portal at wuedata.water.ca.gov* Resources *button*
NOTES:		

SB X7-7 Table 7-A: Target Method 1 20% Reduction	
10-15 Year Baseline GPCD	**2020 Target GPCD**
90	**72**
NOTES:	

SB X7-7 Table 7-E: Target Method 3				
Agency May Select More Than One as Applicable	Percentage of Service Area in This Hydrological Region	Hydrologic Region	"2020 Plan" Regional Targets	Method 3 Regional Targets (95%)
☐		North Coast	137	130
☐		North Lahontan	173	164
☐		Sacramento River	176	167
☐		San Francisco Bay	131	124
☐		San Joaquin River	174	165
☐		Central Coast	123	117
☐		Tulare Lake	188	179
☐		South Lahontan	170	162
☑		South Coast	149	142
☐		Colorado River	211	200
			2020 Target *(If more than one region is selected, this value is calculated.)*	**0**
NOTES:				

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target					
5 Year Baseline GPCD *From SB X7-7 Table 5*	Maximum 2020 Target[1]	**Calculated 2020 Target [2]**			**Confirmed 2020 Target[4]**
		As calculated by supplier in this SB X7-7 Verification Form	**Special Situations[3]**		
			Prorated 2020 Target	Population Weighted Average 2020 Target	
90	N/A	72	71.898	188.6	**72**

[1] ***Maximum 2020 Target*** *is 95% of the 5 Year Baseline GPCD except for suppliers at or below 100 GPCD.*

[2] ***Calculated 2020 Target*** *is the target calculated by the Supplier based on the selected Target Method, see SB X7-7 Table 7 and corresponding tables for agency's calculated target. Supplier may only enter one calculated target.*

[3] ***Prorated targets and population weighted target*** *are allowed for special situations only. These situations are described in Appendix P, Section P.3*

[4] ***Confirmed Target*** *is the lesser of the Calculated 2020 Target (C5, D5, or E5) or the Maximum 2020 Target (Cell B5)*

NOTES: Refer to Appendix I for description of estimates for recalculations of the weighted average 2020 target.

5. SBX7-7 Verification Forms for Pre-Annexed Area (i.e., 2015 UWMP forms)

SB X7-7 Table 0: Units of Measure Used in UWMP* *(select one from the drop down list)*
Acre Feet
**The unit of measure must be consistent with Submittal Table 2-3*
NOTES:

SB X7-7 Table-1: Baseline Period Ranges			
Baseline	**Parameter**	**Value**	**Units**
10- to 15-year baseline period	2008 total water deliveries	30,540	Acre Feet
	2008 total volume of delivered recycled water	438	Acre Feet
	2008 recycled water as a percent of total deliveries	1%	**See Note 1**
	Number of years in baseline period[1, 2]	10	Years
	Year beginning baseline period range	1999	
	Year ending baseline period range[3]	2008	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2003	
	Year ending baseline period range[4]	2007	

[1] *If the 2008 recycled water delivery is less than 10 percent of total water deliveries, then the 10-15year baseline period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater of total deliveries, the 10-15 year baseline period is a continuous 10- to 15-year period.*

[2] *The Water Code requires that the baseline period is between 10 and 15 years. However, DWR recognizes that some water suppliers may not have the minimum 10 years of baseline data.*

[3] *The ending year for the 10-15 year baseline period must be between December 31, 2004 and December 31, 2010.*

[4] *The ending year for the 5 year baseline period must be between December 31, 2007 and December 31, 2010.*

NOTES:

SB X7-7 Table 2: Method for Population Estimates	
Method Used to Determine Population (may check more than one)	
☐	**1. Department of Finance** (DOF) or **American Community Survey** (ACS)
☐	**2. Persons-per-Connection Method**
☑	**3. DWR Population Tool**
☐	**4. Other** DWR recommends pre-review
NOTES:	

SB X7-7 Table 3: Service Area Population		
Year		Population
10 to 15 Year Baseline Population		
Year 1	1999	82,288
Year 2	1992	86,431
Year 3	1993	90,592
Year 4	1994	94,902
Year 5	1995	99,369
Year 6	1996	103,937
Year 7	1997	108,610
Year 8	1998	113,336
Year 9	1999	118,217
Year 10	2000	123,206
Year 11		
Year 12		
Year 13		
Year 14		
Year 15		
5 Year Baseline Population		
Year 1	2003	99,369
Year 2	2004	103,937
Year 3	2005	108,610
Year 4	2006	113,336
Year 5	2007	118,217
NOTES:		

SB X7-7 Table 4: Annual Gross Water Use *

Baseline Year *Fm SB X7-7 Table 3*		Volume Into Distribution System *This column will remain blank until SB X7-7 Table 4-A is completed.*	Deductions					Acre Feet
			Exported Water	Change in Dist. System Storage (+/-)	Indirect Recycled Water *This column will remain blank until SB X7-7 Table 4-B is completed.*	Water Delivered for Agricultural Use	Process Water *This column will remain blank until SB X7-7 Table 4-D is completed.*	Annual Gross Water Use
10 to 15 Year Baseline - Gross Water Use								
Year 1	1999	21,902			-		-	21,902
Year 2	1992	23,313			-		-	23,313
Year 3	1993	22,379			-		-	22,379
Year 4	1994	24,656			-		-	24,656
Year 5	1995	25,019			-		-	25,019
Year 6	1996	27,232			-		-	27,232
Year 7	1997	28,870			-		-	28,870
Year 8	1998	32,423			-		-	32,423
Year 9	1999	34,395			-		-	34,395
Year 10	2000	30,540			-		-	30,540
Year 11	0	-			-		-	-
Year 12	0	-			-		-	-
Year 13	0	-			-		-	-
Year 14	0	-			-		-	-
Year 15	0	-			-		-	-
10 - 15 year baseline average gross water use								**27,073**
5 Year Baseline - Gross Water Use								
Year 1	2003	25,019			-		-	25,019
Year 2	2004	27,232			-		-	27,232
Year 3	2005	28,870			-		-	28,870
Year 4	2006	32,423			-		-	32,423
Year 5	2007	34,395			-		-	34,395
5 year baseline average gross water use								**29,588**

* **Units of measure** (AF, MG , or CCF) must remain consistent throughout the UWMP, as reported in Table 2-3.

NOTES: Historical data not available. Used 2017 data to complete analysis.

SB X7-7 Table 4-A: Volume Entering the Distribution System(s)
Complete one table for each source.

Name of Source	Auld Valley Pipeline
This water source is:	
☐	The supplier's own water source
☑	A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System[1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	1999	8,595		8,595
Year 2	1992	10,667		10,667
Year 3	1993	8,026		8,026
Year 4	1994	11,698		11,698
Year 5	1995	11,410		11,410
Year 6	1996	12,007		12,007
Year 7	1997	11,803		11,803
Year 8	1998	16,869		16,869
Year 9	1999	18,612		18,612
Year 10	2000	18,435		18,435
Year 11	0			-
Year 12	0			-
Year 13	0			-
Year 14	0			-
Year 15	0			-
5 Year Baseline - Water into Distribution System				
Year 1	2003	11,410		11,410
Year 2	2004	12,007		12,007
Year 3	2005	11,803		11,803
Year 4	2006	16,869		16,869
Year 5	2007	18,612		18,612

[1] ***Units of measure*** *(AF, MG , or CCF) must remain consistent throughout the UWMP, as reported in Table 2-3.*

[2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution System(s)
Complete one table for each source.

Name of Source	Temescal Valley Pipeline
This water source is:	

☐	The supplier's own water source
☑	A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	1999	1810		1,810
Year 2	1992	2247		2,247
Year 3	1993	1690		1,690
Year 4	1994	2805		2,805
Year 5	1995	1548		1,548
Year 6	1996	2898		2,898
Year 7	1997	3265		3,265
Year 8	1998	4277		4,277
Year 9	1999	4210		4,210
Year 10	2000	2210		2,210
Year 11	0			0
Year 12	0			0
Year 13	0			0
Year 14	0			0
Year 15	0			0
5 Year Baseline - Water into Distribution System				
Year 1	2003	1548		1,548
Year 2	2004	2898		2,898
Year 3	2005	3265		3,265
Year 4	2006	4277		4,277
Year 5	2007	4210		4,210

[1] ***Units of measure*** *(AF, MG , or CCF) must remain consistent throughout the UWMP, as reported in Table 2-3.*

[2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution System(s)
Complete one table for each source.

Name of Source	Groundwater Wells
This water source is:	
☑	The supplier's own water source
☐	A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	1999	9549		9,549
Year 2	1992	8261		8,261
Year 3	1993	9940		9,940
Year 4	1994	9947		9,947
Year 5	1995	10144		10,144
Year 6	1996	9982		9,982
Year 7	1997	10889		10,889
Year 8	1998	10495		10,495
Year 9	1999	8445		8,445
Year 10	2000	6468		6,468
Year 11	0			0
Year 12	0			0
Year 13	0			0
Year 14	0			0
Year 15	0			0
5 Year Baseline - Water into Distribution System				
Year 1	2003	10144		10,144
Year 2	2004	9982		9,982
Year 3	2005	10889		10,889
Year 4	2006	10495		10,495
Year 5	2007	8445		8,445

[1] ***Units of measure*** *(AF, MG , or CCF) must remain consistent throughout the UWMP, as reported in Table 2-3.*

[2] ***Meter Error Adjustmen*** *t - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution System(s)
Complete one table for each source.

Name of Source	Surface Water from Canyon Lake WTP
This water source is:	
☑	The supplier's own water source
☐	A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System

10 to 15 Year Baseline - Water into Distribution System				
Year 1	1999	1948		1,948
Year 2	1992	2138		2,138
Year 3	1993	2723		2,723
Year 4	1994	206		206
Year 5	1995	1917		1,917
Year 6	1996	2345		2,345
Year 7	1997	2913		2,913
Year 8	1998	782		782
Year 9	1999	3128		3,128
Year 10	2000	3427		3,427
Year 11	0			0
Year 12	0			0
Year 13	0			0
Year 14	0			0
Year 15	0			0
5 Year Baseline - Water into Distribution System				
Year 1	2003	1917		1,917
Year 2	2004	2345		2,345
Year 3	2005	2913		2,913
Year 4	2006	782		782
Year 5	2007	3128		3,128

[1] ***Units of measure*** *(AF, MG , or CCF) must remain consistent throughout the UWMP, as reported in Table 2-3.*

[2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 5: Baseline Gallons Per Capita Per Day (GPCD)				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Annual Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	1999	82,288	21,902	238
Year 2	1992	86,431	23,313	241
Year 3	1993	90,592	22,379	221
Year 4	1994	94,902	24,656	232
Year 5	1995	99,369	25,019	225
Year 6	1996	103,937	27,232	234
Year 7	1997	108,610	28,870	237
Year 8	1998	113,336	32,423	255
Year 9	1999	118,217	34,395	260
Year 10	2000	123,206	30,540	221
Year 11	0	-	-	
Year 12	0	-	-	
Year 13	0	-	-	
Year 14	0	-	-	
Year 15	0	-	-	
10-15 Year Average Baseline GPCD				**236**
5 Year Baseline GPCD				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use
Year 1	2003	99,369	25,019	225
Year 2	2004	103,937	27,232	234
Year 3	2005	108,610	28,870	237
Year 4	2006	113,336	32,423	255
Year 5	2007	118,217	34,395	260
5 Year Average Baseline GPCD				**242**
NOTES:				

SB X7-7 Table 6: Baseline GPCD *From Table SB X7-7 Table 5*	*Summary*
10-15 Year Baseline GPCD	236
5 Year Baseline GPCD	242
NOTES:	

SB X7-7 Table 7: 2020 Target Method *Select Only One*		
Target Method		**Supporting Tables**
☑	Method 1	SB X7-7 Table 7A
☐	Method 2	SB X7-7 Tables 7B, 7C, and 7D
☐	Method 3	SB X7-7 Table 7-E
☐	Method 4	Method 4 Calculator *Located in the WUE Data Portal at wuedata.water.ca.gov* Resources *button*
NOTES:		

SB X7-7 Table 7-A: Target Method 1 20% Reduction	
10-15 Year Baseline GPCD	**2020 Target GPCD**
236	**189**
NOTES:	

SB X7-7 Table 7-E: Target Method 3				
Agency May Select More Than One as Applicable	Percentage of Service Area in This Hydrological Region	Hydrologic Region	"2020 Plan" Regional Targets	Method 3 Regional Targets (95%)
☐		North Coast	137	130
☐		North Lahontan	173	164
☐		Sacramento River	176	167
☐		San Francisco Bay	131	124
☐		San Joaquin River	174	165
☐		Central Coast	123	117
☐		Tulare Lake	188	179
☐		South Lahontan	170	162
☑		South Coast	149	142
☐		Colorado River	211	200
			2020 Target *(If more than one region is selected, this value is calculated.)*	**0**
NOTES:				

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target					
5 Year Baseline GPCD *From SB X7-7 Table 5*	Maximum 2020 Target[1]	**Calculated 2020 Target [2]**			**Confirmed 2020 Target[4]**
		As calculated by supplier in this SB X7-7 Verification Form	**Special Situations[3]**		
			Prorated 2020 Target	Population Weighted Average 2020 Target	
242	230	189		188.6	**189**

[1] ***Maximum 2020 Target*** *is 95% of the 5 Year Baseline GPCD except for suppliers at or below 100 GPCD.*

[2] ***Calculated 2020 Target*** *is the target calculated by the Supplier based on the selected Target Method, see SB X7-7 Table 7 and corresponding tables for agency's calculated target. Supplier may only enter one calculated target.*

[3] ***Prorated targets and population weighted target*** *are allowed for special situations only. These situations are described in Appendix P, Section P.3*

[4] ***Confirmed Target*** *is the lesser of the Calculated 2020 Target (C5, D5, or E5) or the Maximum 2020 Target (Cell B5)*

NOTES: Refer to Appendix I for description of estimates for recalculations of the weighted average 2020 target.

6. SBX7-7 2020 Compliance Form

SB X7-7 Table 0: Units of Measure Used in 2020 UWMP* *(select one from the drop down list)*
Acre Feet
**The unit of measure must be consistent throughout the UWMP, as reported in Submittal Table 2-3.*
NOTES:

SB X7-7 Table 2: Method for 2020 Population Estimate	
Method Used to Determine 2020 Population (may check more than one)	
☐	**1. Department of Finance** (DOF) or **American Community Survey** (ACS)
☐	**2. Persons-per-Connection Method**
☑	**3. DWR Population Tool**
☐	**4. Other** DWR recommends pre-review
NOTES:	

SB X7-7 Table 3: 2020 Service Area Population	
2020 Compliance Year Population	
2020	163,984
NOTES: Based on DWR's online Population Tool and adjusting the tool to use the 2010 Persons per Connections values. The projected populations are	

SB X7-7 Table 4: 2020 Gross Water Use							
Compliance Year 2020	**2020 Volume Into Distribution System** *This column will remain blank until SB X7-7 Table 4-A is completed.*	**2020 Deductions**					**2020 Gross Water Use**
		Exported Water *	**Change in Dist. System Storage*** (+/-)	**Indirect Recycled Water** *This column will remain blank until SB X7-7 Table 4-B is completed.*	**Water Delivered for Agricultural Use***	**Process Water** *This column will remain blank until SB X7-7 Table 4-D is completed.*	
	23,653			-		-	**23,653**

*** Units of measure (AF, MG , or CCF)** must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	Auld Valley Pipeline
This water source is *(check one)* **:**	
☐	The supplier's own water source
☑	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
	9,777	-	9,777

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.* [2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s) Meter Error Adjustment

Complete one table for each source.

Name of Source	Temescal Valley Pipeline
This water source is *(check one)* **:**	
☐	The supplier's own water source
☑	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
	5,338		5,338

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.* [2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	Groundwater Wells
This water source is *(check one)* **:**	

☑	The supplier's own water source
☐	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
	8,537		8,537

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.* [2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	Surface Water from Canyon Lake WTP

This water source is *(check one)* **:**

☑	The supplier's own water source
☐	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
	-		0

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.* [2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 5: 2020 Gallons Per Capita Per Day (GPCD)		
2020 Gross Water *Fm SB X7-7 Table 4*	**2020 Population** *Fm SB X7-7 Table 3*	**2020 GPCD**
23,653	163,984	**129**
NOTES:		

SB X7-7 Table 9: 2020 Compliance

Actual 2020 GPCD[1]	Optional Adjustments to 2020 GPCD (Enter "0" if Adjustment Not Used)			TOTAL Adjustments[1]	Adjusted 2020 GPCD [1] *(Adjusted if applicable)*	2020 Confirmed Target GPCD [1, 2]	**Did Supplier Achieve Targeted Reduction for 2020?**
	Extraordinary Events[1]	Weather Normalization[1]	Economic Adjustment[1]				
129	-	-	-	-	129	189	**YES**

[1] *All values are reported in GPCD*

[2] ***2020 Confirmed Target GPCD*** *is taken from the Supplier's SB X7-7 Verification Form Table SB X7-7, 7-F.*

NOTES: EVMWD is submitting for 2020 Compliance form, which includes the weighted population estimated of 188.6 GPCD. As discussed in Chapter 3, in 2017, EVMWD annexed a territory known as the County Water Company of Riverside into EVMWD's service boundary to address high nitrate levels in this drinking water supply. The annexation was completed in 2017 and added approximately 120 new connections, which is less than 0.28% of the total residential connections.

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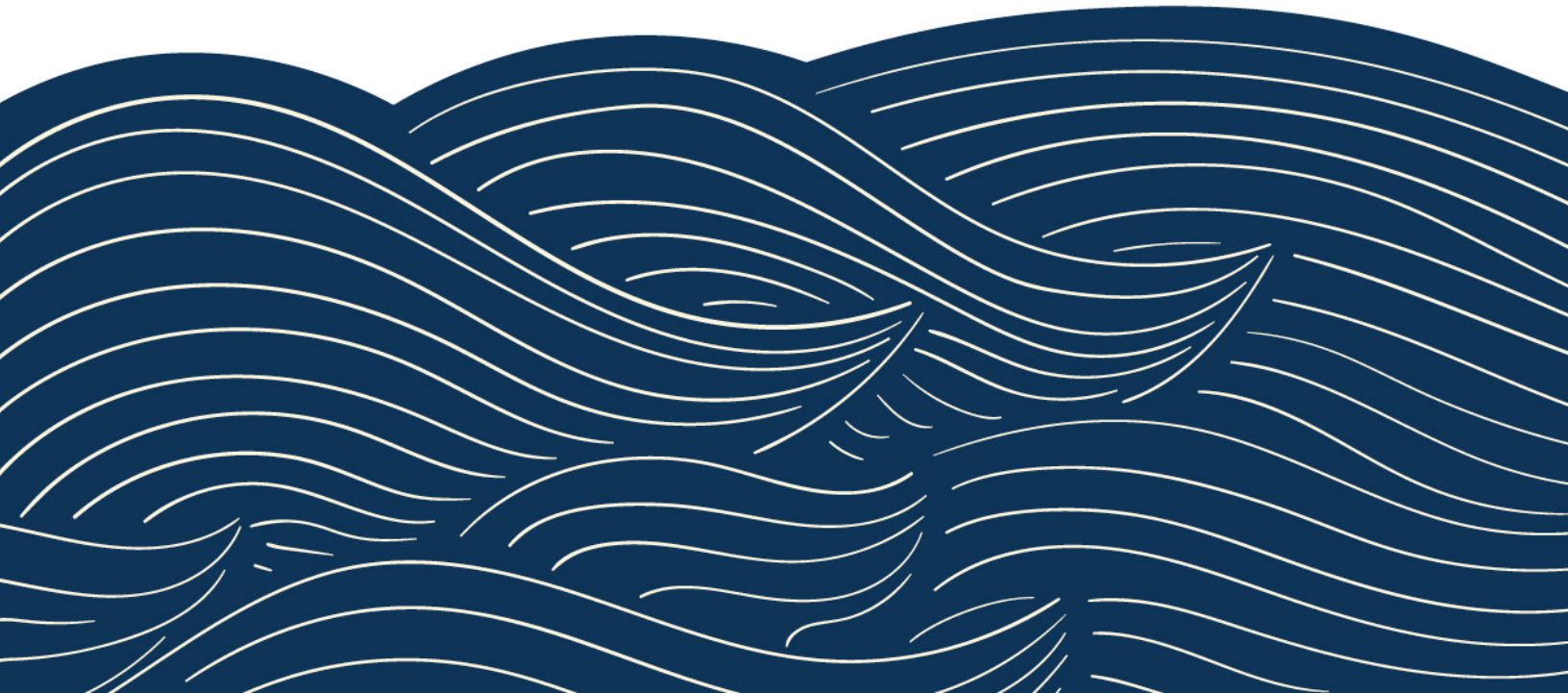
GSA's Authorization



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RESOLUTION NO. 17-01-01

A RESOLUTION OF THE ELSINORE VALLEY MUNICIPAL WATER DISTRICT ELECTING TO BE THE GROUNDWATER SUSTAINABILITY AGENCY (GSA) FOR THE ELSINORE VALLEY SUBBASIN

WHEREAS, the Elsinore Valley Municipal Water District relies on groundwater in the Elsinore Groundwater Basin (Elsinore Basin) for a significant portion of its water supply; and

WHEREAS, Elsinore Valley Municipal Water District adopted a Groundwater Management Plan in 2005 for areas within the Elsinore Basin; and

WHEREAS, recognizing the importance of groundwater to communities like those served by the Elsinore Valley Municipal Water District, the California Legislature enacted the Sustainable Groundwater Management Act of 2014 (California Water Code § 10720 et seq.) ("SGMA"), which provides local agencies with important new groundwater management tools to achieve sustainable groundwater use; and

WHEREAS, the legislative intent of SGMA is to, among other goals, provide for sustainable management of groundwater basins and sub-basins defined by the California Department of Water Resources (DWR) to enhance local management of groundwater, to establish minimum standards for sustainable groundwater management, and to provide specified local agencies with the authority and the technical and financial assistance necessary to sustainably manage groundwater; and

WHEREAS, Water Code § 10723(a) authorizes a local agency with water supply or water management responsibilities overlying a groundwater basin to elect to become a Groundwater Sustainability Agency (GSA) under SGMA: and

WHEREAS, SGMA specifies the authorities and responsibilities assigned to GSA's; and

WHEREAS, pursuant to SGMA, groundwater management of high and medium priority basins as designated by DWR is now required; and

WHEREAS, DWR has designated the Elsinore Basin as a high priority basin, requiring that it be managed pursuant to SGMA; and

WHEREAS, as required by SGMA, DWR adopted emergency regulations (Code of California Regulations, Title 23, Chapter 1.5, Subchapter 1. Groundwater Basin Boundaries, §§ 340 — 346.60) ("Regulations")) describing the process by which local agencies may request changes to groundwater basin boundaries identified in DWR Bulletin 118 to better align with scientific or jurisdictional boundaries; and

WHEREAS, Elsinore Valley Municipal Water District, the City of Corona ("Corona") and Temescal Valley Water District ("TVWD") jointly requested the Elsinore Basin be split into two distinct groundwater areas and that the outer edges of the Elsinore Basin boundaries, as described in Bulletin 118, be changed to more closely align with the physical limits of the basin's alluvial sediments; and

WHEREAS, on October 11, 2016, the California Water Commission approved the subject request and established two subbasins within the Elsinore Basin; the southerly Elsinore Valley Subbasin (Bulletin 118 Basin No. #8-004.01) and the northerly Bedford-Coldwater Subbasin (#8-004.02); and

WHEREAS, the current service areas of Corona, TVWD, or any other retail water agency do not cover any portion of the Elsinore Valley Subbasin; and

WHEREAS, the entire Elsinore Valley Subbasin lies within Elsinore Valley Municipal Water District's service area including its Sphere of Influence, as approved by the Riverside County Local Agency Formation Commission (LAFCO); and

WHEREAS, Elsinore Valley Municipal Water District is willing to continue to manage groundwater in compliance with SGMA within the Elsinore Valley Subbasin; and

WHEREAS, Elsinore Valley Municipal Water District intends to work cooperatively with Corona and TWVD for the joint sustainable management of the Bedford-Coldwater Subbasin in compliance with SGMA; and

WHEREAS, California Water Code § 10723.8 requires that a local agency electing to serve as a GSA notify DWR within 30 days of the local agency's election to become a GSA authorized to undertake sustainable groundwater management within a basin; and

WHEREAS, California Water Code § 10723.8 mandates that 90 days following the posting by DWR of the focal agency's notice of election to become a GSA that entity shall be presumed to be the exclusive GSA for the area within the basin the agency is managing as described in the notice, provided that no other GSA formation notice covering the same area has been submitted to DWR; and

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE ELSINORE VALLEY MUNICIPAL WATER DISTRICT, AS FOLLOWS:

Section 1. Elsinore Valley Municipal Water District hereby elects to be the exclusive GSA for the Elsinore Valley Subbasin (Bulletin 118 Basin No. #8-004.01).

Section 2. Elsinore Valley Municipal Water District staff is directed to submit to DWR, within thirty (30) days of the approval of this Resolution, the notice and supporting documentation required by Water Code § 10723.8 and any other documentation required by SGMA to support Elsinore Valley Municipal Water District's formation of a GSA over the Elsinore Valley Subbasin.

Section 3. The General Manager, or his designee, is authorized to prepare or modify such documents as are necessary to meet DWR requirements for posting of Elsinore Valley Municipal Water District's notice of intent to be the Elsinore Valley Subbasin GSA, pursuant to SGMA.

Section 4. The approval of this Resolution and the actions described herein are categorically exempt from the requirements of the California Environmental Quality Act (CEQA) since: (1) they constitute a reorganization of local governmental agencies which does not change the geographical area in which previously existing powers are exercised (State CEQA Guidelines, § 15320); (2) the Resolution results in the formation of an agency only and not the approval of any project or proposal containing enough "meaningful information for environmental assessment" (State CEQA Guidelines 15004); and (3) it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment. (State CEQA Guidelines 15061(b)(3).) Staff is directed to file and post within five (5) business days the attached Notice of Exemption with the Clerk of the Board of Supervisors of Riverside County.

Section 5. This declaration shall take effect from and after its adoption.

APPROVED, ADOPTED AND SIGNED this 12th day of January, 2017.

Harvey Ryan, President of the
Board of Directors of
Elsinore Valley Municipal Water District

ATTEST:

Terese Quintanar, Secretary of the
Board of Directors of
Elsinore Valley Municipal Water District

STATE OF CALIFORNIA)
) ss:
COUNTY OF RIVERSIDE)

I, Terese Quintanar, Secretary of the Board of Directors of the Elsinore Valley Municipal Water District, do hereby certify that the foregoing Resolution No. 17-01-01, was duly adopted by said Board at its Regular Meeting held on January 9, 2017, and that it was so adopted by the following roll call vote:

AYES:	Cambero, Horton, Morris, Williams, Ryan
NOES:	None
ABSENT:	None
ABSTAIN:	None

Terese Quintanar, Secretary of the
Board of Directors of the
Elsinore Valley Municipal Water District

JOINT POWERS AGREEMENT

by and among

THE CITY OF CORONA,
a California general law city,

ELSINORE VALLEY MUNICIPAL
WATER DISTRICT,
a municipal water district

and

TEMESCAL VALLEY WATER DISTRICT,
a California water district

for the formation of a joint powers authority and management of

THE BEDFORD-COLDWATER SUB-BASIN
OF THE ELSINORE BASIN

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JOINT POWERS AGREEMENT BY AND AMONG THE CITY OF CORONA, ELSINORE VALLEY MUNICIPAL WATER DISTRICT, AND TEMESCAL VALLEY WATER DISTRICT FOR THE FORMATION OF A JOINT POWERS AUTHORITY AND MANAGEMENT OF THE BEDFORD-COLDWATER SUB-BASIN OF THE ELSINORE BASIN

THIS JOINT POWERS AGREEMENT ("Agreement") is entered into as of February 28, 2017, by and between the CITY OF CORONA ("Corona"), a California General Law City organized and existing under the laws of the State of California, ELSINORE VALLEY MUNICIPAL WATER DISTRICT ("EVMWD"), a Municipal Water District organized under Water Code §§ 71000 et seq., and the TEMESCAL VALLEY WATER DISTRICT ("TVWD"), a California Water District organized under California Water Code §§ 34000 et seq., hereinafter collectively referred to as "Members", with reference to the following:

A. WHEREAS, in September 2014, the Governor signed three bills (SB 1168, SB 1319, and AB 1739) into law creating the Sustainable Groundwater Management Act of 2014 ("SGMA"); and

B. WHEREAS, SGMA generally requires the formation of one or more Groundwater Sustainability Agencies ("GSA" or "GSAs") responsible for implementing sustainable groundwater management and preventing "undesirable results" in groundwater basins and sub-basins designated as a medium or high priority basin by the California Department of Water Resources ("DWR") in its Bulletin 118 inventory of California groundwater basins; and

C. WHEREAS, DWR has designated the Bedford-Coldwater Sub-Basin (the "Sub-Basin"), as a medium priority groundwater basin under Bulletin 118; and

D. WHEREAS, each of the Members overlies a portion of the Sub-Basin and exercises water management, water supply or land use authority within a portion of the Sub-Basin; and

E. WHEREAS, the Members are local agencies that can exercise powers related to groundwater management within their jurisdictional boundaries and qualify individually to serve as a GSA within portions of the Sub-Basin per Water Code Section 10723; and

F. WHEREAS, under SGMA, a combination of local agencies may elect to form a joint powers authority ("JPA") to serve as the GSA for all or portions of the Sub-Basin through a joint powers agreement; and

G. WHEREAS, the Members intend by this Agreement to create a JPA to implement SGMA in the entire Sub-Basin, and are authorized to enter into this Agreement pursuant to the Joint Exercise of Powers Act, Government Code §§ 6500 et seq., for the purpose of acting as a separate public agency that can carry out all obligations, and exercise all powers, of a GSA in all areas of the Sub-Basin; and

H. WHEREAS, under SGMA, a GSA, including a JPA composed of one or more SGMA-eligible local agencies, must file a notice of intent with DWR by June 30, 2017 indicating the GSA's intent to undertake sustainable groundwater management within all or portions of a groundwater basin; and

I. WHEREAS, the governing boards of each of the three Members have formally agreed to: (1) enter into this Agreement; (2) form a JPA that can jointly exercise the powers common to the Members and fulfill all legal obligations imposed by SGMA; and (3) authorize the JPA to promptly file all necessary documentation with DWR so as to permit the JPA to become the exclusive GSA for the entire Sub-Basin; and

J. WHEREAS, the Members further intend by this Agreement to provide for the management and funding commitments reasonably anticipated to be necessary for the above purposes and for the purpose of ensuring that the Sub-Basin is sustainably managed in accordance with the timelines established by SGMA; and

K. WHEREAS, the Members understand that Corona has entered into a Water Enterprise Management Agreement and a Wastewater Enterprise Management Agreement, both dated as of February 6, 2002, with the Corona Utility Authority ("CUA") for the maintenance, management and operation of those utility systems (collectively "the CUA Management Agreements"). To the extent that this Agreement is deemed to be a "material contract" under either of the CUA Management Agreements, Corona enters into this Agreement on behalf of the CUA and subject to the terms of the applicable CUA Management Agreements.

ACCORDINGLY, IT IS AGREED BY ALL MEMBERS:

1. RECITALS: The foregoing recitals are incorporated as terms of this Agreement.

2. DEFINITIONS: Unless otherwise required by the context, the following terms shall have the following meanings:

a. "Administering Member" shall mean the Member designated by the Authority Board to provide administration, operation and staffing of the Authority so as to ensure the Authority complies with this Agreement and all legal requirements. The Board is not required to designate an Administering Member, and a Member so designated is not required to accept the designation.

b. "Administrator" shall mean the individual selected to act as the chief executive of the Authority, and the person responsible for its day to day operations. The Administrator may, but it is not required to be, an employee of one of the Members.

c. "Authority" and "JPA" as used herein shall, unless otherwise noted, mean the "Bedford-Coldwater Groundwater Sustainability Authority," the separate public agency created by this Agreement and Government Code Sections 6507 and 6508, and the entity charged by this Agreement with becoming the exclusive GSA for the Sub-Basin.

d. "Board" or "Board of Directors," shall, unless otherwise indicated, mean the Board of Directors of the Authority.

e. "DWR" shall mean the California Department of Water Resources.

f. "Effective Date" shall mean the date on which all Members have signed this Agreement.

g. "Fiscal Year" shall run from July 1 through June 30.

h. "Groundwater Sustainability Agency" or "GSA" shall mean a groundwater sustainability agency as defined in SGMA, Water Code § 10721.

i. "Groundwater Sustainability Plan," "Plan," or "GSP" shall have the same meaning as provided in SGMA, Water Code § 10721.

j. "Member" shall mean any of the individual signatories to this Agreement, and "Members" shall collectively mean two or more of the signatories to this Agreement.

k. "SGMA" shall mean the Sustainable Groundwater Management Act of 2014, as amended, and any regulations of DWR or the State Water Resources Control Board that implement SGMA.

l. "Special Projects" shall mean projects that are consistent with, and within the scope of activities, authorized by this Agreement, but which are undertaken by fewer than all the Members in the name of the Authority in accordance with the procedures outlined in Sections 10 and 14.

m. "Sub-Basin" shall mean the Bedford-Coldwater Sub-Basin of the Elsinore Groundwater Basin, Sub-Basin No. 8-004.2, as identified in the most recent modifications of Bulletin 118 by DWR.

n. "SWRCB" shall mean the California State Water Resources Control Board.

3. CERTIFICATION: Each Member, as a signatory to this Agreement, certifies and declares that it is a public agency, as defined by Government Code § 6500, that is authorized to enter into a joint powers agreement to contract with each other for the joint exercise of any common power under Article 1, Chapter 5, Division 7, Title 1 of the Government Code or any power otherwise granted to one or more of the Members by SGMA.

4. CREATION OF SEPARATE AGENCY: There is hereby created, per Government Code §§ 6507 and 6508, an agency separate from the parties to the Agreement, and which is responsible for the administration of this Agreement, to be known as the "**BEDFORD-COLDWATER GROUNDWATER SUSTAINABILITY AUTHORITY**." Within thirty (30) days of the Effective Date of this Agreement, the Members, and/or the Authority shall: (a) cause a notice of this Agreement to be prepared and filed with the office of the California Secretary of State as required by Government Code § 6503.5; (b) file a copy of this Agreement with the State Controller per Government Code § 6503.6; and (c) file a copy of this Agreement with the Local Agency Formation Commission ("LAFCO") for Riverside County per Government Code § 6503.6.

5. PURPOSES AND MEMBER RESPONSIBILITIES: The Authority is formed with the purpose and intent of jointly creating a separate legal entity to fulfill the role and legal obligations of a GSA required by SGMA, to include complying with SGMA and ensuring sustainable groundwater management throughout the Sub-Basin, so that the Members may collaboratively and cost effectively develop, adopt, and implement a GSP for the Sub-Basin in

accordance with pertinent regulatory timelines. The geographic boundaries of the GSA that will be formed by the Authority, which will encompass the entire Sub-Basin, are as depicted in the map attached hereto as Exhibit "A," which is incorporated herein by reference. The Authority may also represent the Members, as appropriate, in discussions and transactions with other local agencies, to include (but not limited to) the development of inter-basin coordination agreements with other GSAs in Riverside County, and agreements with other local agencies or groundwater sustainability agencies as may be required to ensure compliance with SGMA for the Sub-Basin.

6. POWERS: The Members intend that the Authority provide for the joint exercise of powers common to the Members as such powers relate to the management of the Sub-Basin, and for the exercise of such additional powers as are conferred by law in order to meet the requirements of SGMA. The Members are each SGMA-eligible local agencies empowered by the laws of the State of California to exercise the powers specified in this Agreement, and such other powers as are granted to GSAs by SGMA. These common powers shall be exercised for the benefit of any one or more of the Members or otherwise in the manner set forth in this Agreement. Subject to the limitations set forth in this Agreement, the Authority shall have the powers to perform all acts necessary to accomplish its purposes as stated in this Agreement, as authorized by law, including but not limited to the following:

a. To make and/or assume contracts and to employ agents, employees, consultants and such other persons or firms as the Board may deem necessary, to the full extent of the Authority's power, including, but not limited to, engineering, hydrogeological, and other consultants, and with attorneys and accountants and financial advisors, for the purpose of providing any service required by the Authority to accomplish its purposes, or to otherwise take such actions as are necessary to ensure the Sub-Basin is managed in accordance with the requirements of SGMA;

b. To conduct all necessary research and investigations, and to compile appropriate reports and collect data from all available sources to assist in preparation and implementation of a GSP, and to support the development of such other agreements as may be necessary to ensure the Sub-Basin can be sustainably managed;

c. To cooperate, act in conjunction with, and contract with the United States, the State of California, or any agency thereof, the County of Riverside, or such other entities or persons as the Board may deem necessary to ensure that the Authority fulfills its obligations under SGMA;

d. To apply for, accept and receive licenses, permits, water rights, approvals, agreements, grants, loans, gifts, contributions, donations or other aid from any agency of the United States, the State of California or other public or private person or entity necessary for fulfilling the purposes of SGMA in the Sub-Basin;

e. To acquire by grant, purchase, lease, gift, devise, contract, construction, eminent domain or otherwise, and hold, use, enjoy, sell, let, and dispose of, real and personal property of every kind, including lands, water rights, structures, buildings, rights-of-way, easements, and privileges, and construct, maintain, alter, and operate any and all works or

improvements, within or outside the agency, necessary or proper to carry out any of the purposes of the Authority as specified in this Agreement and/or the requirements of SGMA;

f. To enforce the requirements of SGMA within the Sub-Basin to the extent authorized by law including, but not limited to, the imposition and collection of civil penalties as authorized by SGMA;

g. To sue and be sued in its own name;

h. To provide for the prosecution of, defense of, or other participation in actions or proceedings at law or in public meetings in which the Members, pursuant to this Agreement or otherwise pertaining to management of the Sub-Basin, may have an interest, and to employ counsel or other expert assistance for that purpose;

i. To adopt an initial operating budget and initial Member contributions within ninety (90) days of the execution of this Agreement, and an annual budget and Member contributions, by March 31 of each subsequent Fiscal Year;

j. To incur debts, liabilities or obligations, subject to the limitations provided in this Agreement;

k. To impose fees authorized by SGMA (Water Code §§ 10730-10731), without any limitation on a Member's separate ability to impose fees within its jurisdiction, to fund the cost of furthering the purposes of this Agreement, complying with SGMA, and sustainably managing groundwater within the Sub-Basin;

l. To adopt rules, regulations, policies and procedures for governing the operation of the GSA and adoption and implementation of the GSP consistent with the powers and purposes of the Authority and as authorized by SGMA;

m. To investigate legislation and proposed legislation affecting SGMA and the Sub-Basin and make appearances regarding such matters;

n. Subject to the limitations imposed by this Agreement, to take such actions as are deemed necessary by the Board to achieve the purposes stated above and to provide for the sustainable management of the Sub-Basin; and

o. To adopt and revise bylaws, rules, ordinances, and resolutions in a manner authorized by law and not inconsistent with the terms of this Agreement.

Any power necessary or incidental to the foregoing powers shall be exercised by the Authority in the manner provided for under the legal authority applicable to the City of Corona except as otherwise provided by law or in this Agreement.

7. OBLIGATIONS OR LIABILITIES OF AUTHORITY: No debt, liability or obligation of the Authority shall constitute a debt, liability or obligation of any of the Members, except as otherwise provided in this Agreement or unless otherwise required by law.

8. DESIGNATION OF ADMINISTERING MEMBER/ADMINISTRATOR: The powers of the Authority provided in this Agreement shall be exercised in the manner provided by this Agreement. The Board may designate an Administering Member and/or an Administrator to provide all or a portion of the administrative (or other) services required by this Agreement, SGMA, or other legal authority. However, whether or not the Board decides to designate an Administering Member, each Member shall nevertheless be responsible, when requested by the Board, for designating staff from their agency to coordinate with the Board and other Members, and for otherwise ensuring the Authority has sufficient staffing and administrative support to comply with this Agreement and other legal obligations.

9. ORGANIZATION:

a. Additional Members: The Board may allow additional members to join the Authority. Additional Members must be local agencies capable of being designated as a GSA under SGMA. The Board may set whatever conditions it deems necessary as a precondition to addition of the new Member, to include requiring the additional Members to reimburse the other Members for a proportionate share of the costs already incurred by the existing Members.

b. Bylaws: The Board shall adopt bylaws governing the management of the Authority within 180 days of the Effective Date. The bylaws shall require the Board to develop a conflict of interest code for the Authority compliant with California law, and to otherwise ensure that the Board operates in a manner that is fully compliant with the Brown Act, the Joint Exercise of Powers Act, Government Code §§ 6500 et seq., SGMA, and all other applicable legal requirements.

c. Committees: The Board may create committees as authorized by law.

d. Governing Board: The Authority shall be governed by a Board of Directors which shall be composed of one (1) elected representative of each Member, appointed by each Member. The governing body of each Member shall determine in its sole discretion the person it will appoint to the Authority Board of Directors. The Board of Directors shall receive no compensation from the JPA for serving on the Board of the JPA.

e. Meetings: Regular meetings of the Board may be held quarterly, or as the Board determines necessary, on such dates and times and at such locations as the Board shall fix by resolution. Special meetings of the Board shall be called in accordance with Government Code § 54956. All meetings of the Board shall comply with the provisions of the Ralph M. Brown Act (Government Code §§ 54950 et seq.).

f. Officers: The officers of the Authority shall be a Chairperson, and Vice-Chairperson, and such other officers as the Board shall designate. The election of officers will take place at the first meeting of the JPA Board, and subsequently in the first Board meeting of each new Fiscal Year unless the time of election is otherwise designated in the Authority bylaws. The officers or persons who have charge of, handle or have access to any property of the Authority shall be designated in the bylaws, and such officers and persons shall comply with all applicable requirements of Government Code § 6505.1.

g. Quorum: Two-thirds (2/3) of the Board of Directors shall constitute a quorum in order to conduct business.

h. Rules: The Board may adopt such other rules, policies, and regulations as it deems proper consistent with all applicable laws, this Agreement, and the Authority's bylaws.

i. Term: The Authority Board Members shall serve without terms and at the pleasure of the legislative body which appointed them.

j. Treasurer: The Treasurer of the Board shall be formally designated by a resolution adopted by the Board of Directors stating the effective date of the appointment and the term of the appointment.

k. Voting: Each Director shall have one vote. A simple majority of the quorum shall be required for the adoption of a motion, resolution, contract authorization or other action of the Board, except that:

(1) A majority vote of less than a quorum may vote to adjourn;

(2) Any of the following actions shall require a unanimous vote of the entire Board:

(a) Adoption, modification or alteration of the GSP, or of the GSA boundaries;

(b) Adoption of assessments, charges or fees;

(c) Adoption or modification of ramp-downs or curtailments;

(d) Initiation/settlement of enforcement actions;

(e) Adoption of an initial budget;

(f) Adoption or modification of the annual budget, as further described in Section 14, below;

(g) Initiation/termination or settlement of any litigation or threatened litigation that involves the Authority;

(h) Admission of additional Members to the Authority;

(i) Appointment, employment, or dismissal of the Authority's Administrator and/or Legal Counsel;

(j) Designating an Administrator or Administering Member;

(k) Setting the amounts of any contributions or fees to be made or paid to the Authority by any Member, including extraordinary costs as defined in Section 15;

(l) Acquisition by grant, purchase, lease, gift, devise, contract, construction, or otherwise, and hold, use, enjoy, sell, let, and dispose of, real and personal property of every kind, including lands, water rights, structures, buildings, rights-of-way, easements, and privileges, and construct, maintain, alter, and operate any and all works or improvements, within or outside the agency, necessary or proper to carry out any of the purposes of the Authority;

(m) Replacement of the annual special audit required by Government Code § 6505(f) with an audit covering a two year period;

(n) Amendments or modifications of this Agreement;

(o) Adoption or modification of bylaws or other binding rules governing the operations of the JPA Board;

(p) Adoption of ordinances;

(q) Issuance of bonds or other indebtedness;

(r) Allocating funding received from grants, loans, or from other alternative sources, in a manner that does not result in equal sharing of alternative funding among the Members;

(s) To apply for, accept and receive licenses, permits, water rights, approvals, agreements, grants, loans, gifts, contributions, donations or other aid from any agency of the United States, the State of California or other public or private person or entity necessary for fulfilling the purposes of SGMA in the Sub-Basin.

10. SPECIAL PROJECTS AND PROJECT COMMITTEES:

a. With the prior approval of the entire Board, Members may undertake Special Projects in the name of the Authority, utilizing the legal powers granted to the Authority under SGMA, the Joint Exercise of Powers Act, or other applicable legal authorities. All Members shall be given the opportunity to participate in Special Projects, but shall not be required to participate.

b. A Member considering a new project, other than a groundwater extraction project, where the project is reasonably likely to affect groundwater management in the Sub-Basin shall consult with the other Members before individually undertaking the project to determine whether that individual project might otherwise be better accomplished as an Authority Special Project.

c. Members electing to participate in a Special Project shall enter into a Special Project Agreement in accordance with Section 14.a(4) of this Agreement. Such Special Project Agreement shall provide that: (a) no Special Project undertaken pursuant to such agreement shall conflict with the terms of this Agreement or the GSP; (b) the Members to the Special Project Agreement shall indemnify, defend and hold harmless the Authority, and Members

of the Authority who are not participating in the Special Project, against any costs liabilities, or expenses of any kind arising as a result of the Special Project; (c) all benefits and liabilities attributable to a Special Project shall solely be the benefits and liabilities of the Members that have entered into the Special Project Agreement, and non-participating Members shall have no rights, and incur no obligations or liabilities, in the Special Project.

11. FISCAL AGENT, DEPOSITORY AND ACCOUNTING: The "Treasurer" appointed by the Board is designated as the fiscal agent and depository for the Authority per Government Code §§ 6505.5 and 6505.6. The Treasurer of the Authority shall be the treasurer of one of the Authority's Members, or a certified public accountant designated by the Board, or an officer or employee designated per Government Code § 6505.6. The Treasurer shall be the depositary and have custody of all money of the Authority, from whatever source, subject to the applicable provisions of any indenture or resolution providing for a trustee or other fiscal agent. All funds of the Authority shall be held in the operating fund established by Section 14, or such other separate accounts as may be necessary, in the name of the Authority and not commingled with the funds of any Member or any other person or entity. Full books and accounts shall be maintained for the Authority in accordance with generally accepted accounting principles applicable to governmental entities per Government Code §§ 6505 et seq., and any other applicable laws of the State of California.

12. ACCOUNTABILITY, REPORTS AND AUDITS: There shall be strict accountability of all funds, and an auditor designated by the Board shall report any and all receipts and disbursements to the Board with such frequency as shall reasonably be required by the Board. The Authority will utilize the services of an outside independent certified public accountant to make an annual audit of the accounts and records of the Authority as required by Government Code § 6505, unless the Members, elect to conduct the audit for a two (2) year period. In each case, the minimum requirements of the audit shall be those prescribed by the State Controller for special districts pursuant to Government Code § 26909, and shall conform to generally accepted accounting principles. The outside independent certified public accountant selected by the Authority as auditor shall be formally designated by a resolution adopted by the Board of Directors stating the effective date of the appointment and the term of the appointment.

13. OPERATING BUDGET AND EXPENDITURES: The Board shall adopt a budget as specified in the bylaws and as set forth in Section 14, below. Unless otherwise required by this Agreement or applicable law, the Authority's Treasurer shall draw checks or warrants or make payments as specified in the bylaws of the Authority. The Authority may, consistent with the bylaws, invest any money in the treasury that is not needed for its immediate necessities.

14. CONTRIBUTIONS/BUDGETS: Unless otherwise provided in this Agreement, the Members shall equally share in the costs of the JPA. The Authority shall establish an operating fund. The fund shall be used to pay all administrative, operating and other expenses incurred by the Authority, and shall be funded by equal Member's contributions for payment of costs of the Authority. The Board may direct that any surplus funds be returned to the Members, per Government Code § 6512, in proportion to the contributions made by each Member.

a. Authority Budgets: Authority budgets shall be established as follows:

(1) General Operating Budget. No more than ninety (90) days following the first meeting of the Board, and annually thereafter in the month of March or other mutually agreed upon timeframe, a general operation budget (the "Operating Budget") shall be adopted by the Board. The Operating Budget shall be prepared in sufficient detail to constitute an operating outline for the purpose of establishing rates and/or contributions to be billed to and paid by the Members. The operating rates and/or contributions to be billed to and paid by each Member shall be based upon an equal contribution by each Member. The Operating Budget shall outline anticipated revenues and planned expenditures to be made during the ensuing Budget year by functional category such as operations and maintenance, administration, projects, programs, planning, study and any applicable contributions to operate related reserves. For the purpose of the Operating Budget, operating shall mean any financial activity related to exchange transactions, as defined by applicable generally accepted accounting principles ("GAAP") associated with the principal activity of the JPA. The Operating Budget shall be adopted by unanimous approval of the Board. The rates and contributions approved by the Board shall be paid by the Members pursuant to Section 14.c below.

(2) Non-Operating Budget. No more than ninety (90) days following the first meeting of the Board, and annually thereafter in the month of March or other mutually agreed upon timeframe, a non-operating budget (the "Non-Operating Budget") shall be adopted by the Board. The Non-Operating Budget shall be prepared in sufficient detail to constitute a non-operating outline for the purpose of establishing rates and/or contributions to be billed to and paid by the Members. These rates and/or contributions shall be based upon equal contributions by each Member. At a minimum, the Non-Operating Budget shall outline anticipated revenues and planned expenditures for non-operating financial activities for the ensuing Fiscal Year, inclusive of any amount necessary for servicing debt. For the purpose of the budget, Non-Operating shall mean any financial activity related to non-exchange transactions, as defined by applicable GAAP. Examples of non-exchange transactions include investment income, contributed capital from Members for capital debt service, interest expense, and return of capital to Members. The Non-Operating Budget shall be adopted by unanimous approval of the Board. The rates and contributions approved by the Board shall be paid by the Members pursuant to Section 14.c below.

(3) Capital Project Budget. No more than ninety (90) days following the first meeting of the Board, and annually thereafter in the month of March, or other mutually agreed upon timeframe, a capital project budget (the "Capital Project Budget") shall, if applicable, be adopted by the Board. The Capital Project Budget, if applicable, shall be prepared in sufficient detail to constitute a capital project outline to assess contributions to be paid by the Members and expenditures to be paid by the Members during the ensuing year for capital projects needed for major repair, replacement, expansion and efficiency of any capital improvements constructed or installed by or on behalf of the Authority. These contributions shall be based upon equal contribution by each Member, subject to unequal contribution amounts for Special Projects, as addressed in Sections 10 and 14.a.(4). The Capital Project Budget shall be adopted by unanimous approval of the Board. The contributions approved by the Board shall be paid by the Members pursuant to Section 14.c below.

(4) Special Project Budgets. In addition to the Operating Budgets, the Non-Operating Budgets, and the Capital Project Budget, the Board may budget at any time for the study, implementation or construction of any Special Project, program or study proposed to be undertaken by the Authority for matters not deemed to be of general benefit to all Members. A Special Project budget and written Special Project Agreement of the Members who consented to participation in the Special Project shall be established for each Special Project, which budget and agreement shall determine the respective obligations, functions, and rights of the Members involved and of the Authority. The directors of the Board representing the Members who will be involved in financing and implementing the Special Project shall be and constitute a "Special Project Committee," for purposes of administration and implementation of the Special Project. No Special Project shall be acquired or constructed by the Board without the consent of each of the governing boards of the participating Members. Ratification of the Special Project budget by each of the participating Members shall constitute consent for the acquisition and construction of the Special Project. Notwithstanding the foregoing, no debt shall be incurred by the Authority for a Special Project without the unanimous consent of the Board. Any rates and contributions approved by the Special Project Committee and approved by the participating Members shall be paid by the participating Members pursuant to Section 14.c below.

Where the Board has approved one or more Special Projects, annually thereafter in the month of March (or other mutually agreed upon timeframe), a Special Project budget shall be developed by each Special Project Committee if required by the applicable Special Project Agreement, Each Special Project budget shall include, without limitation, the following:

(i) Administrative expenses;

(ii) Studies and planning costs;

(iii) Engineering and construction costs;

(iv) The allocation of costs, including debt service costs, if any, among participating Members;

(v) Annual maintenance and operating expenses for the project; and

(vi) A formula for allocating annual maintenance and operating expenses, if any.

All actions by a Special Project Committee shall be deemed actions of the Authority and shall be taken in the name of the Authority, provided, only the participating Members shall have rights and obligations in the Special Project as herein provided.

b. Failure to Obtain Budget Approvals. In the event a budget acceptable to the Board is not approved prior to the start of a Fiscal Year the Authority shall continue to operate at the level of expenditure as authorized below:

(1) General Operating Budget. The Operating Budget shall be at the expenditure level authorized by the last approved Operating Budget increased by the Consumer Price Index ("CPI") with a minimum increase of no less than two percent (2%). The CPI shall mean the change in CPI for Urban Wage Earners and Clerical Workers for the Los Angeles County, Orange County, and Riverside County areas for the all items category for the 12-month period ending the February prior to the beginning of the Fiscal Year budgeted as determined by the U.S. Department of Labor, Bureau of Labor Statistics, or other mutually agreeable source if such a CPI is no longer available. This factor will be applied to the Operating Budget until such time as a new Operating Budget is approved by the Authority. Any shortfall in revenues will be made up from available reserves dedicated by the Board for such a purpose, and if insufficient to cover the shortfall, any available reserve funds not designated by the Board for other purposes or otherwise legally restricted for other purposes by external parties. Reserves shall mean any available cash or investments.

(2) Non-Operating Budget. The Non-Operating Budget shall automatically be established at the required level necessary to meet annual debt service requirements including any revenue coverage covenants. Each Member shall contribute to the Authority such amounts which will yield during each Fiscal Year net revenues payable to the Authority sufficient for the Authority to satisfy all covenants in any indentures, loan agreements or other documents entered into by the Authority and to enter into such other agreements as are necessary for the Authority to secure financing to pay the acquisition price for any facilities authorized by the Authority.

(3) Capital Project Budget. The Capital Project Budget shall automatically be established at the required level necessary to implement capital projects previously approved by the Authority.

c. Payments of Amounts Due. The payments owed for contributions from each Member to the Authority shall be due, payable, and delivered by the Members to the Authority within forty-five (45) days after receipt of a billing therefor from the Authority. To the extent permitted by state law, unpaid and past due contributions shall bear interest at ten percent (10%) per annum, calculated daily, from the date due to the date payment is received by the Authority.

15. ASSESSMENTS FOR EXTRAORDINARY COSTS: In the event the Authority should experience an unanticipated need to pay for extraordinary costs (e.g., those costs that are unanticipated and not otherwise funded through the budget), including, but not limited to the costs of litigation or indemnification as provided in this Agreement, and to the extent that such costs cannot otherwise be reasonably funded through use of reserves on hand or through the other revenue sources authorized by this Agreement, the Board may allocate the additional costs to the Members, whether such extraordinary costs are actually incurred or estimated to be necessary. Unless otherwise specifically allocated to one or more Members by the unanimous vote of the Board, all allocations of extraordinary costs shall be shared equally by each Member. The Members agree that they will then contribute their proportionate share of the extraordinary costs within a reasonable period of time as determined by the Board, or as otherwise specified in the Bylaws.

16. STAFFING: The Board shall provide for staffing of the Authority in accordance with procedures established in the bylaws. Such staffing shall ensure the Authority is able to accomplish all requirements imposed by SGMA, this Agreement, and/or any other requirements imposed by law. Legal counsel shall be appointed by the Board and shall serve at the pleasure of the Board. Legal counsel may be an attorney that also performs work for one of the Members, provided appropriate waivers suitable to the Board, and counsel for all of the Members, are first obtained.

17. DISPUTE RESOLUTION: The Members desire to informally resolve all disputes related to this Agreement and/or SGMA, whenever possible, at the lowest possible level, and triggering of the dispute resolution procedures described herein shall only occur where the Members and/or the Board have reached impasse and are unable to resolve matters without invoking formal dispute resolution procedures. Should informal resolution of any dispute prove unsuccessful, the Parties agree to neutral facilitation/mediation of the dispute as a next step prior to filing a lawsuit or otherwise seeking judicial intervention. The appointed facilitator/mediator, who need not be a licensed attorney, shall be a person who is not a current or former employee or agent of any Member, and someone who has knowledge of the rules governing public agencies, and who has experience with the management of groundwater resources in Southern California. The facilitator shall be compensated by the Authority.

The facilitator shall be a third party neutral assigned by the Center for Collaborative Policy ("CCP") of Sacramento State University, or such other neutral as is unanimously decided upon by the Members involved in the dispute. In the event that the Members involved in the dispute are unable to agree upon the facilitator or mediator, then each Member involved in the dispute shall provide the name of one recommended facilitator or mediator to the Authority's legal counsel. The facilitator/mediator shall then be selected by the Authority's legal counsel, based upon whichever recommended facilitator/mediator is the most qualified facilitator/mediator for the type of dispute involved. The selected facilitator/mediator shall diligently seek to achieve a consensus based solution to the dispute. Upon the request of one of the Members involved in the dispute, the facilitator shall render a recommended resolution of the dispute after five facilitated negotiation sessions between the Members involved in the dispute where an acceptable resolution has not yet been reached. The facilitator/mediator's recommended resolution shall not be admissible in any judicial proceedings. Where facilitation/mediation as described herein is unable to successfully resolve the dispute, then a Member involved in the dispute, upon providing 60 days-notice to the other Members and the Authority, may initiate judicial proceedings in the Superior Court for Riverside County.

This Section shall not bar a Member or Member(s) from initiating legal action in another appropriate forum with jurisdiction over the matter as necessary to comply with an applicable statute of limitation, provided such legal action, where authorized, is stayed pending completion of the dispute resolution process described herein. Members involved in a dispute governed by this Section are encouraged to enter a tolling agreement, if legally authorized, in order to allow sufficient time for completion of the process required by this Section.

18. WITHDRAWAL:

a. Notice to Members: Any Member may withdraw from the Authority by delivery of written notice to withdraw to each of the Members at least two years prior to the date of withdrawal ("Withdrawal Notice Period"), unless the Members unanimously agree to allow the withdrawing Member to withdraw sooner than two years, in which case the date of withdrawal shall be the date unanimously agreed upon by the Board. The withdrawing Member shall continue to be a full Member during the pendency of the Withdrawal Notice Period and shall retain all rights and obligations during such period unless otherwise agreed to by unanimous vote of the Board.

b. Effect of Withdrawal: Should a Member choose to withdraw from the Authority in accordance with the terms of this Agreement, that Member retains any legal right it has under SGMA to serve as the GSA for the groundwater basin underlying its jurisdictional boundaries, provided such withdrawal will not cause the Authority (or its remaining Members) to default on financial obligations or to otherwise fail to comply with the legal obligations imposed by SGMA. The Authority and the non-withdrawing Members shall retain whatever legal rights they have under SGMA, and the withdrawal of the Member shall have no effect on the continuance of this Agreement among the remaining Members. The withdrawing Member shall not take any action after withdrawal that would be reasonably anticipated to frustrate the ability of the Authority to comply with SGMA. After providing written notice of withdrawal, the withdrawing Member shall act at all times in good faith in the best interests of the Authority until such time as the withdrawal process is complete.

c. Continuing Fiscal Obligations: Any Member that withdraws as provided herein shall remain proportionately liable during the Withdrawal Notice Period for its proportionate share of the budget. If the Members elect to incur extraordinary costs in accordance with Section 15, the withdrawing Member shall be proportionately liable during the Withdrawal Notice Period for the obligations or debts approved and incurred by the Authority for those extraordinary costs, unless the Members agree otherwise. Any Member that withdraws shall remain proportionately liable for any unfunded capital expenditures or debt service obligations incurred or approved by the Board prior to the date of written notice of withdrawal of such Member until such time as the obligation is fully satisfied.

d. Continuing Claims Obligations: Members will remain obligated to contribute their proportionate share (based upon the membership roll as of the date of the claim), including without limitation legal defense costs, for any occurrences incurred during the Member's membership, but not presented as a claim against the Authority until after the Member's withdrawal.

e. Divisions of Property Assets: The real and/or personal property assets contributed by the withdrawing Member or the value of the real and/or personal property assets at the date of withdrawal will be returned to the withdrawing Member to the extent such assets are not required for the Authority to meet its continuing obligations as a GSA under SGMA. If such real and/or personal property assets are needed to meet the continuing obligations of the Authority to comply with SGMA, then the remaining Members of the Authority and the withdrawing Member shall negotiate a purchase or lease of such assets for a price not to exceed the fair market value of those assets.

19. TERM AND TERMINATION: This Agreement shall become effective, and the Authority shall come into existence, on the Effective Date. The Agreement, and the Authority, shall thereafter continue in full force and effect until the governing bodies of the Members unanimously elect to terminate the Agreement. Upon unanimous election to terminate this Agreement, the Board shall continue to act as a board to wind up and settle the affairs of the Authority. The Board shall adequately provide for the known debts, liabilities and obligations of the Authority, and shall then distribute the assets of the Authority among the Members, as follows:

a. The assets contributed by each Member, or the value thereof as of the date of termination, shall be distributed to that Member.

b. The remaining assets shall then be distributed to each Member in equal proportions.

The distribution of assets shall be made in-kind to the extent possible by returning to each Member those assets contributed by such parties to the Authority; however, no party shall be required to accept transfer of an asset in kind.

Notwithstanding any other provision by the Board for payment of all known debts, liabilities and obligations of the Authority, each Member shall remain liable for any and all such debts, liabilities, and obligations in equal proportions, or in the proportion specified by unanimous action of the Board if alternative proportions are so specified for particular actions or activities that give rise to such debts, liabilities, and obligations.

Termination of this Agreement shall not occur, and the Members shall continue to fund the operations of the Authority as a GSA for the Sub-Basin, until the Authority determines by a unanimous vote of the Board that: (a) a GSA is no longer required for the Sub-Basin; or (b) one or more of the individual Members will undertake the legal obligations of a GSA previously performed by the Authority, and such termination of the Authority will not result in the Sub-Basin being placed in a probationary status by the SWRCB.

20. INDEMNIFICATION/CONTRIBUTION: Members, directors, officers, agents and employees of the Authority shall use ordinary care and reasonable diligence in the exercise of their powers, and in the performance of their duties pursuant to this Agreement. The Authority shall hold harmless, defend and indemnify the Members, the Authority Board, and the Members' directors, agents, officers and employees from and against any liability, claims, actions, costs, damages or losses of any kind, including death or injury to any person and/or damage to property (including property owned by any Member), arising out of the activities or omissions of the Authority, or its agents, officers and employees related to this Agreement or SGMA ("Claims").

a. To the extent authorized by California law, no Member shall be liable for the actions or omissions of any other Member or the Authority related to this Agreement.

b. The indemnification obligations described herein shall continue beyond the term of this Agreement as to any acts or omissions occurring during this Agreement or any extension of this Agreement.

c. To the extent that the Authority is unable or unwilling (because of comparative fault of Member(s), or other good faith legal basis) to hold harmless, defend and/or indemnify any Member to this Agreement as provided in this Section, such Member shall be entitled to contribution from the other Members in equal proportion to the extent one Member pays more than its equal share of such obligation. Provided, however, that where one or more Members is determined by a court (or in a settlement approved by a court) to be responsible for a greater proportion for the Claims, each Member will only be responsible for contribution to the other Member (or Members) up to the extent of the contributing Member's proportional responsibility.

21. INSURANCE: The Authority shall obtain insurance for the Board members and general liability insurance containing liability in such amounts as the Board shall determine will be necessary to adequately insure against the risks of liability (including compliance with the indemnification provisions in Section 20 above) that may be incurred by the Authority. The Members, their officers, directors and employees, shall be named as additional insureds.

22. CLAIMS: All claims against the Authority, including, but not limited to, claims by public officers and employees for fees, salaries, wages, mileage, or any other expenses, shall be filed within the time and in the manner specified in Chapter 2 (commencing with Section 910) of Part 3, Division 3.6 of Title I of the Government Code, which describes the appropriate content of a claim.

23. ENTIRE AGREEMENT REPRESENTED: This Agreement represents the entire agreement among the parties as to its subject matter and no prior oral or written understanding shall be of any force or effect. No part of this Agreement may be modified without the written consent of all of the parties.

24. HEADINGS: Section headings are provided for organizational purposes only and do not in any manner affect the scope, meaning or intent of the provisions under the headings.

25. NOTICES: Except as may be otherwise required by law, any notice to be given shall be written and shall be either personally delivered sent by facsimile transmission, emailed or sent by first class mail, postage prepaid and addressed as follows:

MEMBERS:

City of Corona
Attn: General Manager,
Department of Water and Power
Address: 755 Public Safety Way
Corona, CA 92880

Elsinore Valley Municipal Water District
Attn: General Manager
Address: 31315 Chaney Street
Lake Elsinore, CA 92530

Temescal Valley Water District
Attn: General Manager
Address: 22646 Temescal Canyon Rd
Corona, CA 92883

Notice delivered personally is deemed to be received upon delivery. Notice sent by first class mail shall be deemed received on the fourth day after the date of mailing. Any party may change the above address by giving written notice pursuant to this Section.

26. CONSTRUCTION: This Agreement reflects the contributions of all parties and accordingly the provisions of Civil Code § 1654 shall not apply to address and interpret any uncertainty.

27. NO THIRD PARTY BENEFICIARIES INTENDED: Unless specifically set forth, the parties to this Agreement do not intend to provide any other party with any benefit or enforceable legal or equitable right or remedy.

28. WAIVERS: The failure of any party to insist on strict compliance with any provision of this Agreement shall not be considered a waiver of any right to do so, whether for that breach or any subsequent breach.

29. CONFLICT WITH LAWS OR REGULATIONS/SEVERABILITY: This Agreement is subject to all applicable laws and regulations. If any provision of this Agreement is found by any court or other legal authority, or is agreed by the parties, to be in conflict with any code or regulation governing its subject, the conflicting provision shall be considered null and void. If the effect of nullifying any conflicting provision is such that a material benefit of the Agreement to any party is lost, the Agreement may be terminated at the option of the affected party. In all other cases the remainder of the Agreement shall continue in full force and effect.

30. FURTHER ASSURANCES AND OBLIGATION OF GOOD FAITH DEALING: Each party agrees to execute any additional documents and to perform any further acts which may be reasonably required to affect the purposes of this Agreement. Moreover,

consent or approval, where reasonably requested in furtherance of the purposes of this Agreement or compliance with SGMA, shall not be unreasonably withheld by a Member.

31. COUNTERPARTS: This Agreement may be signed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

32. AMENDMENT: This document may only be amended with a vote by all of its Members.

33. CUA ASSIGNMENT: To the extent that this Agreement is deemed to be a "material contract" under either of the CUA Management Agreements, the Members have no right to terminate this Agreement, either or without cause, based upon the existence or non-existence of either or both of the CUA Management Agreements. Therefore, if an applicable CUA Management Agreement expires or terminates for any reason, the Members shall remain fully obligated to perform under this Agreement contracting directly with the CUA or another third party contracted by the CUA for the maintenance, management and operation of the applicable utility systems.

CITY OF CORONA SIGNATURE PAGE
FOR
JOINT POWERS AGREEMENT BY AND AMONG THE CITY OF CORONA, ELSINORE VALLEY MUNICIPAL WATER DISTRICT AND TEMESCAL VALLEY WATER DISTRICT FOR THE FORMATION OF A JOINT POWERS AUTHORITY AND MANAGEMENT OF THE BEDFORD-COLDWATER SUB-BASIN OF THE ELSINORE BASIN

EACH OF THE UNDERSIGNED, having read and considered the above provisions, indicate their agreement by their authorized signatures.

CITY OF CORONA,
a California General Law City organized and existing under the laws of the State of California

By: _____
Dick Haley
Mayor

Attest:

_____
Lisa Mobley
City Clerk

Approved as to Form:

_____
Dean Derleth
City Attorney

Consent:

_____
Darrell Talbert
Executive Director
Corona Utility Authority

ELSINORE VALLEY MUNICIPAL WATER DISTRICT SIGNATURE PAGE FOR JOINT POWERS AGREEMENT BY AND AMONG THE CITY OF CORONA, ELSINORE VALLEY MUNICIPAL WATER DISTRICT AND TEMESCAL VALLEY WATER DISTRICT FOR THE FORMATION OF A JOINT POWERS AUTHORITY AND MANAGEMENT OF THE BEDFORD-COLDWATER SUB-BASIN OF THE ELSINORE BASIN

EACH OF THE UNDERSIGNED, having read and considered the above provisions, indicate their agreement by their authorized signatures.

ELSINORE VALLEY MUNICIPAL WATER DISTRICT, a Municipal Water District organized under Water Code §§ 71000

By:_____
Harvey R. Ryan
President, Board of Directors

ATTEST

Terese Quintanar
Secretary to the Board

APPROVED AS TO FORM

John E. Brown
General Counsel

TEMESCAL VALLEY WATER DISTRICT SIGNATURE PAGE
FOR
JOINT POWERS AGREEMENT BY AND AMONG THE CITY OF CORONA, ELSINORE VALLEY MUNICIPAL WATER DISTRICT AND TEMESCAL VALLEY WATER DISTRICT FOR THE FORMATION OF A JOINT POWERS AUTHORITY AND MANAGEMENT OF THE BEDFORD-COLDWATER SUB-BASIN OF THE ELSINORE BASIN

EACH OF THE UNDERSIGNED, having read and considered the above provisions, indicate their agreement by their authorized signatures.

TEMESCAL VALLEY WATER DISTRICT,
a California Water District organized under
California Water Code §§ 34000 et seq.

By: _____
C.W. Colladay
President, Board of Directors

Attest:

_____
Paul Rodriguez
Board Secretary

Approved as to Form:

_____
Dave Saunders
General Counsel

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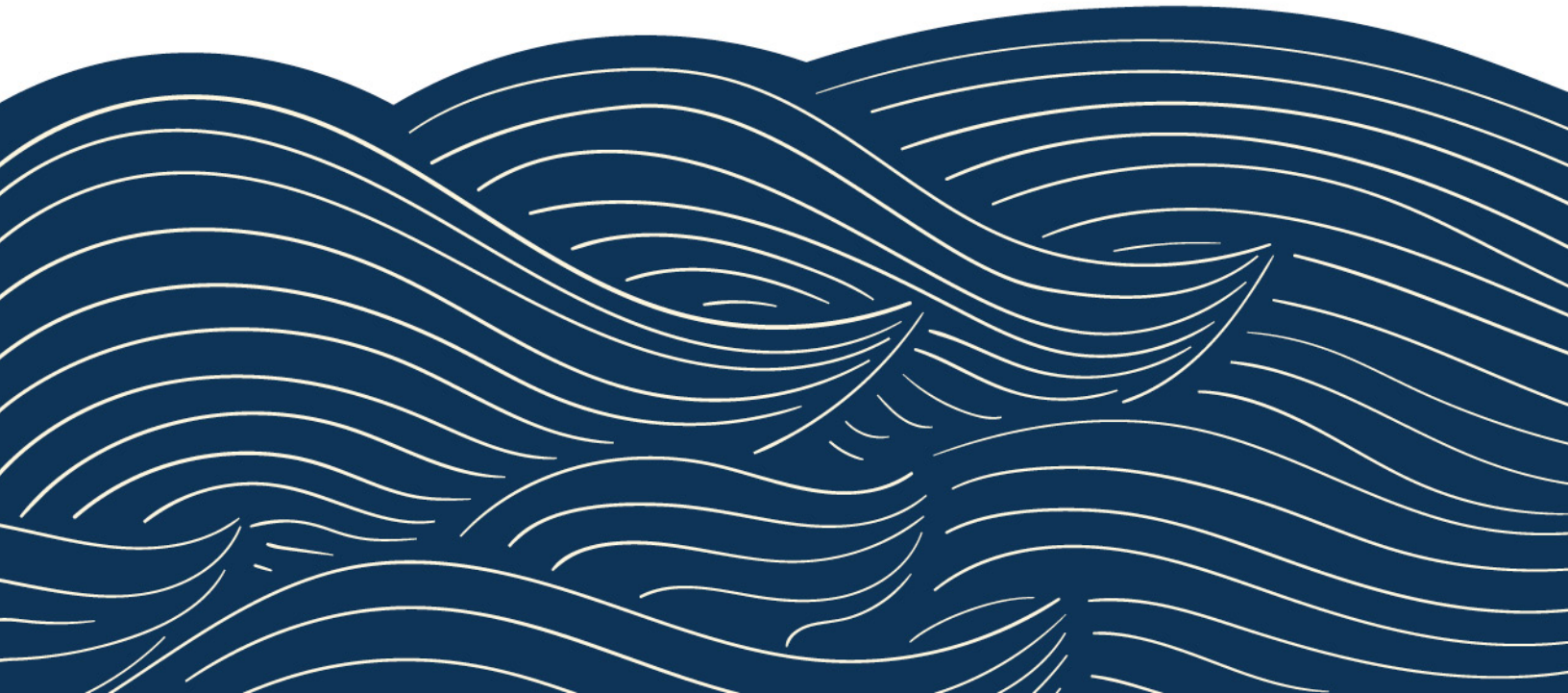
2015 SRRRA Agreement



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JOINT EXERCISE OF POWERS AGREEMENT CREATING THE SANTA ROSA REGIONAL RESOURCES AUTHORITY (SRRRA)

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JOINT EXERCISE OF POWERS AGREEMENT CREATING THE SANTA ROSA REGIONAL RESOURCES AUTHORITY

THIS AGREEMENT is made and entered into this 12th day of November, 2015 ("Effective Date"), by and among the Elsinore Valley Municipal Water District, a Municipal Water District (Elsinore), Rancho California Water District, a California Water District (Rancho), and Western Municipal Water District of Riverside County (Western), a Municipal Water District, individually or collectively referred to herein as the "Member Agency" or "Member Agencies" respectively, for the creation of the Santa Rosa Regional Resources Authority and the ownership, operation, maintenance, and administration of the Santa Rosa Water Reclamation Facilities (Facilities).

RECITALS

WHEREAS, each of the Member Agencies is a public agency authorized and empowered to contract for the joint exercise of powers under the Section 6500 et seq. Government Code of the State of California; and

WHEREAS, each of the Member Agencies have the authority and power to collect, transmit, treat, and dispose or reuse wastewater and wastewater treatment byproducts, and to construct, own, operate, and maintain facilities for such purposes; and

WHEREAS, Elsinore is a Municipal Water District providing water and sewer services to portions of southern Riverside County; and

WHEREAS, Rancho is a California Water District providing water and sewer services to portions of southern Riverside County; and

WHEREAS, Western is a Municipal Water District providing water and sewer services to southern and western Riverside County; and

WHEREAS, the Member Agencies recognize the need to operate, maintain, and administer the Facilities on a cooperative basis for the collection, transmission, treatment, and disposal of wastewater, and the management of wastewater treatment byproducts; and

WHEREAS, the Member Agencies hereby enter into this Agreement to establish this Joint Powers Authority to own, operate, maintain, and administer the Facilities on a cooperative basis for the collection, transmission, treatment, and disposal of wastewater, and the management of wastewater treatment byproducts, and to supersede certain agreements by and among the Member Agencies.

NOW THEREFORE, based on the foregoing recitals, the Member Agencies agree as follows:

Section 1. PURPOSE AND POWERS.

1.1. Definitions. For purpose of this Agreement, the meaning of the following terms shall be as follows:

1.1.1 "Act" means Articles 1, 2, and 4 of Chapter 5 of Division 7 of Title 1 of the Government Code (Section 6500 et seq.), as amended.

1.1.2. "Agreement" means this Joint Exercise of Powers Agreement.

1.1.3. "Authority" means the Santa Rosa Regional Resources Authority formed pursuant to this Agreement.

1.1.4. "Board" or "Board of Directors" means the governing body of the Authority as established in this Agreement.

1.1.5. "Budget" means each of the budgets approved in accordance with Section 3 below.

1.1.6. "Director" means the Director or Alternate Director representing a Member Agency of the Authority.

1.1.7. "Facilities" mean the Santa Rosa Water Reclamation Facility, its onsite and offsite trunk sewer and lift station facilities and any wastewater facilities financed, acquired, developed, designed, constructed, managed, operated, maintained, or replaced by the Authority, including without limitation, conduits, pipelines, pump stations, transmission facilities, buildings, and other structures utilized for the collection, transmission, treatment, and disposal of wastewater, and wastewater byproducts (not including recycled water) for any beneficial purpose including any beneficial use by Member Agencies. The Facilities are generally described and shown on Exhibit A attached to and made a part of this Agreement.

1.1.8. "Facilities Acquisition Agreement" means the Facilities Acquisition Agreement by and among the Authority and Rancho for the acquisition of the Facilities by the Authority from Rancho and the interim operations of the Facilities prior to the acquisition of the Facilities from Rancho.

1.1.9. "Fiscal Year" means July 1 through June 30 or such other period as the Board of Directors shall determine.

1.1.10. "Member Agency" or "Member Agencies" means each, or all, of the parties to this Agreement.

1.1.11. "Rancho Debt" means the debt generally described in the Schedule of Debt attached to this Agreement as Exhibit B which represents the Rancho Debt associated with the Facilities and constitutes the debt to be refinanced by the Authority.

1.2. Establishment of Joint Powers Public Agency and Common Powers to be Exercised. There is hereby created a joint powers public agency known as the Santa Rosa Regional Resources Authority (Authority). For the purposes of this Agreement, the Authority is a public agency separate from its Member Agencies. Each Member Agency has the power to construct, operate, maintain, administer, and manage facilities for the collection, transmission, and disposal of wastewater, the reuse of treated wastewater, and wastewater byproducts for any beneficial purpose. The purpose of this Agreement is to jointly exercise the foregoing common powers in the manner hereinafter provided solely as they relate to the wastewater flows to the Facilities from each of the Member Agencies. In connection with the foregoing, Rancho shall transfer the Facilities to the Authority. Nothing contained in this Agreement shall obligate any Member Agency to participate in projects undertaken by any other Member Agency constructed, funded, or financed prior to the date of this Agreement, except for the Facilities defined in this Agreement.

1.3. General Duties of the Authority. The Authority shall own, operate, maintain, and administer the Facilities utilizing revenues generated by the Facilities, funds contributed by the Member Agencies, and loan proceeds and grants received from the federal and state governments and other sources. The Facilities are to be transferred by Rancho to the Authority in accordance with the Facilities Acquisition Agreement. However, ownership of the Facilities shall not be transferred by Rancho to the Authority until the acquisition price has been paid to Rancho in accordance with the Facilities Acquisition Agreement. The acquisition price shall be the refinancing by the Authority of the Rancho Debt associated with the Facilities.

1.4. Powers. The Authority, by and through its Board of Directors, shall have the following powers as needed to fulfill its duties:

1.4.1. To own, operate, maintain, administer, and manage the Facilities, including any buildings, works, or improvements comprising part of the Facilities and located either inside or outside the boundaries of the Member Agencies, in accordance with sound operational, engineering, and accounting practices and local, state, and federal laws, and regulations;

1.4.2. To make and enter contracts, leases, and agreements in connection with the ownership, operations, maintenance, administration, and management of the Facilities;

1.4.3. To acquire by negotiation or condemnation, lease, purchase, construct, hold, manage, maintain, operate, and dispose of any buildings, property (real and personal), works, or improvements within and without the respective boundaries of the Member Agencies necessary to accomplish the purpose of this Agreement;

1.4.4. To contract for the services of engineers, attorneys, planners, financial consultants, construction contractors, and separate and a part therefrom, to appoint agents and representatives and to employ such other staff persons as necessary;

1.4.5. To issue revenue bonds or other appropriate public or private debt and incur debts, liabilities, or obligations in connection with the operation, maintenance, administration, and management of the Facilities;

1.4.6. To apply for, and obtain, grants or loans under any federal, state, or local programs for assistance in developing or implementing any of its projects or programs in connection with the construction, operation, maintenance, administration, and management of the Facilities;

1.4.7. To sue and be sued in its own name;

1.4.8. To acquire, hold, and dispose of such equipment as may be reasonably necessary for the operation, maintenance, administration, and management of the Facilities;

1.4.9. To file reports associated with the operation, maintenance, administration, and management of the Facilities;

1.4.10. In an emergency, to reconstruct or cause to be reconstructed such portions of the Facilities when reconstruction is immediately required to permit the Facilities to continue to function;

1.4.11. To maintain insurance coverage at all times with a responsible California-admitted insurer or insurers sufficient against loss or damage to the Facilities or portion thereof, insurance against public liability and property damage and pollution remediation and liability insurance, and any other insurance coverage deemed necessary;

1.4.12. To adopt industrial pretreatment regulations that complies with federal and state pretreatment regulations. The regulations shall include, but not necessarily be limited to, technically based local limits, shall be followed by each Member Agency, shall apply to industrial connections and groundwater cleanup sites that discharge or have the potential to discharge into the Facilities, and shall allow the Authority to take enforcement action against dischargers that violate the regulation;

1.4.13. To review and amend the industrial pretreatment regulations from time to time as the need arises;

1.4.14. To implement all requirements of the pretreatment regulations and all aspects of the Authority's service area pretreatment program, including permitting, inspection, monitoring, reporting, and enforcement activities, except that industrial pretreatment permits shall be jointly issued by the Authority and the Member Agency in whose jurisdiction the discharge is located;

1.4.15. To charge and bill the industrial dischargers for their respective share of the Authority's cost to implement the pretreatment regulations, including application review, permit issuance, sampling, monitoring, inspection, and enforcement costs;

1.4.16. To operate and maintain other facilities outside the Facilities as recommended in accordance with the Authority's operation agreements, which may include budgeting responsibilities;

1.4.17. To create and appoint advisory committees to serve at the pleasure of the Board;

1.4.18. To jointly exercise the common powers of the Member Agencies, solely as they relate to the wastewater flows to the Facilities from each of the Member Agencies, as set forth in this Section 1.4;

1.4.19. To adopt rules, regulations, and procedures governing the Authority and its operations;

1.4.20. To invest funds pursuant to Government Code Section 6509.5 or other applicable state law; and

1.4.21. Any power necessary or incidental to the foregoing powers in the manner and according to the procedures provided for under the law applicable to the Member Agencies to this Agreement.

1.4.22. Any additional powers conferred under the Act or under applicable law, insofar as such additional powers may be necessary to accomplish the purposes set forth in this Section 1, including all powers granted to the Authority under Article 4 of the Act which are in addition to the common powers of the Member Agencies, including the power to issue bonds or otherwise incur debts, liabilities or obligations to the extent authorized by the Act or any other applicable provision of law and to pledge any property or revenues or the rights thereto as security for such bonds and other indebtedness; and

1.4.23. Any power necessary or incidental to the foregoing powers shall be exercised in the manner and according to the procedures provided for under the California Municipal Water District Law (Water Code, Section 71000 et seq.) except as otherwise provided in the Act or by law or in this Agreement.

1.5. This Agreement Supersedes Previous Agreements. This Agreement is intended to, and does hereby, supersede the following agreements as of the Effective Date of this Agreement:

1.5.1. The "Agreement Between The Elsinore Valley Municipal Water District and Rancho California Water District concerning Treatment And Disposal Of Sewage Generated Within A Portion Of The Southern Division Of Elsinore Valley Municipal Water District Known As California Oaks," dated June 22, 1988;

1.5.2. The "Agreement Between Murrieta County Water District and Rancho California Water District For Receiving, Treating And Disposing Of Wastewater," dated March 1, 1989;

1.5.3. The "Agreement Between Elsinore Valley Municipal Water District and Rancho California Water District For The Collection, Treatment, And

Disposal Of Wastewater Generated Within The Northern California Oaks Area Of The Elsinore Valley Municipal Water District," dated March 2, 2004;

1.5.4. The "Agreement Between Elsinore Valley Municipal Water District And Rancho California Water District For The Collection, Treatment, And Disposal Of Wastewater Generated Within The Palomar Area Of The Elsinore Valley Municipal Water District," dated March 2, 2004;

1.5.5. The "Agreement Between Rancho California Water And Western Municipal Water District Regarding Rights And Obligations In Murrieta County Water District," dated September 20, 2006; and

1.5.6. The letter from Rancho to Elsinore dated September 20, 2011, extending Rancho's notice of termination from June 22, 2013 to June 22, 2016.

Section 2. ORGANIZATION.

2.1. Board of Directors. The Authority shall be governed and administered by a Board of Directors (Board). The Board shall consist of three (3) individuals (the "Primary Directors"), one each of which shall be appointed by Resolution by each Member Agency's governing board. Each Member Agency's governing board shall also appoint by Resolution one Alternate Director who shall serve and assume the rights and duties of the Primary Director when the Primary Director is unable to attend a Board meeting. Concurrently with the adoption of a Resolution authorizing the execution of this Agreement, each Member Agency shall designate and appoint, by resolution of its governing body, two persons to act as its Primary Director and its Alternate Director on the Board. Both the Primary Director and Alternate Director shall be an elected member of the governing board of the appointing Member Agency. Each Primary Director and Alternate Director shall hold office until their successor is selected. Primary Directors and Alternate Directors shall serve at the pleasure of the governing board of the appointing Member Agency and may be removed at any time, with or without cause, in the sole discretion of a Member Agency's governing board.

2.2. Officers of the Board. The Board shall elect its own officers, which shall include a Chair and Vice-Chair both of whom shall be members of the Board. The Chair shall preside at all meetings of the Board, and shall exercise and perform such other powers and duties as may be assigned by the Board. The Vice-Chair shall perform the duties of the Chair in the absence or disability of the Chair, and shall have such other powers as the Board may prescribe. The officers shall hold office for a term of one year commencing on January 1st of each and every calendar year and may serve a maximum of two consecutive years before the rotation of the officer positions.

2.3 Secretary-Treasurer. The Authority's Secretary-Treasurer shall be the Administrator's senior financial officer (such as its chief financial officer, director of finance or finance manager as designated by the Administrator) unless the Board elects to appoint as Secretary-Treasurer another individual of its own choosing. The Secretary-Treasurer shall fulfill the duties and obligations required under Government Code, Sections 6505.5 and 6505.6.

2.4. Administrator. The Authority shall appoint, from time-to-time, when and as it deems appropriate, an Administrator for the purpose of managing the Facility, contracting for the construction, operation, and maintenance of the Facility and providing management and administrative services for the Authority. The Administrator shall serve in accordance with a written agreement with the Authority. A Member Agency may be appointed as the Administrator.

The Authority shall make such an appointment by adopting a Resolution, a copy of which shall be provided to each Member Agency. Such a Resolution or a separate Resolution shall place a limitation on the Administrator in connection with any proposed expenditures of Authority funds as the Board deems appropriate and consistent with applicable law.

2.5. General Legal Counsel and Other Officers. General Legal Counsel shall be appointed by the Board and shall serve at the pleasure of the Board. Subject to the limits of the Authority's approved budget, the Board shall also have the power to appoint and contract for the services of such other officers, consultants, advisors, and independent contractors as it may deem necessary or convenient for the business of the Authority all of whom shall serve at the pleasure of the Board.

2.6. Principal Office. The Principal Office of the Authority shall be established from time-to-time by a Resolution of the Board, a copy of which shall be provided to each Member Agency. The Authority's Principal Office shall initially be located at the Principal Office of the Administrator. The Board is hereby granted full power and authority to change, by resolution, that Principal Office from one location to another, within the collective service territories of the Member Agencies.

2.7. Powers and Limitations Thereon. All the power and authority of the Authority shall be exercised by the Board, subject, however, to the rights reserved by the Member Agencies as set forth herein; provided, however, that the Board may delegate by Resolution such powers and authority to the Administrator as the Board deems appropriate. Unless the Administrator is an employee of the Authority, the Administrator shall at all times maintain exclusive control over any employees of the Administrator assigned to perform services under the Administrator's agreement with the Authority, including, but not limited to, matters related to hiring, probationary periods, disciplinary actions, termination, benefits, performance evaluations, salary determinations, promotions and demotions, and leave accruals.

2.8. Meetings. The Board shall meet at the Principal Office of the Authority or such other place as may be designated by the Board. The time and place of regular meetings of the Board shall be determined by Resolution adopted by the Board, a copy of which shall be provided to each Member Agency. The Chair, Vice-Chair, a Board member or the Administrator may call such special meetings of the Board at such time and place as determined by the Board.

2.9. Ralph M. Brown Act. All meetings of the Board, including, without limitations, regular, adjourned regular and special meetings, shall be called, noticed, held, and conducted in accordance with the provisions of the Ralph M. Brown Act (Government Code, Section 54950 et seq.).

2.10. Minutes. The Board shall cause to be kept minutes of all meetings of the Board and shall cause a copy of the minutes to be forwarded to each member of the Board and to each Member Agency.

2.11. Quorum and Vote. The majority of the Board shall constitute a quorum for the transaction of business; except that less than a quorum may adjourn from time-to-time. The affirmative vote of a majority of the Board shall be required for the approval of any action except for the budget approval process, admission of new parties or an amendment of this Agreement all of which shall be governed by the unanimous approval process in Sections 3.1, 3.2, 3.3, 3.4, 7, and 8 below, and a quorum for those matters shall be all three (3) Board members. Each Member Agency shall have one vote.

2.12. Rules. The Board may adopt rules and regulations for, among other things, its meetings, including a conflict of interest code and a purchasing procedure. The Board may, from time-to-time, review and revise these rules and regulations as needed.

2.13. No Compensation of Board or Committee Members by the Authority. No Director shall be compensated by the Authority for attendance at meetings of the Board or at any committee created by the Board. No member of a committee created by the Board shall be compensated for attendance at any meetings of that committee. Nothing in this section is intended to prohibit a Member Agency from compensating its representatives on the Board or on a committee for attending such meetings.

Section 3. BUDGETS.

Until such time as the Facilities are conveyed from Rancho to the Authority, budgeting shall occur pursuant to the terms of the Facilities Acquisition Agreement. Thereafter, budgeting shall occur as described in this section.

3.1. General Operating Budget. At the first meeting of the Board, and annually thereafter in the month of March or other mutually agreed upon timeframe, a general operation budget (the "Operating Budget") shall be adopted by the Board. The Operating Budget shall be prepared in sufficient detail to constitute an operating outline for the purpose of establishing rates and/or contributions to be billed to and paid by the Member Agencies for each available level of service provided. The operating rates and/or contributions to be billed to and paid by each Member Agency shall be based upon current flows or Equivalent Dwelling Units (EDUs) as of the January prior to the start of the Budget year. The Operating Budget shall outline anticipated revenues and planned expenditures to be made during the ensuing Budget year by functional category such as operations and maintenance, administration, projects, programs, planning, study and any applicable contributions to operate related reserves. For the purpose of the Operating Budget, operating shall mean any financial activity related to exchange transactions, as defined by applicable generally accepted accounting principles (GAAP) associated with the principal activity of the JPA. The Operating Budget shall be adopted by unanimous approval of the Board. The rates and contributions approved by the Board shall be paid by the Member Agencies pursuant to Section 3.6 below.

3.2. Non-Operating Budget. At the first meeting of the Board, and annually thereafter in the month of March or other mutually agreed upon timeframe, a non-operating budget (the "Non-Operating Budget") shall be adopted by the Board. The Non-Operating Budget shall be prepared in sufficient detail to constitute a non-operating outline for the purpose of establishing rates and/or contributions to be billed to and paid by the Member Agencies. These rates and/or contributions shall be based upon the proportionate amount of ultimate capacity in the relevant asset type applicable to each Member Agency at the amounts set forth in the Section 5.1. table. At a minimum, the Non-Operating Budget shall outline anticipated revenues and planned expenditures for non-operating financial activities for the ensuing Budget year, inclusive of any amount necessary for servicing debt. For the purpose of the Budget, Non-Operating shall mean any financial activity related to non-exchange transactions, as defined by applicable GAAP. Examples of non-exchange transactions include investment income, contributed capital from Member Agencies for capital debt service, interest expense, and return of capital to Member Agencies. The non-operating budget shall be adopted by unanimous approval of the Board. The rates and contributions approved by the Board shall be paid by the Member Agencies pursuant to Section 3.6 below.

3.3. Capital Project Budget. At the first meeting of the Board, and annually thereafter in the month of March, or other mutually agreed upon timeframe, a capital project budget (the "Capital Project Budget") shall be adopted by the Board. The Capital Project Budget shall be prepared in sufficient detail to constitute a capital project outline to assess contributions to be paid by the Member Agencies and expenditures to be paid by the Member Agencies during the ensuing year for capital projects needed for major repair, replacement, expansion and efficiency of the Facilities. These contributions shall be based upon the proportionate amount of ultimate capacity in the relevant asset type applicable to each Member Agency at the amounts set forth in the Section 5.1 table. The Capital Project Budget shall be adopted by unanimous approval of the Board. The contributions approved by the Board shall be paid by the Member Agencies pursuant to Section 3.6 below.

3.4. Specific Project Budgets. In addition to the Operating Budgets and Non-Operating Budgets, the Board may budget at any time for the study, implementation or construction of any specific project, program or study proposed to be undertaken by the Authority for matters not deemed to be of general benefit to all Member Agencies, provided that no Member Agency shall be involved without its approval. A specific project budget and written project Agreement of the Member Agencies who consented to participation in the specific project shall be established for each specific project, which budget and agreement shall determine the respective obligations, functions, and rights of the Member Agencies involved and of the Authority. The members of the Board representing the Member Agencies who will be involved in financing and implementing the specific project shall be and constitute a "Project Committee," for purposes of administration and implementation of the specific project. No project shall be acquired or constructed by the Board without the unanimous consent of the governing boards of participating Member Agencies. Ratification of the project budget by each of the participating Member Agencies shall constitute consent for the acquisition and construction of the specific project. Notwithstanding the foregoing, no debt shall be incurred by the Authority for a specific project without the unanimous consent of the Board. Any rates and contributions approved by the Project Committee and approved by the participating Member Agencies shall be paid by the participating Member Agencies pursuant to Section 3.6 below.

Each project budget shall include, without limitation, the following:

(a) Administrative expenses;
(b) Studies and planning costs;
(c) Engineering and construction costs;
(d) The allocation of costs, including debt service costs, if any, among participating Member Agencies;
(e) Annual maintenance and operating expenses for the project; and
(f) A formula for allocating annual maintenance and operating expenses, if any.

3.5. Failure to Obtain Budget Approvals. In the event a budget acceptable to the Board is not obtained prior to the start of a fiscal year the Authority shall continue to operate at the level of expenditure as authorized below:

3.5.1. General Operating Budget. The general operating budget shall be at the expenditure level authorized by the last approved general operating budget increased by the Consumer Price Index ("CPI") with a minimum increase of no less than two percent (2%). The CPI shall mean the change in CPI for Urban Wage Earners and Clerical Workers for the Los Angeles County,

Orange County, and Riverside County areas for the all items category for the 12-month period ending the February prior to the beginning of the fiscal year budgeted as determined by the U.S. Department of Labor, Bureau of Labor Statistics, or other mutually agreeable source if such a CPI is no longer available. This factor will be applied to the budget until such time as a new budget is approved by the Authority. Any shortfall in revenues will be made up from available reserves dedicated by the Board for such a purpose, and if insufficient to cover the shortfall, any available reserve funds not be designated by the Board for other purposes or otherwise legally restricted for other purposes by external parties. Reserves shall mean any available cash or investments.

3.5.2. Non-Operating Budget. The Non-Operating Budget represents revenue requirements to pay debt service on all bonds, loans or other indebtedness of the Authority. The Non-Operating Budget shall automatically be established at the required level necessary to meet annual debt service requirements including any revenue coverage covenants. Each Member Agency covenants to fix, prescribe, and collect rates and charges for its use of capacity in the Facilities which will yield during each fiscal year net revenues payable to the Authority sufficient for the Authority to satisfy all covenants in any indentures, loan agreements or other documents entered into by the Authority and to enter into such other agreements as are necessary for the Authority to secure financing to pay the acquisition price for the Facilities to Rancho.

3.5.3. Capital Project Budget. The Capital Project Budget represents revenue requirements to pay the costs associated with capital projects approved by the Authority. The capital project budget shall automatically be established at the required level necessary to implement capital projects previously approved by the Authority.

3.5.4. If a budget acceptable to the Board is not developed during the course of the fiscal year, then the budget in the following fiscal year shall be adopted according to the voting procedures in Section 2.11 such that unanimity shall not be required except for the Capital Project Budget which will remain at levels established by Section 3.5.3 until amended by unanimous vote of the Board.

3.6. Payments of Amounts Due. The payments owed for rates or contributions from each Member Agency to the Authority budget and/or project budget shall be due, payable, and delivered by the Member Agencies to the Authority within forty-five (45) days after receipt of a billing therefor from the Authority. To the extent permitted by state law, unpaid and past due contributions shall bear interest at ten percent (10%) per annum, calculated daily, from the date due to the date payment is received by the Authority.

Section 4. ACCOUNTING AND AUDITS.

4.1. Fiscal year. The fiscal year of the Authority shall be from July 1 to June 30.

4.2. Accounting Procedures. Full books and accounts shall be maintained for the Authority primarily in accordance with applicable GAAP and secondarily by practices established by, and consistent with, those utilized by the Controller of the State of California for similar public entities. The Authority's Secretary-Treasurer shall comply strictly with the requirements of the statute governing joint powers authorities at Government Code, Section 6500 et. seq.

4.3. Audit. An auditor shall be selected by the Board. The records and accounts of the Authority shall be audited annually by an independent certified public accountant in accordance with generally accepted auditing standards as applicable to special districts. Copies of such audit reports shall be filed as a public record with the Riverside County Auditor, the State Controller, and each Member Agency of the Authority within six (6) months of the end of the fiscal year under examination. The audit shall constitute a public record. Each Member Agency shall have the right to perform its own audit of the records and accounts of the Authority but the cost and expense of such special audit shall be born by the Member Agency seeking such audit.

Section 5. CAPACITY AND RECYCLED EFFLUENT RIGHTS

5.1. Capacity Rights in the Facilities. The permitted and design treatment capacity of the Facilities is currently five (5) million gallons per day ("MGD"). Treatment capacity rights in the Facilities shall be held for the benefit of the Member Agencies as shown in the following Asset/Liability Allocation Matrix. The Member Agencies agree that if, in the future, it is determined that the Facilities are operating at less than the permitted/designed treatment capacity of five (5) MGD, then the Member Agencies' respective capacity rights shall be adjusted pro rata to conform to their percentage capacity rights based on the assumed five (5) MGD operating capacity.

ASSET/LIABILITY ALLOCATION MATRIX

	Primary & Secondary	Tertiary Treatment	Trunk Sewer
Capital/Debt	Based on ultimate flow/capacity requirements	Based on ultimate recycled water amounts	Based on engineering analysis
Elsinore	40% - 2.0 MGD	40% - 2.0 MGD	43.57%
Rancho	40% - 2.0 MGD	52% - 2.6 MGD	36.61%
Western	20% - 1.0 MGD	8% - 0.4 MGD	19.82%

5.2. Temporary Use of Excess Capacity. A Member Agency or non-Member Agency may use the unused capacity of the other Member Agencies on a month-to-month basis as follows:

(a) The Member Agency or non-Member Agency using the excess capacity shall pay the applicable operation and maintenance expenses, as well as a fair market rental value of such excess capacity. This rental value will be determined as part of the annual budget process as described in Section 3 above and is in addition to the other rates set forth in that Section.

(b) Any excess capacity used shall be considered to be proportionally used from the current excess capacities of the other Member Agencies, and any funds received from the rental value provided in Section 5.2(a) will be used to offset any contributions required in such proportion for non-operation or capital related contributions as imposed in accordance with Sections 3.2, 3.3, 3.5.2, and 3.5.3.

(c) Any Member Agency providing excess capacity to another Member Agency or a non-Member Agency may terminate the other party's use of such excess capacity upon giving ninety (90) days prior written notice.

(d) Any proposed temporary capacity use between a Member Agency and a non-Member Agency must first be approved by the Board.

(e) The temporary use of excess capacity shall not transfer a corresponding right to control, use or derive financial benefit from the corresponding effluent stream. Permanent transfers of capacity rights are presumed to also transfer the right to control, use or derive financial benefit from a corresponding quantity of the effluent stream (as calculated in Section 5.3, below).

5.3. Effluent/Recycled Water Rights. Each Member Agency shall own and have the right to control, transfer and derive all financial benefit from the treated wastewater and recycled water produced by the Facilities in proportion to the amount of sewage delivered by each Member Agency to the Facilities for treatment, less any amount consumed during the course of the operation of the Facilities including, but not limited to, regulatory-required discharges, except as otherwise agreed upon in writing between two or more Member Agencies.

Section 6. ASSETS, DEBTS AND LIABILITIES

6.1. Debts and Liabilities.

(a) The debts, liabilities, or obligations of the Authority shall be the debts, liabilities, and obligations of the Authority alone and not of its Member Agencies. Bonds and loans entered into by the Authority, shall be special obligations of the Authority payable solely from, and secured solely by, the revenues, funds, and other assets pledged therefor under the applicable indenture or loan agreement and shall not constitute a charge against the general credit of the Authority. Bonds, loans or other indebtedness shall not be secured by a legal or equitable pledge of, or lien or charge upon or security interest in, any property of the Authority or any of its income or receipts except the property, income, and receipts pledged therefor under the applicable indenture or loan agreement. Any bonds, loans, or other indebtedness shall not constitute a debt, liability, or obligation of the State or any public agency thereof, including the Member Agencies, other than the special obligation of the Authority as described above. Neither the faith and credit nor the taxing power of the State or any public agency thereof, including the Member Agencies, shall be pledged to the repayment of any bonds, loans, or other indebtedness. The Authority shall have no taxing power.

(b) No covenant or agreement contained in any Bond or Indenture shall be deemed to be a covenant or agreement of any director, officer, agent, or employee of the Authority in his or her individual capacity, and no director or officer of the Authority executing a Bond shall be liable personally on such Bond or be subject to any personal liability or accountability by reason of the issuance of such Bond.

(c) No bonds shall be issued and no loans or other indebtedness shall be incurred by the Authority without the unanimous consent of the Board.

6.2. Acquisition and Operation of Facilities; Ownership of Assets, Debts, and Liabilities.

(a) Prior to the conveyance of the Facilities by Rancho to the Authority, the Facilities shall be operated in accordance with the terms of this Agreement and the Facilities Acquisition Agreement. Upon the conveyance of the Facilities by Rancho to the Authority, the Facilities shall be operated in accordance with this Agreement and such other agreements as are entered into by

the Authority and the Member Agencies from time to time. Upon conveyance by Rancho, the Authority shall own all of the Facilities and shall be responsible for all debts and liabilities associated with the Facilities that are incurred by the Authority after the Effective Date of this Agreement. The land upon which the Facilities are located will not be owned by the Authority, but will be leased by the Authority from Rancho for a ninety-nine (99) year term, unless extended, at a rental rate of one dollar ($1.00) per fiscal year payable on July 1 of each year. Each Member Agency shall execute any conveyance instruments necessary in order to accomplish a transfer of all assets, debts, and liabilities associated with the Facilities.

(b) Upon the Effective Date of this Agreement the Authority shall be obligated to acquire the Facilities including any related Property as more specifically described in the Facilities Acquisition Agreement and to obtain financing in order to pay off and defease the Rancho Debt associated with the Facilities as generally described in the Schedule of Debt attached hereto as Exhibit B. The Member Agencies intend for the Authority to acquire the Facilities from Rancho by obtaining a State Revolving Fund loan (the "SRF Loan") or other financing to discharge Rancho's Debt on the Facilities (Acquisition Price). If requested by the Authority, Rancho agrees to submit an application for the SRF Loan and to process it with the State Water Resources Control Board (the "Control Board") in order to obtain approval for an SRF Loan to be made to the Authority. The Authority and Rancho agrees to diligently pursue approval of the SRF Loan and agrees to execute the necessary documentation to obtain, transfer or assign the SRF Loan approval to the Authority. In the event that the SRF Loan is not approved by the planned acquisition date, the Member Agencies agree that the acquisition price will be financed by revenue bonds issued by the Authority. The Member Agencies agree to cooperate in negotiating the terms of the documents required to obtain the SRF Loan or the bond documents necessary to issue the Authority bonds, including all documents necessary to ensure that the Authority will have sufficient wastewater revenues to repay the SRF Loan or the Authority bonds and operate and maintain the Wastewater Plant in accordance with the covenants in the SRF Loan documents or the bond covenants in the bond documents, as applicable. The parties acknowledge and agree that such documents will include a covenant that net revenues of the Authority exceed the debt service due in each year by a certain percentage as required by the Control Board of the underwriter and the rating agency or agencies for the Authority.

6.3. Treatment of Rancho's SWAP Obligations. In connection with certain variable rate interest debt incurred by Rancho with respect to the Facilities, Rancho entered into SWAP Agreements for hedging interest rate risk. In accordance with the terms of the SWAP Agreements, Rancho could owe the SWAP providers early termination costs or payments should the SWAP Agreements be terminated before their expiration on August 15, 2031. To reduce the cost of acquiring the Facilities, Rancho shall internally reallocate the debt connected to the Facilities rather than terminating the SWAP Agreements. In return for the reallocation, the Authority agrees to reimburse Rancho for any early termination costs or payments due under the SWAP Agreements for the debt related to the Facilities should the SWAP Agreements be terminated for reasons beyond Rancho's control or option. "SWAP Agreements" means that certain ISDA Master Agreement and related documents dated May 20, 2004 between Citibank, N.A. and Rancho and the Second Amended and Restated Confirmation dated as of March 19, 2008, evidencing a SWAP transaction in the notional amount of $17,850,000, and that certain ISDA Master Agreement and related documents dated May 20, 2004, between UBS, AG, Rancho, and the Amended and Restated Confirmation dated as of May 27, 2008, evidencing a SWAP transaction with a notional amount of $26,775,000.

6.4. California Public Employees Retirement System Actuarial Liability (CalPERS). The Parties acknowledge that Rancho presently has an unfunded potential actuarial liability to Cal PERS for Rancho's employees who are, or have been, assigned to the Facilities ("Rancho Employees"). Although it is understood that Rancho will bear the financial responsibility to pay

the annual employer contributions to CalPERS for the retirement benefits accrued by the Rancho Employees who will remain under the sole and exclusive control and direction of Rancho, the Parties agree that the unfunded actuarial liability is less a reflection of the cost of providing retirement benefits accrued by the Rancho Employees and more like a business cost tied to the performance of previously contributed funds to CalPERS by Rancho and certain actuarial assumptions. In light of the preceding, the Authority shall assume responsibility for and pay any remaining unfunded liability associated with Rancho Employees upon a change in Rancho as the Authority's Administrator. In the event of the dissolution of the Authority, each Member Agency shall assume responsibility for and pay its proportionate share of any remaining unfunded actuarial liability associated with Rancho Employees. The unfunded actuarial liability will be computed as of the Authority's formation date and periodically redetermined over the life of the Authority except that if Rancho is terminated as the Authority's Administrator, the unfunded actuarial liability will be calculated based on benefit accrued by Rancho Employees as of the effective date of the termination. If a Member Agency elects to withdraw from the Authority, the Member Agency shall assume liability for its proportionate share of the unfunded actuarial liability, if any, at the time of that Member Agency's withdrawal from the Authority. The unfunded actuarial liability will be determined by a mutually agreed upon neutral and qualified actuary.

Section 7. TERM AND TERMINATION.

This Agreement shall remain in effect and the Authority shall continue to fulfill its purpose and exercise its power for a period of ninety-nine (99) years from the Effective Date of this Agreement or until this Agreement is extended or terminated as provided for herein. This Agreement may be extended or terminated by written unanimous consent of the Member Agencies evidenced by copies of resolutions of the Member Agencies' governing boards.

Section 8. ADMISSION OF NEW PARTIES.

It is recognized that public agencies other than the original Member Agencies to this Agreement may wish to participate in the Authority. Additional public agencies may become members of the Authority upon such terms and conditions as unanimously approved by the Board and upon the approval of all of the governing boards of the existing Member Agencies of the Authority, evidenced by the execution of a written amendment to this Agreement signed by all of the Member Agencies including the additional public agency.

Section 9. AMENDMENTS.

This Agreement may be amended only by the unanimous approval of the Board and all of the governing boards of the Member Agencies.

Section 10. WITHDRAWAL, ASSIGNMENTS OR DISSOLUTION.

10.1. Member Agency Withdrawal. Any Member Agency shall have the ability to withdraw its membership upon serving written notice of its intention to withdrawal on all other Member Agencies at least one-hundred twenty (120) days before the end of any fiscal year. However, such withdrawal by a Member Agency shall not relieve the Member Agency of its financial obligations (including, but not limited to, capital costs, debt obligations, CalPERS unfunded liability, and any net operations and maintenance costs resulting from such withdrawal) arising under this Agreement. Such obligations shall arise upon execution of this Agreement and shall include a Member Agency's proportionate obligation to acquire the Facilities from Rancho. A withdrawing Member Agency may assign and convey its capacity rights, and related obligations to another Member Agency if approved by the unanimous vote of the Board. A Member Agency

may also assign and convey its capacity rights, and related obligations, to a third party public agency, upon unanimous approval of the Board and the approval of each Member Agency's governing boards and upon written acceptance by the third party public agency of all the terms of this Agreement and all other related agreements and resolutions of the Board as well as compliance with Section 8 of this Agreement. A withdrawing Member Agency shall have no entitlement, right, or claim to the Authority's assets arising from its decision to withdraw.

10.2. Partial Sale of Capacity Rights to Member Agency. A Member Agency may assign and sell a portion of its Facilities capacity rights to another Member Agency upon unanimous approval of the Board. Unless otherwise agreed upon by the Seller and Buyer, the selling price for the partial sale of capacity rights from a Member Agency to another Member Agency shall be equal to the selling Member Agency's incurred capital cost for the capacity, including financing costs, adjusted for inflation not to exceed the annual increase in the CPI for Urban Wage Earners and Clerical Workers for the Los Angeles County, Orange County, and Riverside County areas for all the items category for the 12-month period ending the February prior to the beginning of the Fiscal Year budgeted as determined by the U.S. Department of Labor, Bureau of Labor Statistics, or other mutually agreeably source if such a CPI is no longer available.

10.3. Partial Sale of Capacity Rights to a Non-Member Agency. A Member Agency may also assign and sell a portion of its Facilities capacity rights to a third party public agency upon the unanimous approval of the Board and the approval of each Member Agency's governing boards and upon written acceptance by the third party public agency of the terms of this Agreement and all related agreements and resolutions of the Board as well as compliance with Section 8 of this Agreement.

10.4. Dissolution. The Authority may be dissolved at any time prior to the expiration of the term by unanimous vote of the Board and approval of the Member Agencies' governing boards. However, the Authority shall not be dissolved until all debts and liabilities of the Authority have been eliminated. Upon dissolution of the Authority, each Member Agency shall receive its proportionate share of any remaining assets after all Authority liabilities and obligations have been paid or settled based on each Member's Agency's respective capacity ownership at the time of dissolution. The distribution of remaining assets may be made "in kind" or assets may be sold and the proceeds thereof distributed to the Member Agencies. The distribution of any remaining assets will occur within a reasonable time after dissolution. No former Member Agency which previously withdrew from the Authority shall be entitled to a distribution upon dissolution.

Section 11. DISPUTE RESOLUTION.

If a dispute arises as to the construction, interpretation or implementation of any portion of this Agreement or any matters that arise in connection with this Agreement, the issues of dispute or matter requiring resolution shall be submitted to non-binding mediation by an independent, neutral mediator agreed to by the Member Agencies. If no such agreement is reached as to the independent, neutral mediator, then the mediator shall be chosen by the Administrator.

Section 12. INDEMNIFICATION.

The Member Agencies, their employees, agents, and officials should, to the extent permitted by law, be fully protected from any loss, injury, damage, claim, lawsuit, cost, expense, attorneys' fees, litigation costs, defense costs, court costs, or any other cost arising out of or in any way related to the Authority. Accordingly, the provisions of this indemnity are intended by the Parties to be interpreted and construed to provide the fullest protection possible under the law to the Member Agencies.

Therefore, to the fullest extent permitted by law, the Authority shall defend, indemnify, and hold harmless the Member Agencies and their employees, agents, and officials from any liability, claims, suits, actions, arbitration, proceedings, administrative proceedings, regulatory proceedings, losses, expenses, or costs of any kind, whether actual, alleged, or threatened, actual attorney fees incurred by Member Agencies, court costs, interest, defense costs, (including expert witness fees) and any other costs or expenses of any kind whatsoever without restriction or limitation incurred in relation to, as a consequence of or arising out of, or in any way attributable actually, allegedly or impliedly, in whole, or in part, to the activities of the Authority.

Section 13. MISCELLANEOUS.

13.1. Section Headings. The section headings of this Agreement are for convenience only and are not to be construed as modifying or governing the language in each section.

13.2. Consent Or Approval Shall Not Be Unreasonably Withheld. Whenever in this Agreement any consent for approval is required, such consent or approval shall not be unreasonably withheld.

13.3. Applicable Laws. This Agreement is made under the laws of the State of California and is to be construed consistent with those laws.

13.4. Assignment and Succession. The Member Agencies shall not assign any rights or obligations under this Agreement without the written consent of all the Member Agencies. This Agreement shall be binding upon and shall inure to the benefit of the successors of the parties to this Agreement.

13.5. Severability. If any one or more of the terms, provisions, promises, covenants, or conditions of this Agreement shall to any extent be adjudged invalid, unenforceable, void or voidable for any reason whatsoever by a court of competent jurisdiction, each and all of the remaining terms, provisions, promises, covenants, and conditions of this Agreement shall not be affected thereby and shall be valid and enforceable to the fullest extent permitted by law.

IN WITNESS WHEREOF, each party hereto has pursuant to resolution duly passed and adopted by their respective governing bodies as indicated below caused this Agreement to be executed.

Elsinore Valley Municipal Water District

By: _____
President

By: _____
Secretary-Treasurer

Approved by
Board of Directors
By Resolution No. 15-11-02

Dated: 11/12/15

Dated: 11/12/15

Rancho California Water District

By: _____
President

By: _____
Secretary-Treasurer

Approved by
Board of Directors
By Resolution No. 2015-11-3

Dated: 11/12/2015

Dated: 11/12/15

Western Municipal Water District of Riverside County

By: _____
President

By: _____
Secretary-Treasurer

Approved by
Board of Directors
By Resolution No. 2927

Dated: 11/16/2015

Dated: 11/16/2015

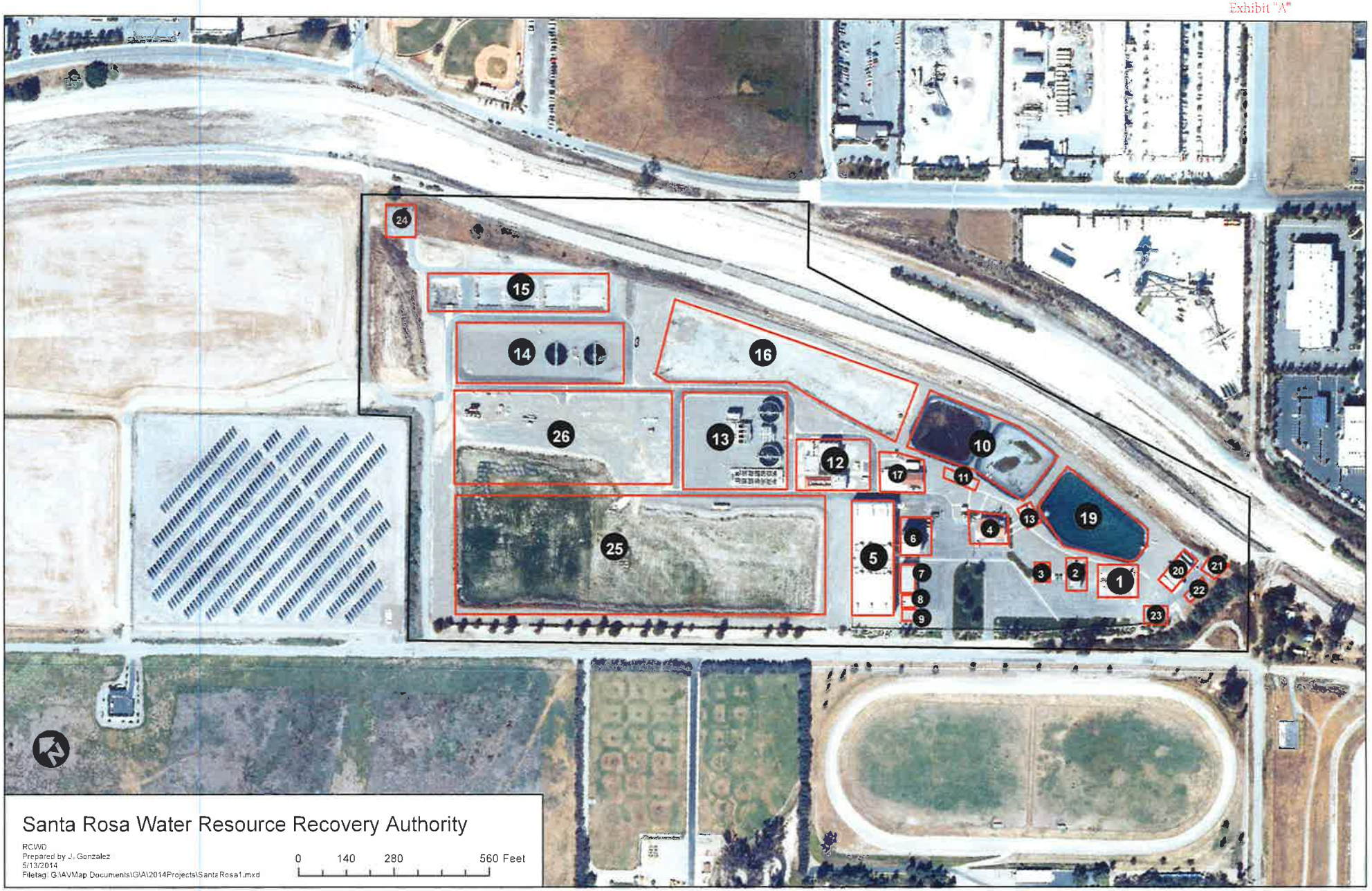
FACILITIES PER SECTION 1.1.7 OF THE JOINT EXERCISE OF POWERS AGREEMENT

Map Location	Facility/Asset Description
	Primary/Secondary Treatment Facilities
1	Headworks
2	Grit Chamber
3	Headworks Emergency Generator
4	Operations Building
5	SBR Basins/Aerobic Digester
6	Solids Dewatering Building
7	SBR Blower Building
8	Electrical Building
9	Solar Electrical Facility
16	Percolation Basin (non-compliant water pond)
17	SRWRF Maintenance & Collection System Building
25	Future Primary/Secondary Treatment Facility Area
	Tertiary Treatment Facilities
10	Equalization Basins
11	AWT Pump Station
12	AWT Facilities (Chemical Room, Chlorine Room, Operations Room & Emergency Generator)
13	AWT Facilities (Rapid Mix, Floculation, Clarifiers, Filters & Chlorination Basin)
14	Filter Backwash Basins
15	Sludge Drying Beds (vactor truck disposal area)
18	Recycled Water Splitter Box
19	Recycled Water Forebay
	Other Non-identified Facilities
	Asphalt Concrete Paving
	Drainage (Curb & Gutter, Swales, Culverts)
	Perimeter Walls & Fencing
	Landscaping (Plant, Rock, DG & Dirt)
	Monitoring Wells
	Trunk Sewer Pipelines & Manholes
	RCWD Facilities Not Being Acquired by JPA
20	Elm Street Recycled Water Pump Station Nos. 1 & 2
21	Well No. 135
22	Recycled Water Distribution System Disinfection Facility
23	Recycled Water System Algae Filters
24	Well No. 145
26	Future IPR Facility Area (Reserved for RCWD's Future Use)

Exhibit "A"

(And Attached Map of Reclamation Facility)

Exhibit "A"



Santa Rosa Water Resource Recovery Authority

RCWD
Prepared by J. Gonzalez
5/13/2014
Filetag: G:\AVMap Documents\GIA\2014Projects\SantaRosa1.mxd

0 140 280 560 Feet

EXHIBIT B
SCHEDULE OF DEBT

Exhibit "B"- Debt Schedule

*Values as of June 30th, 2015**

On Sewer Division Books

Issue	Principal	Unamortized Discount/(Premium)	Total Debt	Reserve Cash in Trust	Net Debt
2002A	(4,112,974)	(187,648)	(4,300,622)	437,163	(3,863,459)
2008A	(42,617,705)	(626,672)	(43,244,377)	3,546,519	(39,697,857)
2008B	(13,973,518)		(13,973,518)	991,750	(12,981,768)
2010A	(910,768)	4,803	(905,965)	-	(905,965)
Total	(61,614,964)	(809,517)	(62,424,481)	4,975,432	(57,449,050)

Tertiary Debt on Water Divisions Books

Issue	Principal	Unamortized Discount/(Premium)	Total Debt	Reserve Cash in Trust	Net Debt
2002A	(237,214)	(10,822)	(248,037)	25,213	(222,824)
2005C	(3,606,090)	(168,672)	(3,774,762)	-	(3,774,762)
2008A	(3,359,840)	(221,425)	(3,581,265)	1,625,191	(1,956,073)
Total	(7,203,143)	(400,920)	(7,604,064)	1,650,405	(5,953,659)

Total Sewer/Tertiary Debt

Issue	Principal	Unamortized Discount/(Premium)	Total Debt	Reserve Cash in Trust	Net Debt
2002A	(4,350,188)	(198,470)	(4,548,659)	462,376	(4,086,283)
2005C	(3,606,090)	(168,672)	(3,774,762)	-	(3,774,762)
2008A	(45,977,544)	(848,097)	(46,825,641)	5,171,711	(41,653,931)
2008B	(13,973,518)	-	(13,973,518)	991,750	(12,981,768)
2010A	(910,768)	4,803	(905,965)	-	(905,965)
Total	(68,818,108)	(1,210,437)	**(70,028,545)**	**6,625,836**	**(63,402,708)**

Asset % of Outstanding Capital Debt

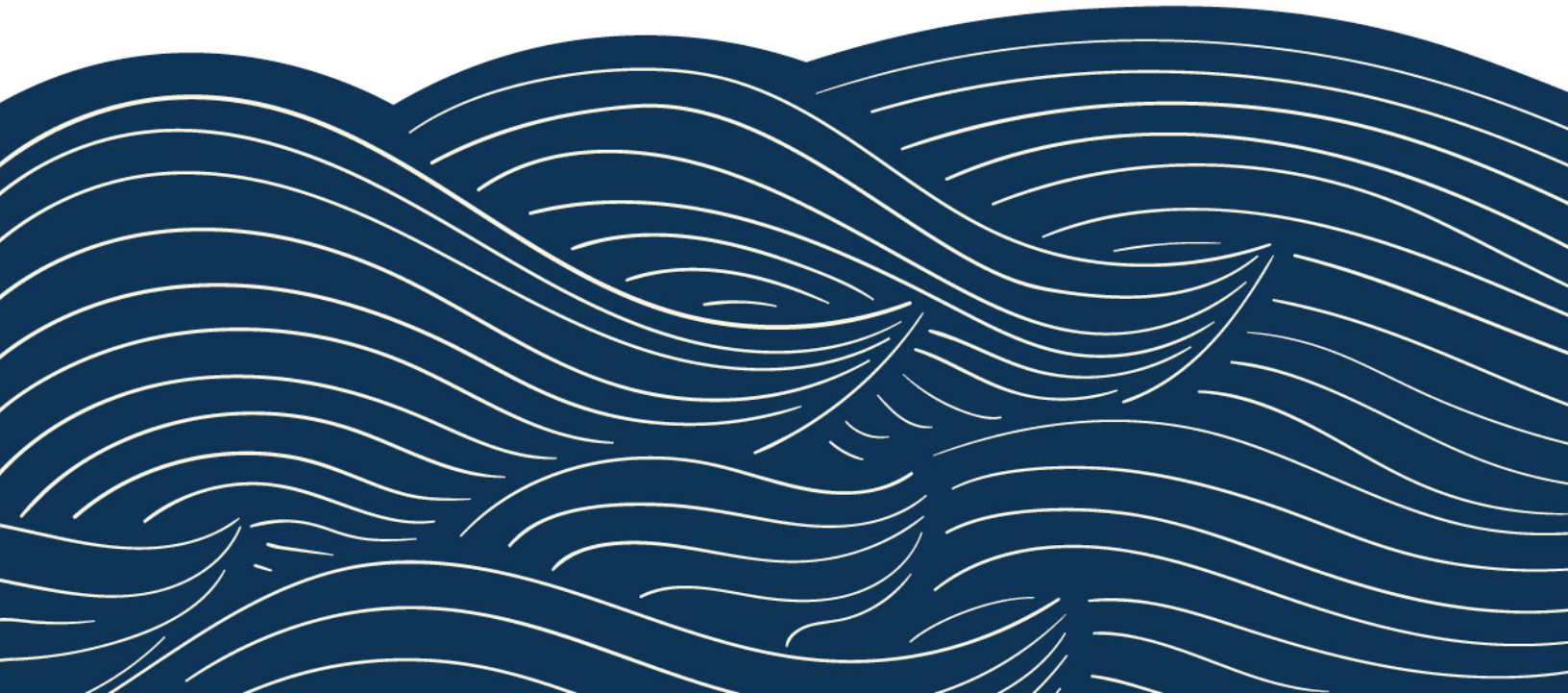
SRRRA - Debt for Assets to be Acquired	Asset %	Total Debt	Reserve Cash in Trust	Net Debt
Primary & Secondary Treatment	49%	$ (34,291,563)	$ 3,244,538	$ (31,047,025)
Tertiary Treatment	8%	$ (5,718,915)	$ 541,102	$ (5,177,813)
Collection System	34%	$ (24,154,172)	$ 2,285,377	$ (21,868,795)
Total SRRRA Debt		**$ (64,164,650)**	**$ 6,071,017**	**$ (58,093,633)**
RCWD- Debt for Retained Assets				
Temecula Valley Disposal Line-Rancho Only	3%	$ (2,326,519)	$ 220,126	$ (2,106,392)
Land	5%	$ (3,537,376)	$ 334,693	$ (3,202,683)
Total RCWD Debt		**$ (5,863,895)**	**$ 554,820**	**$ (5,309,075)**
Total SRRRA & RCWD Debt	100%	**$ (70,028,545)**	**$ 6,625,836**	**$ (63,402,708)**

Per Agency - Net Debt for Assets to be Acquired	%	RCWD	%	EVMWD	%	WMWD	Total
Primary & Secondary Treatment	40.0%	$ 12,418,809.87	40.0%	$ 12,418,809.87	20.0%	$ 6,209,404.94	$ 31,047,024.68
Tertiary Treatment	52.0%	$ 2,692,462.90	40.0%	$ 2,071,125.31	8.0%	$ 414,225.06	$ 5,177,813.26
Collection System	36.6%	$ 8,006,166.02	43.6%	$ 9,528,234.19	19.8%	$ 4,334,395.26	$ 21,868,795.48
Total		$ 23,117,438.79		$ 24,018,169.37		$ 10,958,025.26	$ 58,093,633.42

*For reference only. Values will be updated at time of asset acquisition

L

2009 EVMWD, Eastern, and RCWD Recycled Water Agreement



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AGREEMENT
RECYCLED WATER SALES AND OPERATING COSTS

This Agreement is made and entered into this 26th day of March, 2009, by and among **EASTERN MUNICIPAL WATER DISTRICT** organized and operating pursuant to Division 20 of the California Water Code (hereinafter "EMWD"), **RANCHO CALIFORNIA WATER DISTRICT** organized and operating pursuant to Division 13 of the California Water Code (hereinafter "RCWD") and **ELSINORE VALLEY MUNICIPAL WATER DISTRICT** organized and operating pursuant to Division 20 of the California Water Code (hereinafter "EVMWD"). EMWD, RCWD and EVMWD are sometimes individually referred to herein as the "Party" and collectively as the "Parties."

RECITALS

A. EMWD and RCWD previously entered into and executed a Wastewater Management Agreement dated June 23, 1989, to provide for coordinated operation of their respective wastewater service systems. The intent was to provide wastewater service in the most economical manner regardless of jurisdiction.

B. As part of this coordinated effort, both EMWD and RCWD have expanded their recycled water distribution systems and have constructed intertie facilities connecting EMWD's Temecula Valley RWRF and RCWD's Santa Rosa WRF to maximize the beneficial sale and use of reclaimed water within and adjacent to their respective service areas.

C. Temecula Valley RWRF and Santa Rosa WRF discharge excess recycled water into EMWD's Temecula Valley pipeline to a connection on the Reach 4 line upstream of the discharge facility at Temescal Creek as shown on the attached figure. In addition, raw sewage from EVMWD is transported to RCWD's Santa Rosa WRF, treated and used for local supply or placed into EMWD's Temecula Valley pipeline to serve beneficial use deliveries within EVMWD. Both RCWD and EVMWD purchased capacity (2.46 MGD and 1.54 MGD, respectively) in EMWD's Temecula Valley Pipeline and Reach 4 discharge pipelines.

D. To date, several MOU's/Agreements and Addendums to the June 23rd Agreement have been executed by and between Parties with respect to the delivery of recycled

water, construction and maintenance of mutually beneficial facilities, and financial and other obligations. Due to plant and pipeline infrastructure improvements and other factors, many of these contracts contain provisions that are no longer practicable or viable.

E. The purpose of this agreement is to confirm the contractual provisions contained in the prior agreements and to formalize the mutual understanding among the Parties related to wholesale recycled water sales and/or discharge of recycled water through the Temecula Valley pipeline.

NOW, THEREFORE, in consideration of the above-recited premises, together with the mutual covenants herein contained, EMWD, RCWD, and EVMWD agree as follows:

AGREEMENT

1. Recycled Water Sales to RCWD

A. Confirmation of EMWD Recycled Water Supply to RCWD. RCWD is responsible for providing retail recycled water to its customers within its service area. The primary source of RCWD's recycled water supply is that which is generated from its Santa Rosa WRF. In addition, RCWD buys wholesale recycled water from EMWD as necessary to meet customer demands in excess of flows generated from Santa Rosa WRF. Under the Wastewater Management Agreement dated June 23, 1989, as amended by Addendum No. 1 dated October 8, 1993, EMWD agreed to sell a 'Minimum Basic Quantity' of 1.8 MGD to RCWD on a take or pay basis (Section XVII-A of Addendum 1) and to sell additional recycled water, up to 5 MGD, to RCWD on an 'As Available' basis (Section XVI-A of Addendum 1). Said recycled water supply agreement provisions are hereby confirmed and, notwithstanding the term of this Agreement, made perpetual.

B. EMWD Billing for Recycled Water Supply to RCWD. EMWD will bill RCWD monthly for all recycled water deliveries to RCWD through metering devices at points of delivery. The metering devices shall meet EMWD's requirements and include necessary SCADA, telemetry capabilities, pressure and flow monitoring, valves, access, and security features designed and constructed by RCWD at RCWD's expense per EMWD's requirements. In the event that the total deliveries during a calendar month do not total 1.8 MGD (5.52 acre-feet) average, EMWD shall also invoice RCWD for the recycled water not accepted (i.e. 1.8 MGD or 5.52 acre-feet multiplied by the number of calendar days in the month less recycled water accepted, stated as MGD or AF). The total deliveries and EMWD's 'Minimum Basic Quantity' commitment to RCWD shall be calculated monthly based on the cumulative of metered flow to RCWD's and EVMWD's (see Paragraph 2) metered turnouts along the Temecula Valley Pipeline (TVP) located between the Palomar Booster Station and Dissipater Facility.

C. Price of Recycled Water. The price per acre foot shall be EMWD's then-in-effect wholesale recycled water rate, current rate R4RC at $180.50/AF, subject to periodic adjustment.

D. Indemnification. RCWD will defend and indemnify EMWD from any claims or losses arising out of or in connection with the use of the recycled water delivered to RCWD by EMWD.

2. Recycled Water Sales to EVMWD.

A. Delivery Point for Recycled Water from EMWD. Recycled water deliveries by EMWD to EVMWD from the Reach 4 Pipeline shall be at turnouts approved by EMWD; each delivery point shall be metered. The metering devices and turnouts shall include necessary SCADA, telemetry capabilities, pressure and flow monitoring, valves, access, and security features designed and constructed by EVMWD at EVMWD's expense per EMWD's requirements.

B. Annual Reconciliation of Billing. At the beginning of each fiscal year, EVMWD's recycled water allocation shall be adjusted based on EVMWD's actual average daily flow contribution to the Santa Rosa WRF during the previous fiscal year. Based on this adjusted allocation, EVMWD and RCWD shall reconcile commodity charges associated with EVMWD's actual contribution to Santa Rosa WRF.

C. Billing for Recycled Water from EMWD. EMWD will bill EVMWD monthly for all recycled water deliveries to EVMWD through metering devices at points of delivery, except for 1.00 MGD (3.07 AF) average or then-in-effect EVMWD allocation (calculated on a monthly basis) taken at metering stations along the Temecula Valley Pipeline between the Palomar Booster Station and the Dissipater Facility. The credit of 1.00 MGD (3.07 AF) or then-in-effect EVMWD allocation does not apply to EVMWD recycled water purchases for Canyon Lake or any other turnouts located outside of the TVP reach described above.

D. Price of Recycled Water. The price per acre foot shall be EMWD's then-in-effect wholesale recycled water rate, current rate R4RC at $180.50/AF, subject to periodic adjustment.

E. Surplus Recycled Water. EMWD agrees to sell surplus recycled water to EVMWD, on an as-available basis, with the understanding that current and future EMWD customers will have priority to recycled water supplies and there is no implied guarantee of availability of surplus recycled water to EVMWD.

3. EVMWD's Excess Recycled Water. RCWD has no obligation to take or to store recycled water that EVMWD cannot reuse and may refuse this recycled water at any time it does not have storage or reuse capacity.

4. Temecula Valley Pipeline/Palomar Booster Operational Costs. Each party shall be responsible to pay its proportionate share of the operational costs associated with the Temecula Valley Pipeline and Palomar Booster Station system. The cost will be calculated on a monthly basis by EMWD and invoiced to EVMWD and RCWD on an annual basis as follows:

Elsinore Valley Municipal Water District:

J X E = D

J = Operational Rate per MG (Avg. annual operational costs for Palomar Booster divided by flows processed thru respective facility)

E = Total recycled water deliveries during month from EMWD provided to EVMWD at metered turnouts along the TVP located between the Palomar Booster and the Dissipater Facility. The value of "E" shall be a minimum of 1.00 MGD (or then-in-effect EVMWD allocation), regardless of the actual recorded value. The value of "E" is exclusive of recycled water deliveries to Canyon Lake.

D = EVMWD proportionate share of monthly Operational costs

An annual reconciliation of flows and operational costs shall be performed by EMWD as follows:

Designation	E	G	H	I	J	M
	EMWD RW Deliveries to EVMWD (TVP Only)	EMWD RW Deliveries to RCWD	SRWRF Discharge to TVP	EVMWD Flow to SRWRF	EMWD Palomar BS Operational Rate	EMWD Dissipater Operational Rate
January						
↓						
December						
Totals						

If "H" is greater than 1.00 MGD average or then-in-effect EVMWD allocation (calculated monthly), then EMWD shall invoice RCWD for additional Operational costs associated with the Palomar BS and Dissipater Facility. The Operational cost shall be calculated as follows:

$$(H - (1.00 \text{ (or as appropriate) } X \text{ calendar days per month})) X (J + M) = K$$

H = Santa Rosa WRF Discharge to Temecula Valley Pipeline during calendar month (MG)

J = Operational Rate per MG (Average annual operational costs for Palomar Booster divided by flows processed thru respective facility)

M = Operational Rate per MG (Average annual operational costs for Dissipater Facility divided by flows processed thru respective facility)

K = RCWD monthly proportionate share of Operational costs

5. Temecula Valley Pipeline/Palomar Booster Maintenance Costs. As needed, it may be necessary to do preventative maintenance and/or repair on the Temecula Valley Pipeline and Palomar Booster Station system. These cost estimates shall be identified and shared proportionately by all parties based on the purchased capacity. Such costs shall be separated from the normal operating costs and a full detail of the final costs be included in the billing. Such work shall have been preapproved by the parties prior to beginning work unless the work being done is considered to be an emergency. In this case, each party will be notified within 48 hours of the nature of the emergency and potential costs.

6. Reporting Requirements. In order to calculate the amounts due for commodity charges and O&M costs, each party shall be responsible for providing the following information on a monthly basis to the other Parties of this Agreement to be used in the annual calculation:

   a. RCWD shall report recycled water flows from the Santa Rosa WRF into the Temecula Valley Pipeline. RCWD shall also report all recycled water deliveries received from EMWD.

b. EMWD shall report the total flow reads at the Palomar Booster and all operating and maintenance costs of the Temecula Valley Pipeline and Palomar Booster system.

c. RCWD shall report EVMWD's raw sewage influent flow contribution to the Santa Rosa WRF.

d. EVMWD shall report recycled water deliveries received from EMWD at metered turnouts located along the TVP between the Palomar Booster and Dissipater Facility.

7. System Shutdowns. The Temecula Valley Pipeline System and Palomar Booster Station are subject to planned and unplanned shutdowns. During such events, EMWD is not obligated to convey RCWD and EVMWD's flows from the Santa Rosa WRF. Shutdown notifications and protocol will be made and conducted in accord with the Operational Protocol prepared pursuant to paragraph 12.D, below.

8. EMWD Not Liable for Minimum Hydraulic Grade Line (HGL). Given that the mode of operation at the Palomar Booster Station will vary, EMWD does not guarantee the availability of a minimum HGL along the Temecula Valley Pipeline, other than the minimum HGL needed to convey flows to the Reach 4 discharge location at Temescal Creek.

9. Regulatory Requirements. Discharge of recycled water to Temescal Creek is performed by EMWD per NPDES permit requirements. Any violation of permit requirements due to Santa Rosa WRF effluent discharges to the Temecula Valley Pipeline shall be the responsibility of RCWD per Addendum No.1 to the Memorandum of Understanding (May 2006) for the Joint Participation In The Cost of Recycled Water Facilities agreement, Paragraph C, Liabilities and Compliance. RCWD shall defend and indemnify EMWD for any claims or losses arising out of or in connection with effluent discharges from the Santa Rosa WRF to the TVP.

10. Changes Affecting Prior Agreements. To the extent the terms and conditions contained herein are inconsistent with the terms and conditions contained in prior agreements, the terms and conditions in this Agreement shall govern.

11. Term. The term of this agreement shall be five (5) years from date of execution and will be automatically extended for additional five-year extensions unless all parties agree to amend.

12. Miscellaneous Provisions.

A. In the event of circumstances that limit EMWD's ability to meet its recycled water delivery commitments, the parties to this Agreement shall confer and re-negotiate the terms and conditions of the Agreement.

B. Invoices submitted by EMWD to RCWD and EVMWD shall be paid in full within 90 calendar days. Failure of payment by either agency to EMWD within the prescribed period shall render this agreement null and void. EMWD shall notify both agencies 30 days prior to termination of this Agreement.

C. Recycled water deliveries maximum flow rates from EMWD to EVMWD shall not exceed 1,073 gpm (1.54 MGD) without prior authorization from EMWD.

D. Parties to this agreement shall develop a coordinated Recycled Water Operational Protocol that specifies the activities, communication, and operational limitations associated with delivery of recycled water from EMWD.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by its respective duly authorized officers.

EASTERN MUNICIPAL WATER DISTRICT

By: _____
Ronald Sullivan, Board President

Attest:

_____
District Secretary

Dated: MARCH 26, 2009

Approved as to Form:

_____
Redwine & Sherrill
District Counsel

ELSINORE VALLEY MUNICIPAL WATER DISTRICT

By: _____
Phil Williams, Board President

Attest:
_____
District Secretary

RANCHO CALIFORNIA WATER DISTRICT

By: _____
Ralph H. Daily, Board President

Attest:
_____
District Secretary

Approved as to Form:

_____
Best Best & Krieger
District Counsel

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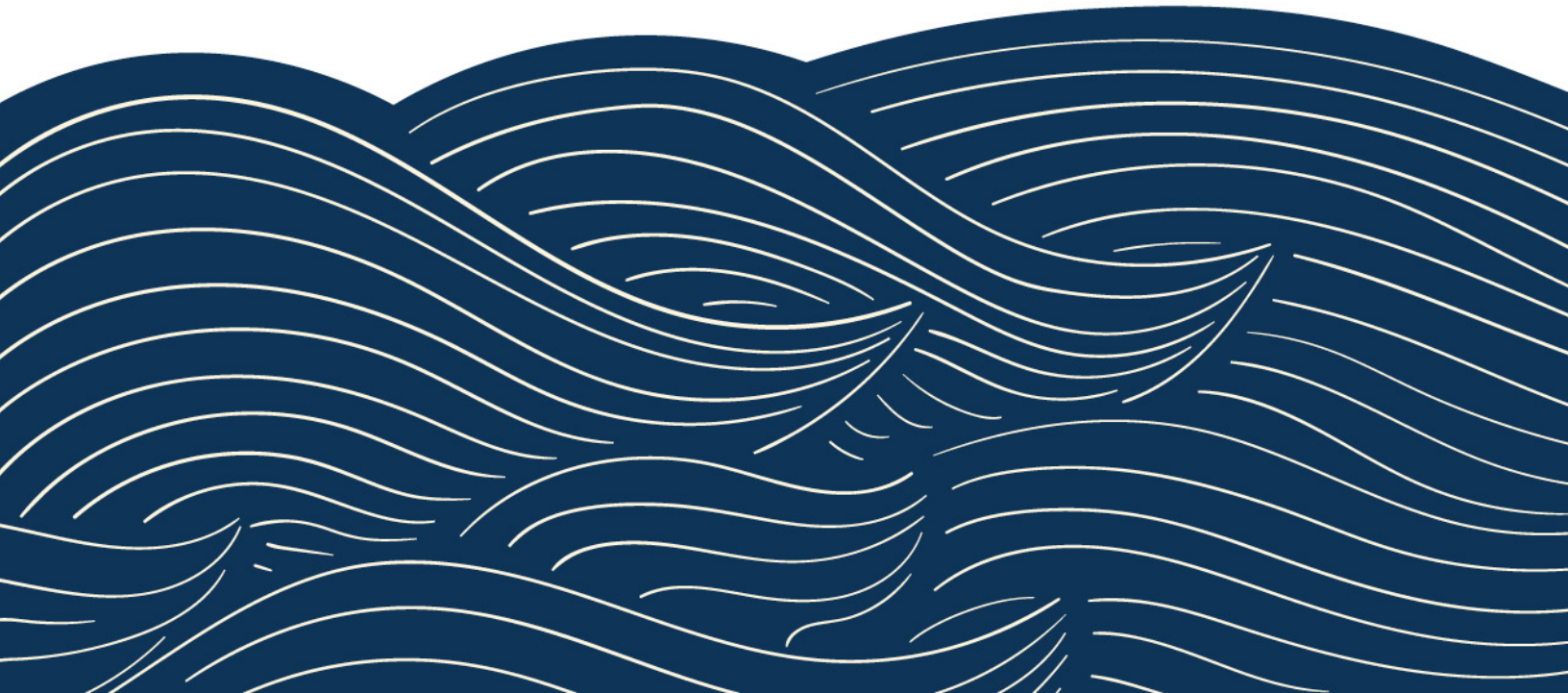
M

2018 Water Conservation Business Plan



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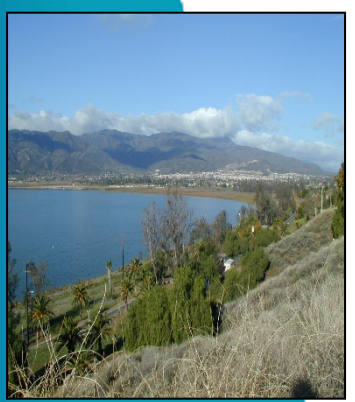
Elsinore Valley Municipal Water District

2018 Water Conservation Business Plan

FINAL DRAFT

June 8, 2018



Prepared by

MADDAUS WATER MANAGEMENT INC.

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Acronyms and Abbreviations

AB	Assembly Bill
AF	acre-feet
AFY	acre-feet per year
AMI	Advanced Metering Infrastructure
AWWA	American Water Works Association
AWWARF	American Water Works Association Research Foundation
BMP	Best Management Practice
CalWEP	California Water Efficiency Partnership
CEC	California Energy Commission
COM	commercial
CII	Commercial, Industrial, and Institutional
CUWCC	California Urban Water Conservation Council
DWR	California Department of Water Resources
EVMWD	Elsinore Valley Municipal Water District
FY	fiscal year
GPCD	gallons per capita per day
gpd	gallons per day
gpf	gallons per flush
gpm	gallons per minute
HET	high efficiency toilet
HEU	high efficiency urinal
ILI	Infrastructure Leakage Index
INS	institutional
MAWA	Maximum Applied Water Allowance
MF	multifamily
MWD	Metropolitan Water District of Southern California
MWELO	Model Water Efficient Landscape Ordinance
MWM	Maddaus Water Management Inc.
N/A	not applicable
NRW	Non-Revenue Water
psi	pounds per square inch
REUWS	Residential End Uses of Water Study
SB	Senate Bill
SB X7-7	Water Conservation Bill of 2009
SF	Single Family
SFPUC	San Francisco Public Utilities Commission
ULFT	ultra-low flush toilet
USBR	United States Bureau of Reclamation
UWMP	Urban Water Management Plan
WBIC	weather-based irrigation controller
WMWD	Western Municipal Water District
WRF	Wastewater Reclamation Facilities
WUE	Water Use Efficiency

EXECUTIVE SUMMARY

The purpose of the Executive Summary is to briefly describe the Elsinore Valley Municipal Water District (EVMWD) Water Conservation Business Plan (Business Plan). The evaluation process and assumptions used to develop this Business Plan as well as recommendations for future implementation are included herein.

Project Overview

The purpose of the Business Plan analysis was three-fold: (1) to evaluate current conservation measures and identify new ones that will reduce future water demand; (2) to estimate the costs and water savings of these measures; and (3) to combine the measures into increasingly more aggressive programs then evaluate the costs and water savings of these programs.

EVMWD's Business Plan illustrates that expanding its existing water conservation program efforts in a cost-effective manner will help meet future water needs and the State of California's mandated per capita reduction targets according to the 2009 Water Conservation Act (SB X7-7). As the State continues to adapt to the recent changes due to the 2014-2016 drought, the Business Plan provides two alternative options for higher levels of water conservation programs which would yield higher water use savings. These two additional programs could be implemented if needed to meet state or local drought requirements.

On May 31, 2018, Governor Edmund G. Brown Jr. signed Senate Bill (SB) 606 and Assembly Bill (AB) 1668 centered around "Making Water Conservation a California Way of Life." to help the State better prepare for droughts and climate change by establishing statewide water efficiency standards. SB 606 and AB 1668 establish guidelines for efficient water use and a framework for the implementation and oversight of the new standards, which must be in place by 2022. The two bills strengthen the State's water resiliency in the face of future droughts with provisions that include the following:

- Establishing an indoor, per person water use goal of 55 gallons per day until 2025, 52.5 gallons from 2025 to 2030, and 50 gallons beginning in 2030
- Creating incentives for water suppliers to recycle water
- Requiring both urban and agricultural water suppliers to set annual water budgets and prepare for drought[1]

The process used to develop the Business Plan included analyzing conservation measures and programs using the Least Cost Planning Water Demand Management Decision Support System Model (DSS Model). The evaluation included measures directed at existing customers and new development to help new and existing residential and business customers become increasingly more water efficient. A measure screening of over 126 measures was conducted following the American Water Works Association Conservation Planning Manual M52 methodology (AWWA, 2017).

Three programs were developed to evaluate the net effect of running multiple measures together over time. From this analysis, these three options were put forward for review and selection by EVMWD. Program A identifies measures currently being implemented by EVMWD. Programs B is a combination of current measures and new measures that could be implemented to achieve greater water savings. Program C is a compilation of all current and proposed measures that could provide the most water savings, but will not be implemented unless more drastic measures are needed should California face another drought situation. EVMWD has chosen to move forward with implementing Program B to further its conservation efforts.

[1] https://www.gov.ca.gov/2018/05/31/governor-brown-signs-legislation-establishing-statewide-water-efficiency-goals/

EVMWD selected conservation Program B comprised of innovative water conservation measures[2], including, but not limited to, commercial, industrial, and institutional (CII) indoor water efficiency evaluations and a water neutrality ordinance. The elements of Program B are further presented in Tables ES-1 and ES-2.

The benefits of Program B are as follows:

- Aims to expand existing conservation efforts to help meet future water needs and meet state-mandated year 2020 per capita reduction targets
- Is cost-effective and less expensive than continuing to buy water from Metropolitan Water District of Southern California (MWD) through Western Municipal Water District (WMWD). Many of EVMWD's measures are partially funded by MWD, WMWD, developers, and customers such that the overall measure costs to EVMWD are low.
- Aids EVMWD in becoming more self-sufficient with its water supply
- Is environmentally beneficial and allows EVMWD to be more sustainable

Program Analysis

The EVMWD Business Plan analysis consisted of two main parts: (1) create a demand and plumbing code (passive) conservation analysis for 2018 to 2040, and (2) evaluate conservation savings potential for the years 2018 to 2040 with a variety of different measures and conservation programs.

The first step in the analysis was to review and analyze historical water use production and billing data. Billing data was provided for the years 2010 to 2017. The data was graphically analyzed and discussed with EVMWD. The historical water use, selected population and employment projections, plumbing code information, and discussions with EVMWD were used to create a demand forecast for the years 2018 to 2040, as further described in Section 2.

Once the demand forecast was completed, 126 measures were presented and the final 25 conservation measures selected by EVMWD were analyzed, as listed in Table ES-1 and described in Section 5. Factors incorporated into the conservation measures analysis included the following:

- Recent California state-wide plumbing standards that were adopted in 2015
- Model Water Efficient Landscape Ordinance (MWELO) – effective December 31, 2015 (DWR, 2015)
- CALGreen building code – effective January 1, 2017, found in Section 3 of the Business Plan (CALGreen, 2016)

The Business Plan presents the water demands with passive savings and conservation program savings determined by this analysis. All the demand scenarios with conservation program savings include the active savings from conservation measures and the passive savings due to plumbing codes. Water savings are considered "passive" due to their inevitable occurrence from implementation of plumbing codes and standards. Water savings are considered "active" if a specific action unrelated to the implementation of codes and standards is taken by the water agency to accomplish conservation measure savings. The plumbing code includes the new California State Law (Assembly Bill 715), which requires high efficiency toilets (HETs) and high efficiency urinals (HEUs) as of 2014, as well as SB 407, which applies to all new construction and replacements as of 2017 for single family and 2019 for multifamily and commercial properties. The three conservation program scenarios are organized as follows:

- **Program A** – 14 measures. Program A represents EVMWD's currently active measures.
- **Program B** – 21 Measures. Program B includes all the measures in Program A plus additional measures that are generally cost-effective, save significant amounts of water, and are recommended for future implementation.

[2] Though "demand management measure" is not a term used in this report, it may be relevant to readers who are more familiar with the term to understand that it's essentially the same as the term "water conservation measure."

- **Program C** – Program C includes all 25 measures evaluated and represents the highest cost and most water savings. Program C would be implemented for more severe conservation-required situations.

Table ES-1 presents all 25 conservation measures modeled in this analysis sorted by category.

Table ES-1. Conservation Measures Evaluated

Utility Measures	CII Measures	Landscape Measures	Residential Measures
Public and School Education	CII Indoor Water Efficiency Evaluation	Large Landscape Outdoor Water Efficiency Evaluation	Hot Water Recirculating Pump Rebate
District System Optimization Review	CII Rebates to Replace Inefficient Equipment	Landscape Conversion or Turf Removal – Residential*	Landscape Conversion or Turf Removal – Residential*
Water Neutrality Ordinance	Public Agency Program	Require Weather Adjusting Smart Irrigation Controllers and/or Rain Sensors in New Development	Residential High Efficiency Toilet Rebate
Partnership with Energy Utilities	Require Plan Review for New CII	Require Irrigation Designers/Installers be Certified	Clothes Washer Rebate
	CII Leak Alert	Water Conserving Landscape and Irrigation Codes	Pool Cover Rebate
	Cooling Tower Regulations	Financial Incentives for Residential Irrigation and Landscape Upgrades*	Financial Incentives for Residential Irrigation and Landscape Upgrades*
	Financial Incentives for CII Irrigation and Landscape Upgrades*	Financial Incentives for CII Irrigation and Landscape Upgrades*	Leak Repair and Plumbing Emergency Assistance for Low-Income Customers
	Landscape Conversion or Turf Removal – CII*	Landscape Conversion or Turf Removal – CII*	High Efficiency Device Giveaway*
	High Efficiency Device Giveaway*	Residential Outdoor and Indoor Water Efficiency Evaluation*	Residential Outdoor and Indoor Water Efficiency Evaluation*

*Measures target multiple categories.

Table ES-2 presents EVMWD's conservation measure program scenarios, indicating which measures have been selected for implementation within each program.

Table ES-2. Conservation Program Measures

Measures	Program A	Program B	Program C
Public and School Education	X	X	X
District System Optimization Review	X	X	X
Water Neutrality Ordinance		X	X
CII Indoor Water Efficiency Evaluation		X	X
CII Rebates to Replace Inefficient Equipment	X	X	X
Public Agency Program		X	X
Require Plan Review for New CII			X
CII Leak Alert	X	X	X
Cooling Tower Regulations			X
Financial Incentives for CII Irrigation and Landscape Upgrades	X	X	X
Large Landscape Outdoor Water Efficiency Evaluation	X	X	X
Landscape Conversion or Turf Removal – CII		X	X
Landscape Conversion or Turf Removal – Residential		X	X
Water Conserving Landscape and Irrigation Codes	X	X	X
Require Weather Adjusting Smart Irrigation Controllers and/or Rain Sensors in New Development			X
Require Irrigation Designers/Installers Be Certified (possibly by Irrigation Association or CA Landscape Contractor's Association)			X
Hot Water Recirculating Pump Rebate		X	X
Residential Outdoor and Indoor Water Efficiency Evaluation	X	X	X
Financial Incentives for Residential Irrigation and Landscape Upgrades	X	X	X
High Efficiency Device Giveaway	X	X	X
Partnership with Energy Utilities	X	X	X
Residential High Efficiency Toilet Rebate	X	X	X
Clothes Washer Rebate	X	X	X
Pool Cover Rebate	X	X	X
Leak Repair and Plumbing Emergency Assistance for Low-Income Customers		X	X

Table ES-3 shows the estimated annual savings in acre-feet per year (AFY) in five-year increments for only plumbing codes and no active conservation activity, and for plumbing codes with Program A, Program B, and Program C active conservation program implementation. EVMWD and customer benefit-cost ratios are presented for each program as well as the present value of water savings and utility costs.

Table ES-3. Comparison of Program Estimated Costs and Water Savings

Conservation Program	Water Savings (AFY)					Water Utility Benefit-Cost Ratio	Present Value of Water Savings	Present Value of Utility Costs	Water Utility Cost of Water Saved ($/AF)
	2020	2025	2030	2035	2040				
Plumbing Code Only	310	1,270	2,330	3,450	4,100	N/A	N/A	N/A	N/A
Program A with Plumbing Code	900	2,550	4,180	5,800	6,720	3.4	$34,565,000	$10,089,000	$270
Program B with Plumbing Code	1,100	3,810	6,310	8,750	9,890	5.3	$72,940,000	$13,868,000	$170
Program C with Plumbing Code	1,140	4,040	6,730	9,360	10,540	4.9	$80,360,000	$16,391,000	$190

Note: Measure utility costs and staffing covered by SoCal Water$mart, WMWD, and other partners are not included. The costs presented here are directly attributed to EVMWD only.

Figures ES-1 and ES-2 present estimated average AFY and average gallons per capita per day (GPCD) savings use without conservation and with the plumbing codes only, and with plumbing codes and each of the three alternative programs. Plumbing code includes current local, state, and federal standards for retrofits of items such as toilets, showerheads, faucets, and pre-rinse spray valves.

Figure ES-1. Water Savings (AFY) with Different Program Options

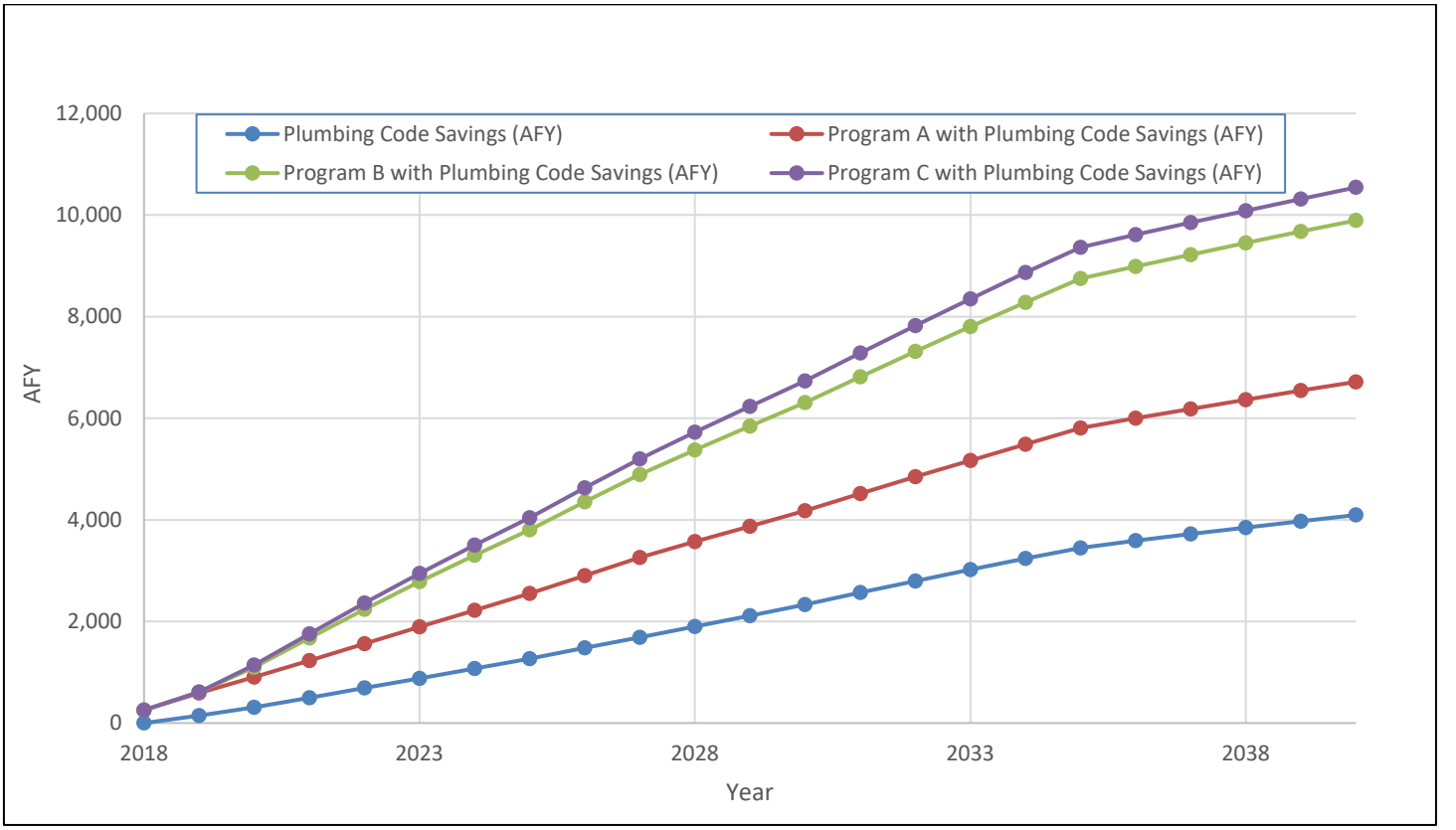
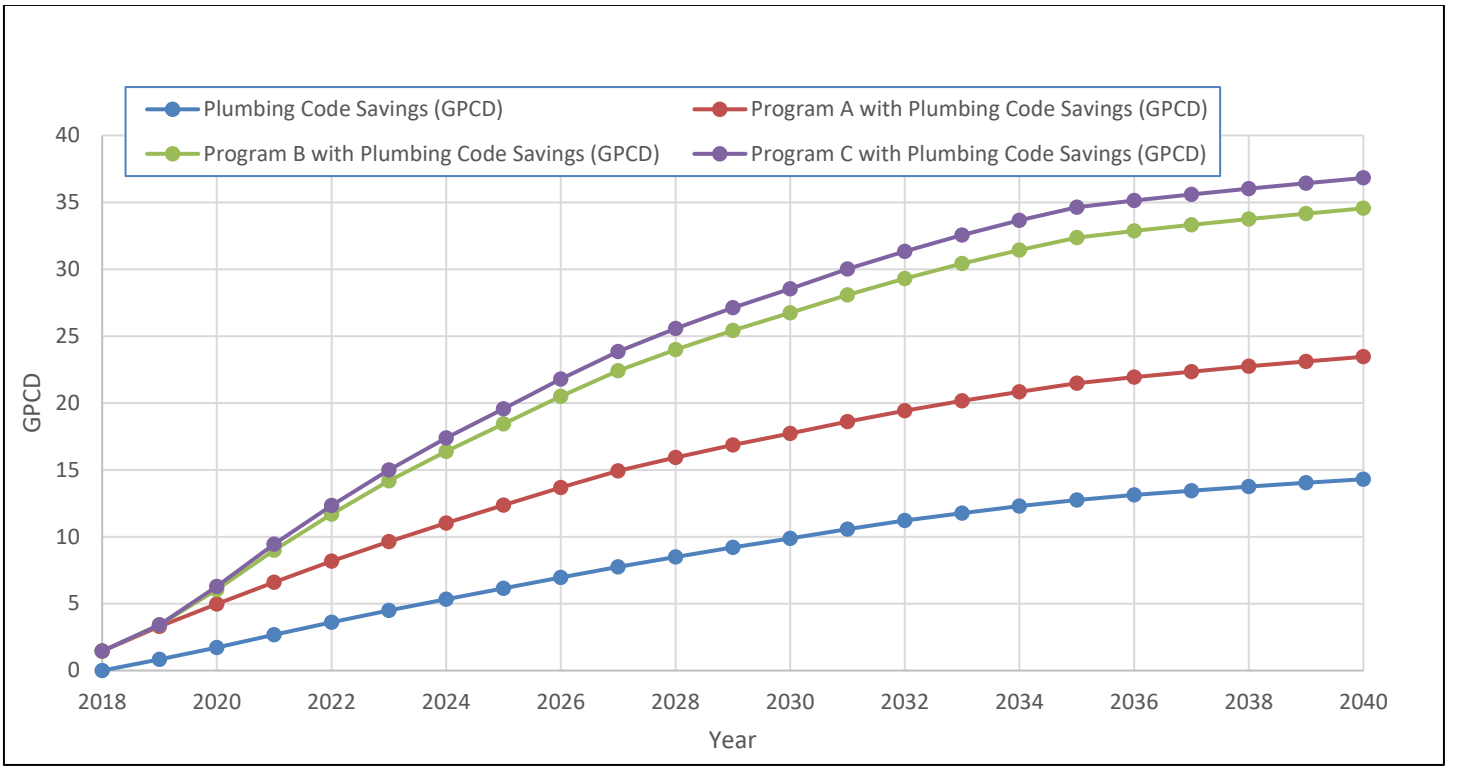


Figure ES-2. Water Savings (GPCD) with Different Program Options



The selected Program B has an average annual implementation cost of approximately $582,000 for 2018-2020. Average annual implementation cost includes administrative costs and staff labor. However, the program is intended to be flexible and structured in a “menu/toolbox” format to allow individual measures to change as necessary. This flexible format will allow adaptation to new or best-available technology, changes in cost-sharing partnerships, or other unforeseen needs. It will also enable EVMWD to select or change measures for implementation as needed to reach its conservation goals.

Seven new conservation measures will be employed and will work together to achieve EVMWD’s goals. Successful implementation of Program B will require effort on the part of EVMWD. Recommendations to assist with implementation include the following:

- Track upcoming state regulations regarding CII, landscape, and water loss management
- Consider launching pilot studies for new measures
- Consider soliciting and tracking community input and feedback via an online or phone survey or at outreach and education events
- Prioritize measures that contribute the most to meeting the per capita use targets and that are relatively easy to operate with limited staff
- Consider working with the largest 100 water using customers to reduce water use
- Develop an annual work plan for each plan year as soon as budget is adopted (or in concert with the budget planning process)
- Form partnerships and apply for grants where appropriate
- Outsource to gain enough staff support to administer the expanded program, as needed
- Develop analytical tools to track water use by customer class and overall per capita water use, adjusted for the weather and external factors
- Use the analytical tools annually to help decide on priorities for the following plan year
- Set up a database to store and manage measure participation, cost, and other data to gauge successes and areas that need improvement or added attention
- Update the plan annually, including actual measure participation, projected water savings, and expected per capita water use reductions, to ensure EVMWD is on track to meet conservation goals

A five-year action plan is provided in Section 7 with implementation guidelines for the recommended conservation Program B.

1. INTRODUCTION

This section provides an overview of the main components of the Elsinore Valley Municipal Water District water system, describes the purpose and scope of the Business Plan, and provides a project history of the steps used to complete the Business Plan.

1.1 Overview of EVMWD System

Elsinore Valley Municipal Water District (EVMWD), a public non-profit agency, was incorporated on December 23, 1950 under the Municipal Water District Act of 1911. The purpose of EVMWD is to finance, construct, operate, and maintain water and wastewater systems serving properties within EVMWD's boundaries. EVMWD provides public water service, water supply development and planning, wastewater treatment and disposal, and recycling services for a 97-square-mile service area in Southwestern Riverside County, California. Currently, EVMWD has over 160 employees who serve approximately 42,700 domestic water service accounts; 1,030 irrigation water service accounts; approximately 34,700 sewer service accounts; and 144 recycled water service accounts. EVMWD provides water services for a service population of over 154,600 residents, with a projected 65 percent population increase by 2040 to over 255,000.[3] EVMWD's population remains consistent throughout the year and does not have a seasonal population.

Most of EVMWD's water supply is purchased from Metropolitan Water District of Southern California through Western Municipal Water District, EVMWD's wholesale agency. EVMWD is governed by a five-member Board of Directors, with each director elected to staggered four-year terms by registered voters within their division. The Board sets governing policy; is the final authority for related appeals; and is authorized to set rates, fees and charges for district services, operations, and debt financing of capital improvements.

In 1968, Canyon Lake area was annexed, adding an additional 1,800 acres to EVMWD. In 1985, the Horsethief Canyon annexation added 960 acres to EVMWD and the California Oaks annexation added another 785 acres. The following year, needing additional imported water, EVMWD entered into an agreement with Eastern Municipal Water District for capacity in the Auld Valley 36-inch pipeline from Lake Skinner. That project brought an additional 27,000 acre-feet annually to EVMWD. In 1990, the Cottonwood Hills annexation added 1,969 acres to EVMWD. Two years later, the Temescal Canyon area was annexed, expanding EVMWD boundaries by 3,001 acres.

Originally, EVMWD was a wholesaler to the Elsinore Water District (EWD), located northwest of Lake Elsinore and surrounded by the EVMWD service area. In 2011, EVMWD acquired EWD, its pipe network, and other facilities to the northwest of Lake Elsinore.

EVMWD's Automated Metering Infrastructure (AMI) implementation project was completed in 2017. Phase II and Phase III of the AMI project were funded with over five million dollars in state and federal grants and almost three million dollars in low-interest loans coming from the state. Approximately 44,000 EVMWD customers use the AMI system to detect leaks, view water usage, set alerts, and gather reports about their home water system in real time through a wireless sensor network. AMI is further explained in Section 2.4.2.

1.1.1 EVMWD Service Area

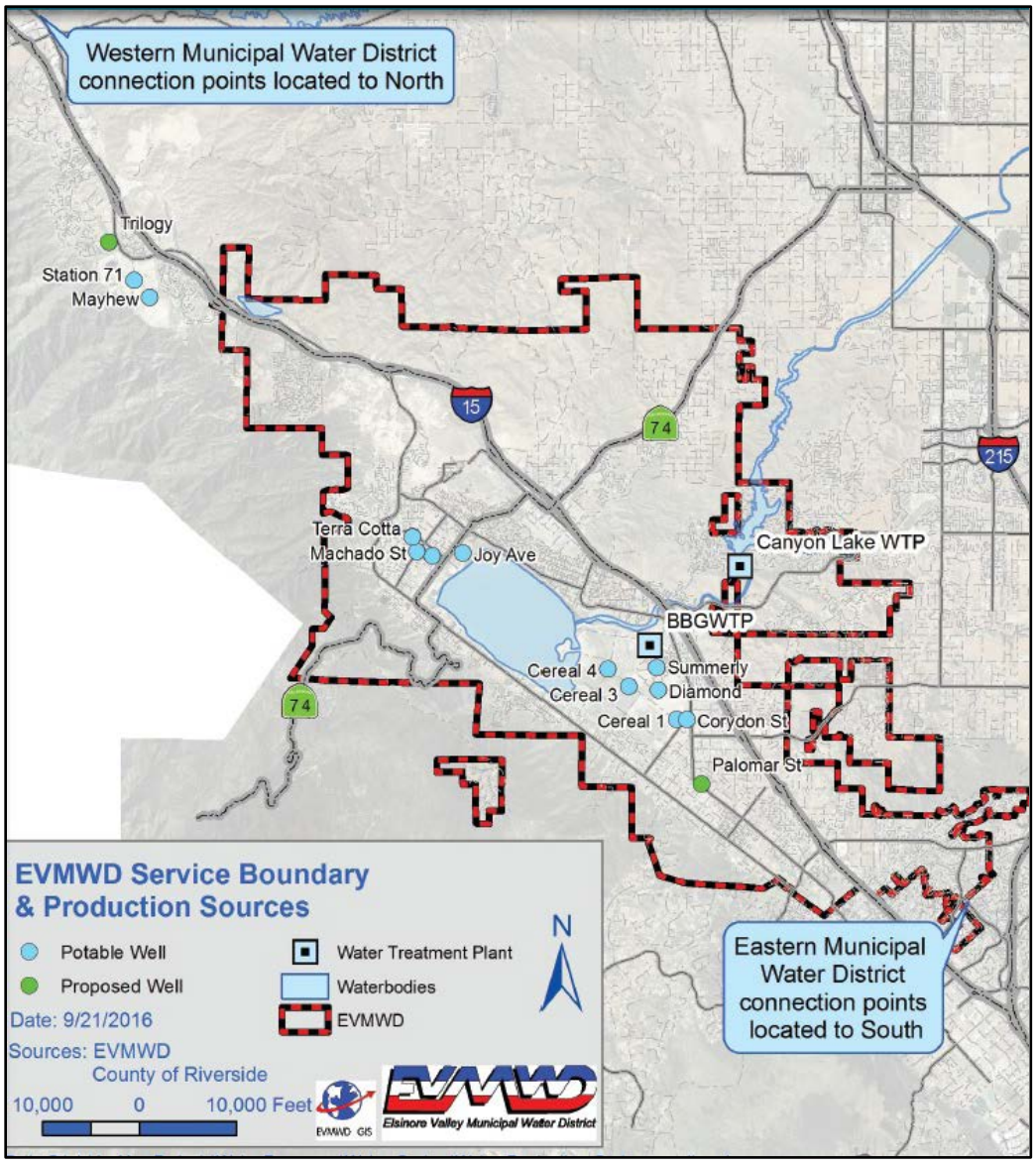
EVMWD serves communities in the suburbs of Los Angeles and Orange County, within the communities of Lake Elsinore, Canyon Lake, Murrieta, Wildomar and unincorporated communities of The Farm, Lakeland Village, Cleveland Ridge, Rancho Capistrano-El Cariso Village, Horsethief Canyon, Sedco and Temescal Canyon (see Figure 1-1). EVMWD sells water wholesale to the Farm Mutual Water Company, which is located entirely within EVMWD boundaries. Most of the Farm Mutual Water Company's water comes from EVMWD. EVMWD also provides wastewater and recycled water service to customers but does not provide services for storm water disposal or fire protection facilities. Most of the

[3] Infrastructure Engineering Corporation. *EVMWD Water Demand Projection Update 2018 Technical Memorandum – FINAL*, 2018.

service connections are single family residential connections with a small amount of commercial and institutional accounts. EVMWD has no industrial water consumers.

EVMWD's service area generally experiences pleasant weather for a majority of the year. Typically, July and August are the warmest months of the year. The highest recorded temperature in EVMWD's service area was 115°F in 1960. Generally, December is the coolest month of the year. The lowest recorded temperature in EVMWD's service area was 10°F in 1974. The wettest months of the year are January and February. Lake Elsinore averages 12.45 inches of precipitation a year.

Figure 1-1. EVMWD Service Area



Source: EVMWD (2016). *Integrated Resources Plan*.

1.1.2 EVMWD Water Supply

The Elsinore Valley supports a 287-million-dollar local economy. EVMWD's water supply is a blend of local groundwater, surface water from Railroad Canyon Reservoir (Canyon Lake), and imported water. On average, more than two-thirds of the supply is imported. Annual water production in the Elsinore Division is about 24,000 acre-feet.

Groundwater

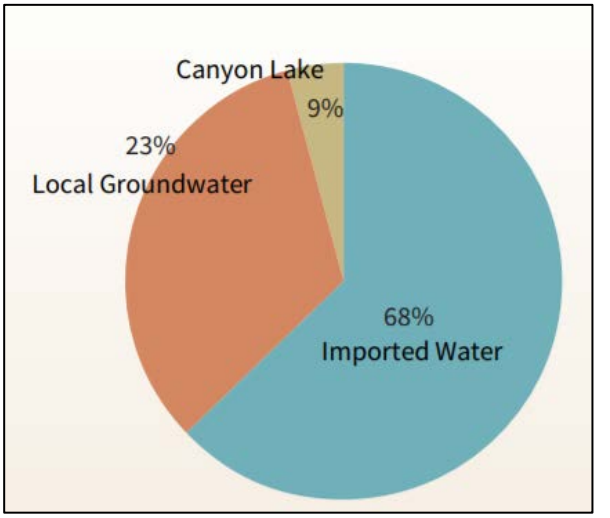
The Elsinore division has eight active municipal wells that provide quality drinking water from a deep aquifer. Several additional wells are planned. Groundwater is disinfected with chlorine and chloramines at the wellhead and represents approximately 20 percent of drinking water supplies in the Elsinore division. All water supplies to the Elsinore Division are disinfected by chloramines, which is a disinfectant commonly used in the United States.

Railroad Canyon Reservoir

EVMWD owns Railroad Canyon Reservoir, also known as Canyon Lake. The reservoir impounds local runoff from the 750-square mile San Jacinto River watershed. Canyon Lake holds nearly 12,000 acre-feet of water behind Railroad Canyon Dam. Canyon Lake water is treated at the Canyon Lake Water Treatment Plant via conventional treatment methods that use coagulation, sedimentation and disinfection.

Imported Water

The Colorado River Aqueduct and Northern California provide most of Southern California's water supply. Colorado River water is delivered through Lake Skinner through the Auld Valley pipeline in Murrieta. Water from Northern California is delivered through the Temescal Valley Turnout in Corona. On average, imported water accounts for nearly 70 percent of EVMWD's supply.



Source: EVMWD Agency Profile, updated November 2016.

1.2 Purpose and Scope of Business Plan

The Business Plan is intended to serve as a guide and set measurable targets for EVMWD regarding future conservation investments and activities. It includes a functional implementation plan for use by EVMWD to establish and administer cost-effective conservation programs to achieve conservation goals. EVMWD will use this Business Plan in preparation of the 2020 Urban Water Management Plan Water Use Efficiency Chapter; United States Bureau of Reclamation (USBR) required reporting of the former California Urban Water Conservation Council Best Management Practice (BMP) activities; and meeting the 20 percent reduction goals, in gallons per capita per day, by 2020 per the legislation SB X 7-7. The Business Plan will also start EVMWD on a path for compliance with SB 606 and AB 1668, which were recently signed on May 31, 2018.

The evaluation in the Business Plan includes measures directed at existing accounts, as well as new development measures that mandate that new residential and business customers be water efficient. Based on a preliminary analysis of the individual measures, three programs (Program A, B and C) were designed by EVMWD. Each of the three programs were evaluated to determine the net effect of running multiple measures together over the 23-year period of analysis from 2018 to 2040. Assumptions and results for each of the 25 individual measures and three programs are described in detail in this Business Plan.

1.2.1 Objectives of Business Plan

The Elsinore Valley Municipal Water District's 2018 Water Conservation Business Plan incorporates EVMWD's specific objectives as follows:

- Provide assessment, analysis, and measurement of completed and existing water conservation programs
- Identify new water conservation opportunities
- Determine prospects for leveraging EVMWD resources through partnership funding

1.2.2 Conservation Savings Goals

EVMWD is committed to implementing a water demand reduction through conservation savings and water recycling.

With Southern California's semi-arid climate, water sustainability will always be a priority. EVMWD's goal is to encourage water saving habits that will eventually become "ways of life" for its customers. Through implementation of the Business Plan, EVMWD will create opportunities to make its service area more water efficient. This will allow EVMWD to pursue grant opportunities to fund new programs, educate customers on easier ways to save, and explore innovative solutions to improve efficiencies. Currently, the goal is to implement Program B and stay in compliance with any state regulations.

1.2.3 Structure and Basis of Existing EVMWD Conservation Program

Water use efficiency is key in Southern California, and EVMWD customers have taken many steps to save water through its programs. To ensure standards set by the efficiency industry are met, EVMWD has been a member of the former California Urban Water Conservation Council (CUWCC) since December 2002. In 2017, the CUWCC was reorganized into the California Water Efficiency Partnership (CalWEP), of which EVMWD is also a member. As a member agency of Metropolitan Water District of Southern California and a sub agency of wholesaler Western Municipal Water District, EVMWD partners SoCal Water$mart for most of its conservation programs. Historically, over 25 separate rebate programs have been offered to EVMWD's customers through WMWD and SoCal Water$mart. These programs provide device and appliance rebates for indoor and outdoor water use efficiency. While these programs enhance EVMWD's water efficient programming, they do not stand alone. Extensive outreach and education to EVMWD customers is required to assist in using devices and changing behaviors. This includes instruction to customers through workshops and residential/commercial water use evaluations, collateral materials and use of video and other online tools. Program funding is limited through the SoCal Water$mart and WMWD programs, so it is essential for EVMWD to consider alternative funding when programs sunset.

1.3 Project Background

Since the inception of EVMWD's original Water Conservation Business Plan (2009), a substantial shift in the challenges and drivers for water management has occurred and includes the recent drought, state water supply conditions, and compliance with water conservation regulations. In 2016, EVMWD received a grant from the US Bureau of Reclamation for $92,000 to update its Water Conservation Business Plan. This updated plan would allow EVMWD to implement measures more in line with current state conditions regarding water sustainability and reliability. The revised plan would consider best management practices more in line with current state regulations and best practices in the industry. The requirements of the specific US Bureau of Reclamation grant are available in Appendix A.

The intent of this document is that it be not just a conservation plan but also a "business plan." It represents how EVMWD seeks to continue to develop a conservation program that is cost-effective, can be implemented efficiently, and directly addresses service area needs while targeting EVMWD and California state goals. The goal of the business plan is to optimize program cost and water savings. It also evaluates whether expanding existing efforts is a feasible and cost-effective way to meet future water needs in comparison to using and/or developing other water supply sources. Based on the analysis of current water use patterns, and considering characteristics of the service area, a list of 126 potential

conservation measures was compiled and reviewed with EVMWD. During the measure screening process 25 measures were selected for further detailed economic analysis.

A water savings and benefit-cost evaluation was performed on all the selected measures using the Least Cost Planning Water Demand Management Decision Support System Model developed by Maddaus Water Management, Inc. (MWM). This DSS Model is a planning tool that assists water planners with evaluating alternative water conservation programs. The model itself is an end-use model that calculates water savings, costs, and benefits from individual measures as well as programs comprised of several measures. Projections of future water demand with and without water conservation programs are made for EVMWD's water service area. Calculations are made for every year in the 23-year analysis period.

1.4 Project Timeline

October – December 2017

- MWM selected to prepare Business Plan
- MWM presented overview of process for plan development to EVMWD's Board of Directors
- Data request submitted
- Data collection and analysis from EVMWD
- MWM conducted literature review
- Measure list was reviewed and finalized by EVMWD for conservation measures analysis

January – March 2018

- MWM worked directly with EVMWD staff to design individual conservation measures (program start and end date, assumed participation rates, incentive and utility cost values, etc.)
- Set up and calibrated a DSS Model to evaluate water savings, costs and benefits from potential conservation measures
- Held meetings with EVMWD staff to review conservation modeling results and preliminary findings

April – May 2018

- Finalized DSS Model
- MWM created Draft EVMWD Business Plan
- EVMWD staff reviewed Draft Business Plan

June 2018

- Final Business Plan completed
- Final Business Plan submitted to US Bureau of Reclamation as part of the grant reporting requirements

2. HISTORICAL WATER USE

This section presents information about the Business Plan data collection process as well as historical production and customer category consumption data. A summary of EVMWD's historical and current conservation efforts are also provided.

EVMWD's water use patterns were analyzed based on water production and consumption data from staff; water loss was examined as well. Historical monthly water use data was analyzed and data from 2017 was selected by EVMWD to be used to derive typical average water use per account per day. It was determined that other data from recent years was affected by drought and recession. Data from each customer category was analyzed separately. Based on EVMWD's water billing system, residential water use was broken down into single family and multifamily categories. Historical data was segregated into indoor and outdoor water use by customer type using the monthly billing data. Non-residential categories of use were analyzed separately. Average daily commercial and institutional water use was expressed on a gallons-per-account or gallons-per-employee basis.

2.1 Information Review and Data Collection Methods

A thorough collection and review of information relevant to this effort was conducted and can be found in EVMWD's Data Collection Workbook. At the beginning of the project effort, a preliminary draft electronic Excel Data Collection Workbook was provided to EVMWD with a detailed checklist that included instructions regarding what data was needed to conduct this analysis. To help streamline the process, MWM initially entered data from readily available sources like the 2015 Urban Water Management Plan (UWMP) and EVMWD end-use master database, into the Excel data collection workbook prior to sending the file to EVMWD staff for updating and review. A screen shot of the Data Collection Workbook checklist is shown in Figure 2-1.

Using the provided end-use data from EVMWD, MWM verified the number and types of customers within the EVMWD service area. The EVMWD master database was used to generate account and consumption customer data in a geocoded format by name, address, city, zip code, and type of customer. The "type of customer" field will provide a description of the end user. For the purposes of this project, "end user" is defined as the type of customer; i.e., hospital, restaurant, car wash, commercial laundry, etc. Several tasks of data review were conducted between EVMWD staff and MWM as the EVMWD master database was mined for valuable historical information. Monthly production data from 1999 to 2017 was reviewed, while monthly consumption data from Jan 2010 through Dec 2017 was reviewed due to the labor-intensive process of extracting monthly use and account data by the eight customer categories analyzed. MWM used the master database to organize the data by the following sectors:

- Single Family Residential
- Multifamily Residential
- Residential Dedicated Irrigation
- Commercial & Institutional Dedicated Irrigation
- Commercial
- Institutional
- Dedicated Landscape Irrigation
- Miscellaneous

These sectors are defined by USBR and the former CUWCC BMPs. Multiple webinar conference calls were held with EVMWD staff and MWM to review end-use data and sector information. Many of these meetings garnered critical buy-in from key EVMWD staff in other departments for the Business Plan.

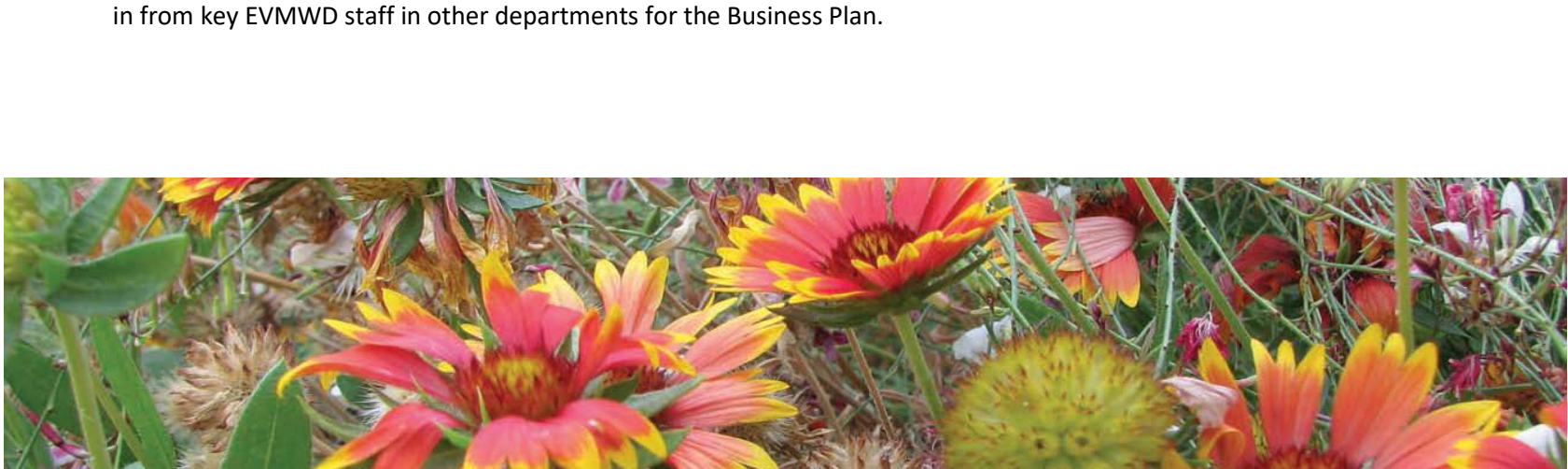


Figure 2-1. Data Collection Workbook

MADDAUS WATER MANAGEMENT INC.

Data Collection Workbook

Elsinore Valley Municipal Water District Demand and Conservation Projections Update

Detailed Instructions | FAQ | Contact Info

Instructions: Please complete the following:
Step 1: Data Entry - Click on each "Data Item" link to go to the associated data sheet. When in that data sheet, enter the requested data in the red cells and verify, or correct if needed, the data in the yellow cells. Once all the data has been entered / verified return to this "Checklist" Page and change the status field drop-down menu from "Incomplete" to "Data Entered/Verified".
Step 2: Data Verification - Click on each "Data Item" link to go to the associated data sheet. When in that data sheet, verify, or correct if needed, the data in the yellow cells. Once the data has been verified, return to this "Checklist" page and change the status field drop-down menu from "Not Verified" to "Verified".

Checklist

Step 1: Data Entry		
Status	**Data Item**	**Description / Comments**
Required Data		
Data Entered/Verified	Water Production by Supply Source	
Data Entered/Verified	Consumption and Accounts	
Data Entered/Verified	Avoided Operational Costs	
Data Entered/Verified	Maximum and Average Day Production	
Data Entered/Verified	Capital Improvement Plans	
Data Entered/Verified	Top 100 CII Water Users	
Data Entered/Verified	Single Family Water Rates	
Data Entered/Verified	Commercial Water Rates	
Data Entered/Verified	Single Family Sewer Rates	
Requested Data		
Data Entered/Verified	Commercial Account Closures	
Data Entered/Verified	Single Family Lot Sizes	
Data Entered/Verified	Water System Audits	
Data Entered/Verified	Abnormal Years	
Data Entered/Verified	Questions and Comments	

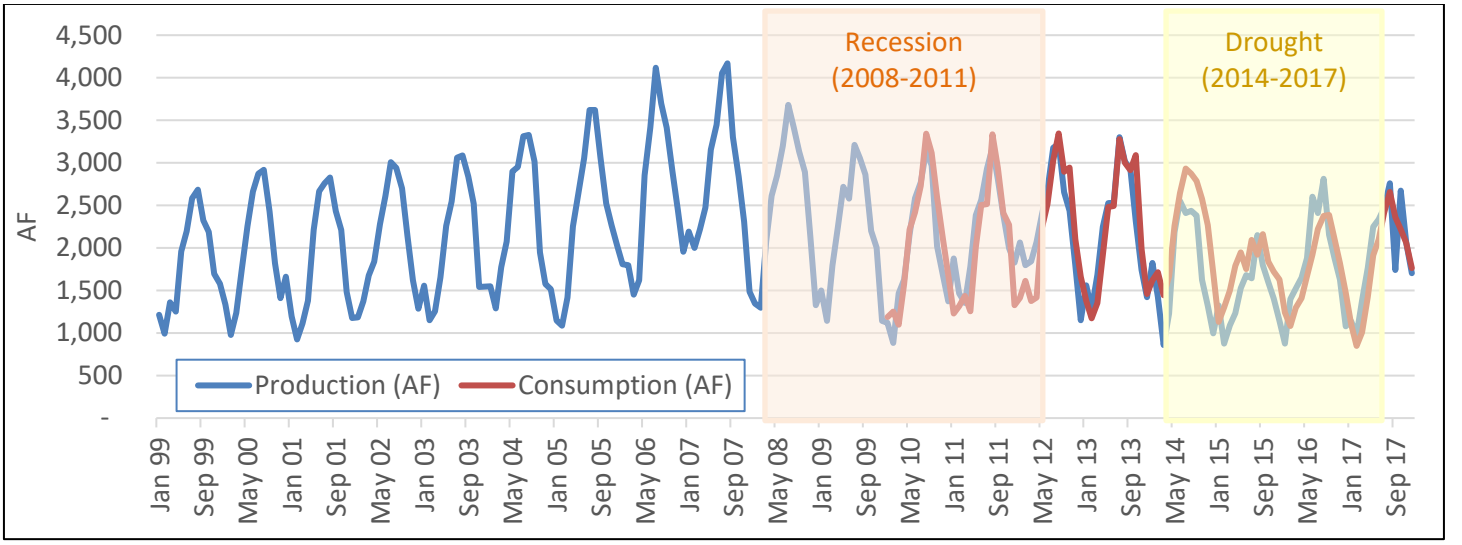
Step 2: Data Verification		
Status	**Data Item**	**Description**
General Info		
Verified	Agency Info	
Verified	Contact Info	
Verified	Planning Documents	
Historical Data		
Verified	Customer Classes	
Verified	Historical Service Area Population	
Verified	Historical Service Area Jobs	
Verified	Historical Weather Data	
Projected Data		
Verified	Projected Population	
Verified	Projected Jobs	
Verified	Unemployment Rates	
Census Data		
Verified	DP-1 General Profile and Housing Characteristics	
Verified	DP03 Selected Economic Characteristics	
Verified	DP04 Selected Housing Characteristics	
Verified	B25033 Population in Housing Units	
Costs		
Verified	Supply Projections	
Survey Answers		
Verified	Answers to Survey Questions	
Conservation		
Verified	Conservation Targets	
Verified	Historical Conservation	Please verifty that these are up to date

2.2 Production versus Consumption

Historical water production data for EVMWD was analyzed monthly and is shown in Figure 2-2, which illustrates the total production versus total consumption. Water production data was measured at the respective sources. Water consumption data was measured at the customer meters. Monthly water production from groundwater, surface water, and imported water sources for EVMWD is displayed from 1999 through 2017. Consumption data was tracked for the years 2010 through 2017; data prior to 2010 was not readily available for the eight customer categories analyzed. During the most recent drought period, EVMWD went up to tier 5 water rate charges and went through multiple drought stages (2, 3a, and 4a) to further encourage water conservation for its customers. The production and consumption were significantly reduced in 2014–2016 due to the historic State of California multi-year drought. On January 17, 2014, Governor Edmund G. Brown, Jr. declared a drought state of emergency and directed state officials to take all necessary actions in response. Statewide mandated drought restrictions began in 2014 and were in effect until 2017. Therefore, some of the decrease in water use was not a true long-term reduction in water use, but only a

reflection of the drought restrictions. The production and consumption increased slightly in 2017 when drought restrictions were removed.

Figure 2-2. Water Production and Consumption*

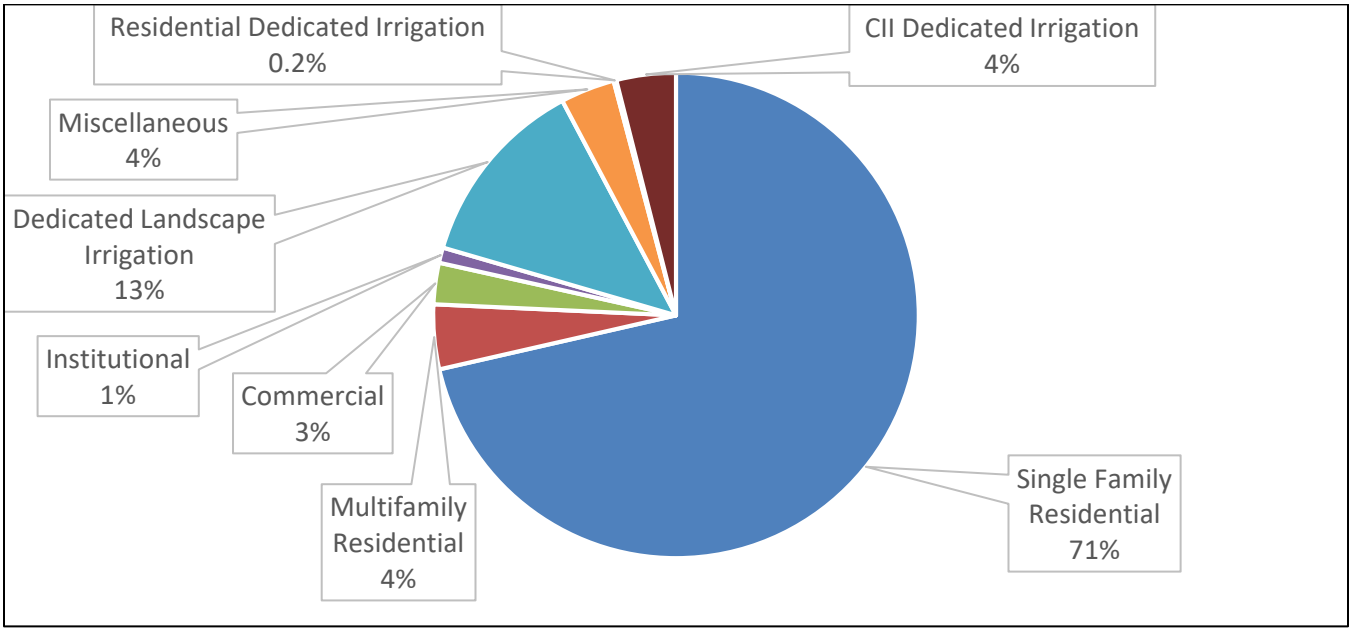


*Consumption data prior to 2010 was not readily available for the eight customer categories analyzed.

2.3 Consumption by User Category

EVMWD has several different types of water users. The current and projected user categories in EVMWD may be generally classified as Single Family Residential, Multifamily Residential, Commercial, Institutional, Dedicated Landscape Irrigation, Miscellaneous, Residential Dedicated Irrigation, and CII Dedicated Irrigation. EVMWD is a mostly residential community, with light commercial activity. The largest category of water users in EVMWD is the single family residential users who consume more than 70 percent of the water sold. Shown in Figure 2-3 is the average annual consumption of the various user categories, based on average historical monthly water use and account data for 2017 for all customer categories. This is used to derive typical average per account per day water use. Residential use is approximately 75 percent of the total, typical of a community without significant commercial or industrial uses.

Figure 2-3. Consumption by User Category



2.4 Historical and Current Conservation Program

EVMWD has a committed partnership with its customers to provide knowledge, programs, and incentives to achieve water savings and make conservation a way of life. Through local events, educational trainings, conservation programs and awareness-building campaigns, EVMWD aims to collaborate with customers to secure its most precious resource. As a current member of CalWEP (and former member of CUWCC), EVMWD uses its resources to develop strategic plans that will help meet efficiency goals and needs for all.

2.4.1 Water Waste Prevention Ordinances

EVMWD and the cities it serves have ordinances in place to help alleviate water waste and increase water efficiency with its customers. These ordinances are explained below:

- EVMWD's Water Shortage Contingency Plan Ordinance 225
    - Updated to reflect Metropolitan Water District's Water Surplus and Drought Management Plan and Western Municipal Water District's Water Shortage Contingency Plan. This ordinance's purpose is to assure the highest beneficial use of EVMWD's water supplies and reduce water consumption for different stages of drought/water shortage conditions.
- Water Efficient Landscape Requirements
    - City of Lake Elsinore (Chapter 19.08) – to use water as efficiently as possible, Water Efficient Landscape Requirements were adopted. The intent of these requirements includes promoting the benefits of landscape, establishing structure for water efficient landscapes in new and rehabilitated projects, and establishing provisions for water management that eliminate water waste. Through these measures, the goal is to achieve water efficiency through public awareness, education, and motivation to embrace effective practices.
    - City of Murrieta (Chapter 16.28) – a code of Landscaping Standard and Water Efficient Landscaping is used to achieve water management practices and as well as prevent water waste. Requirements are implemented to help meet the State of California's Model Water Efficiency Landscape Ordinance of 2015 is governing code. Through water efficient structure establishment, this code will help promote water efficient landscaping and reduce water waste.

    - City of Wildomar (Resolution No. 2015-70) – directly relating to landscaping, this resolution is to promote the value and benefits of conserving water supplied by EVMWD. Water efficient landscape standards are to be followed for all new development and rehabilitated projects. These standards include providing a Maximum Applied Water Allowance (MAWA), prevention of overspray or runoff, and reducing the water demands for landscapes.

2.4.2 Metering

Most water service connections within EVMWD's service area are set up with Advanced Metering Infrastructure and the remaining connections are set to be converted in the near future. The AMI accounts are billed monthly based on each individual meter's water consumption. EVMWD's Advanced Meter System uses state-of-the-art metering technology for residential and commercial water customers. Through EVMWD's AquaHawk Portal, the AMI meter transmits hourly water usage information to EVMWD's Customer Service Center, four times per day, over a secure communication network. Water use is measured with near real-time accuracy and allows customers to set alerts if continuous or highwater use occurs. The Advanced Meter System also reduces water loss through the proactive identification of water leaks on customer service lines through AquaHawk's daily alert report that is sent to EVMWD staff for evaluation.

2.4.3 Conservation Rates

EVMWD uses a variable water rate established by the number of units of water delivered to a property that consists of four tiers that impose higher rates as the level of water use increases. A reasonable amount of water is allocated to each residential, irrigation and recycled water customer based on their needs. This is referred to as a "water budget." The indoor water budget is calculated by the number of people in the household with an allocation of 55 gallons of water per person per day. The outdoor water budget is calculated by the amount of irrigated square footage per parcel, the average daily plant water loss ("evapotranspiration"), and a "plant factor" of 0.60 that reflects the water needs of local plants native to EVMWD's service area. Above that water budget, inefficient and excessive water use will cost customers more, because it costs EVMWD more to secure the additional water supply. EVMWD's water commodity rates, monthly fixed meter charges, wastewater rates, water capacity fees for 3/4-inch meters, and meter installation charges can be found in Appendix B.

2.4.4 Public Education, Outreach and Incentives

EVMWD provides a variety of programs and educational initiatives to assist customers in leading more water efficient lifestyles.

Residential Efficiency Rebates

In partnership with Western Municipal Water District and Metropolitan Water District, numerous rebates are offered for residential customers to upgrade their properties to be more water efficient. Rebates offered include free sprinkler nozzles, upgrades to indoor and outdoor water fixtures to reduce water use, pool covers to reduce evaporation, and turf removal to convert grass to water efficient landscaping.

Since 2010, 2,892 rebates have been provided to residential properties for upgrades to indoor fixtures such as high efficiency toilets and high efficiency clothes washers. For outdoor upgrades, a high of 7,081 rebates have been provided for items including weather-based irrigation controllers (WBICs), rain barrels, and rotating sprinkler nozzles. For turf removal, 218 acre-feet of turf have been removed and converted to water efficient landscaping.

Commercial Efficiency Rebates

In partnership with Metropolitan Water District, rebates are offered for commercial customers to upgrade to more water efficient standards, including upgrades to indoor and outdoor fixtures as well as operational equipment. In addition, turf removal has been offered to commercial properties.

Over the span of the last five years, more than 800 rebates have been provided to commercial properties for advancements in water efficient fixtures, including HETs and WBICs. Turf removal has also been a successful program. It has helped five schools in the Lake Elsinore Unified School District and multiple associations to convert existing turf to water efficient landscaping.

Workshops

EVMWD offers a variety of workshops on water-related topics designed to help educate residential customers. Topics offered include California Friendly Landscape Training, Composting, Drip Irrigation, and Using Your Controller. All workshops are free to EVMWD customers and are hosted at EVMWD's headquarters.

Promoting the workshops includes sending out flyers in the mail, posting information on social media, sending e-mail blasts, and newspaper articles. These marketing materials are sent out to customers up to one month prior to the day of the workshop.

Outreach Activities

EVMWD offers continuous conservation-related messaging through its website www.evmwd.com, its microsites http://evmwddrought.com/, and Elsinore Eddie's Gardens http://elsinoreeddiesefficientgardens.com/. These websites contain a of variety of brochures, fact sheets, photo visuals, and other conservation program information. In addition to the websites, EVMWD is involved in a variety of public community events to further promote conservation. EVMWD

plans to host booths offering printed conservation materials for customers, including rebate program information, water-wise living tips, and free conservation devices. EVMWD currently hosts several of its own events and participates in events throughout its service area to share its conservation message. The outreach activities are an effective way to further educate customers on conservation practices and work directly with the community to promote conservation. EVMWD conducts significant and ongoing social media outreach initiatives as well.

Education

Throughout the school year, EVMWD works with local K-12 schools to educate students on conservation and the importance of participating. Educational programs used by EVMWD include local poster contests to showcase the "Water is Life" concept; field trips to EVMWD water treatment facilities and water efficient gardens; and promotion of grant opportunities encouraging classes to create and implement water-related projects at their schools.

2.4.5 Programs to Assess and Manage Distribution System Loss

Through EVMWD's Meter Testing Program, meter accuracy can be monitored to ensure that water consumption is billed at an equitable rate and all usage is accounted for. The testing program adopted by EVMWD is guided by the accuracy parameters set forth by the American Water Works Association (AWWA). The data obtained through testing is also used for the Water Loss Audit required by the California Department of Water Resources (DWR). With approximately 45,000 meters in the EVMWD service area, 0.05 percent of meters are tested annually as determined by DWR. EVMWD continues to implement the Meter Testing Program on an annual basis to further increase efficiencies throughout the operating system.

2.4.6 Water Conservation Program Coordination and Staffing Support

EVMWD's water conservation staff consists of a Water Efficiency Specialist overseen by a Community Affairs Supervisor. Both positions are EVMWD's points of contact for water conservation related discussions, support, distribution of conservation materials, and outreach opportunities. Historically, EVMWD's customers have been offered over 25 separate rebate programs operated through WMWD and SoCal Water$mart. These programs complement EVMWD's water efficient programming. It is important to note that staffing and cost for measure implementation efforts conducted by SoCal Water$mart and other partners are not included in this analysis as they are not funded directly by EVMWD.

2.4.7 Best Management Practice Compliance

MWM reviewed and analyzed for completeness all BMP compliance completed by EVMWD that existed for Fiscal Year 2014-15. EVMWD was on track for all BMP compliances for FY 2014-15. No cost-effective BMP exemptions are required due to EVMWD meeting all requirements. With the sunsetting of the CUWCC, it is no longer required for BMP reports to be submitted directly for the CUWCC. Note that the USBR still requires BMP reporting. The yet to be completed FY 2016-17 reports were not reviewed by MWM and therefore are not part of this report.

2.4.8 Current Conservation Funding Strategy and Finance Efforts

EVMWD actively pursues outside funding sources, including grants, partnerships, and supporting agencies.

Bureau Grants

- In 2016, EVMWD was awarded a grant from the US Bureau of Reclamation for $92,000 for the development of this Business Plan.
- In mid-2018, EVMWD found a grant opportunity through the US Bureau of Reclamation: the Water Conservation Field Services grant. EVMWD applied for the funding to explore current water loss levels, supporting a review of the EVMWD AWWA audit to identify any potential to reduce water loss. If accepted, it would support implementation of the District System Optimization Review measure. (More details can be found in Appendix C.)
- Water and Energy Efficiency grant – applications are cyclical and usually accepted annually in May.

- Small Scale Water Efficiency Projects – applications are cyclical and usually accepted annually in July.

Water$mart regularly holds grant workshops, at which time applicants are advised of any upcoming opportunities.

Partnerships and Supporting Agencies

Additional existing and potential funding opportunities through partnerships are presented in Table 4-1 for each analyzed conservation measure. For example, EVMWD partners with SoCal Water$mart to offer rebates to CII customers for upgrading inefficient equipment.

3. DSS MODEL OVERVIEW

This section presents information regarding the DSS Model, its methodology, the various plumbing codes applied in the DSS Model, current fixture proportions, and projected plumbing code savings.

3.1 DSS Model Overview and Methodology

The DSS Model prepares long-range, detailed demand projections. The purpose of the extra detail is to enable a more accurate assessment of the impact of water efficiency programs on demand. A rigorous modeling approach is especially important when the project is subject to regulatory or environmental review. A screen shot of the DSS Model's main worksheet is presented on the right and demonstrates the numerous features of the model.

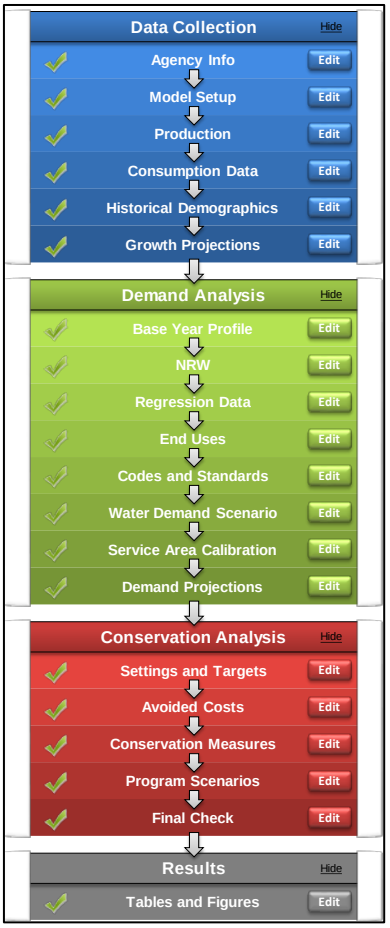


Figure 3-1. DSS Model Main Worksheet Screenshot

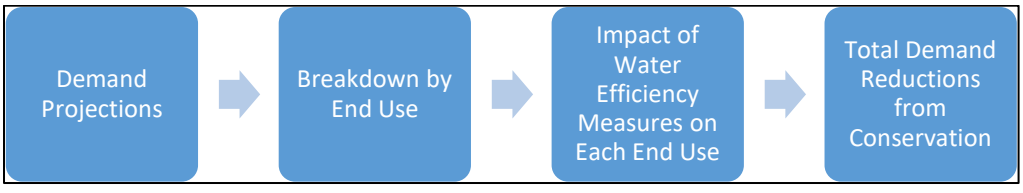
The DSS Model is an end-use model that breaks down total water production (water demand in the service area) to specific water end uses, such as toilets, faucets, irrigation, etc. This "bottom-up" approach allows for detailed criteria to be considered when estimating future demands, such as the effects of natural fixture replacement, plumbing codes, and conservation efforts. The purpose of using end-use data is to enable a more accurate assessment of the impact of water efficiency programs on demand and to provide a rigorous and defensible modeling approach necessary for projects subject to regulatory or environmental review. It can also use a top-down approach with a utility prepared water demand forecast.

The DSS Model evaluates conservation measures using benefit-cost analysis with the present value of the cost of water saved ($/gallon or $/AF). Benefits are based on savings in water and wastewater facility operations and maintenance (O&M). The flow chart below illustrates the process for forecasting conservation water savings, including impacts of fixture replacement due to plumbing codes and standards already in place. The model's conservation component covers the entire forecast period, 2018-2040.

The model has been used for practical applications of conservation planning in over 230 service areas representing 20 million people, including extensive efforts nationally in Arizona, California, Colorado, Hawaii, Idaho, Utah, Georgia, Florida, North Carolina, Oregon, Texas, and Ohio, and internationally in Australia, New Zealand, and Canada.

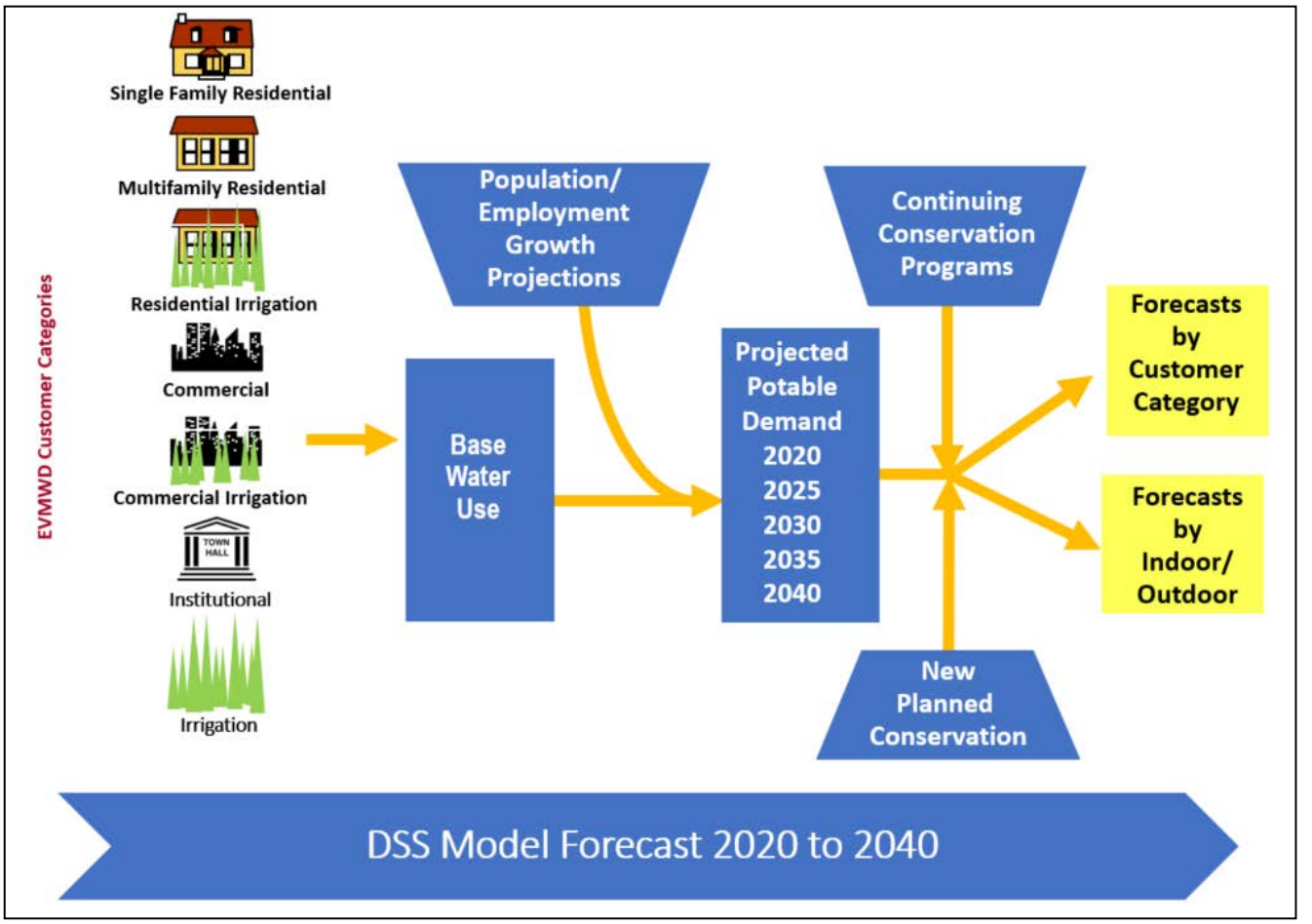
To forecast water demands, the model relies on demographic and employment projections, combined with the effects of natural fixture replacement due to the implementation of plumbing codes, which is passive conservation savings. Passive conservation refers to water savings resulting from actions and activities that do not depend on direct financial assistance or educational programs from EVMWD. These savings result primarily from (1) the natural replacement of existing plumbing fixtures with water-efficient models required under current plumbing code standards, and (2) the installation of water-efficient fixtures and equipment in new buildings and retrofits as required under CALGreen Building Code Standards. The DSS Model evaluated water savings associated with these codes and standards to project passive conservation savings.

Figure 3-2. DSS Model Analysis Process



As shown in Figure 3-1, the first step MWM took in forecasting water demands using the DSS Model was to gather customer category billing data from EVMWD. The next step was to check the model by comparing water use data with available demographic data to characterize water usage for each customer category (single family, multifamily, commercial, institutional, agricultural, irrigation, and reclaimed water) in terms of number of users per account and per capita water use. During the model calibration process, data was further analyzed to approximate the indoor/outdoor split by customer category. The indoor/outdoor water usage was further divided into typical end uses for each customer category. Published data on average per capita indoor water use and average per capita end use was combined with the number of water users to verify that the volume of water allocated to specific end uses in each customer category was consistent with social norms from end-use studies on water use behavior (e.g., for flushes per person per day).

Figure 3-3. DSS Model Flow Diagram



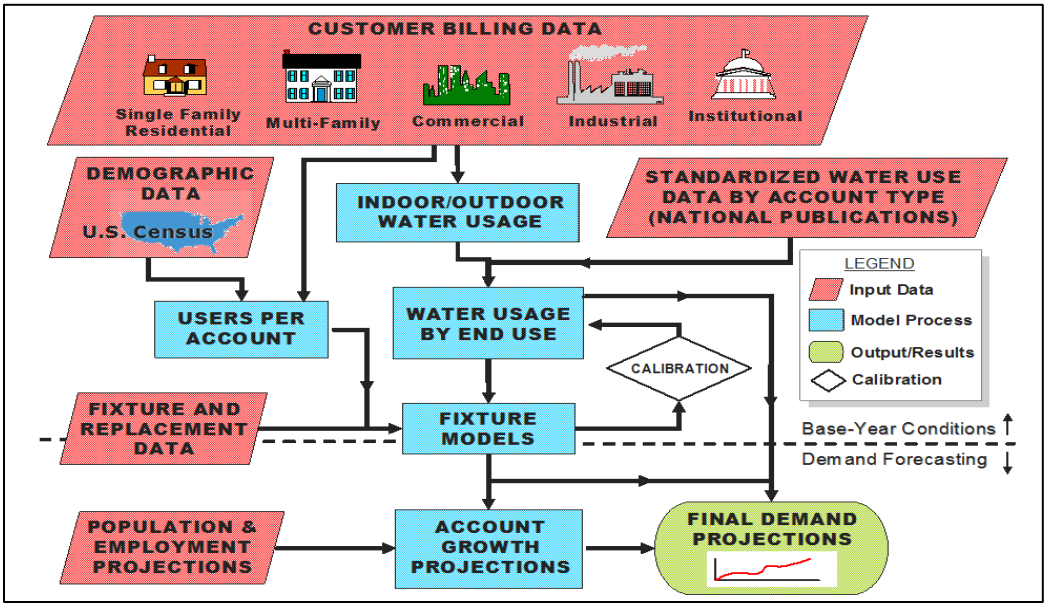
3.2 Plumbing Codes and Standards

Plumbing code related water savings are considered reliable, long-term savings, and can be counted on over time to help reduce overall system water demand. The DSS Model incorporates the following items as a "code" meaning that the savings are assumed to occur and are therefore "passive" savings:

- The Federal Energy Policy Act of 1992 (amended in 2005)
- California Code of Regulations Title 20 California State Law (Assembly Bill 715)
- California State Law Senate Bill 407
- 2016 CALGreen Code (effective January 1, 2017)
- 2015 California Code of Regulations Title 20 Appliance Efficiency Regulations

The following figure conceptually describes how plumbing codes are incorporated into the flow of information in the DSS Model. Further information about plumbing codes and standards can be found in Appendix D. The demand projections including plumbing code savings further assumes no active involvement by the water utility, and that the costs of purchasing and installing replacement equipment (and new equipment in new construction) are borne solely by the customers, occurring at no direct utility expense. The inverse of the fixture life is the natural replacement rate, expressed as a percent (i.e., 10 years is a rate of 10 percent per year). Plumbing code measures are independent of any conservation program; they are based on customers following applicable current local, state and federal laws, building codes, and ordinances.

Figure 3-4. DSS Model Overview Used to Make Potable Water Demand Projections



3.2.1 Fixture Replacement

The DSS Model is capable of modeling multiple types of fixtures, including fixtures with slightly different design standards. For example, currently toilets can be purchased that flush at a rate of 0.8 gallons per flush (gpf), 1.0 gpf or 1.28 gpf. The 1.6 gpf and higher toilets still exist but can no longer be purchased in California. Therefore, they cannot be used for replacement or new installation of a toilet. So, the DSS Model utilizes a fixture replacement table to decide what type of fixture should be installed when a fixture is replaced or a new one is installed. The replacement of the fixtures is listed as a percentage, as shown in Table 3-1. A value of 100 percent would indicate that all the toilets installed would be of one particular flush volume. A value of 75 percent means that three out of every four toilets installed would be of that particular flush volume type. The DSS Model contains a pair of replacement tables for each fixture type and customer category combination (i.e., single family toilets, multifamily toilets, commercial toilets, residential clothes washing machines, commercial washing machines, etc.).

In the following example, the DSS Model includes the effects of the Federal Policy Act and AB 715 on each toilet fixture type. This DSS Model feature determines the “saturation” of 1.6 gpf toilets as the Federal Policy Act was in effect from 1992-2014 for 1.6 gpf toilet replacements.

Table 3-1. Example Toilet Replacement Percentages by Type of Toilet

Replacement Appliance Market Shares					
Year	<1.0 gpf Toilet Residential	1.28 gpf HET Residential	1.6 gpf ULFT Residential	High Use Toilet Residential	Total
2018	10%	90%	0%	0%	100%
2025	25%	75%	0%	0%	100%
2030	35%	65%	0%	0%	100%
2040	50%	50%	0%	0%	100%
2050	65%	35%	0%	0%	100%
New Appliance Market Shares					
Year	<1.0 gpf Toilet Residential	1.28 gpf HET Residential	1.6 gpf ULFT Residential	High Use Toilet Residential	Total
2018	10%	90%	0%	0%	100%
2025	25%	75%	0%	0%	100%
2030	35%	65%	0%	0%	100%
2040	50%	50%	0%	0%	100%
2050	65%	35%	0%	0%	100%

3.3 Key Inputs to the DSS Model

The following table presents the key assumptions used in the DSS Model in determining projected demands with and without plumbing codes. The assumptions having the most dramatic effect on future demands are the natural replacement rate of fixtures, how residential or commercial future use is projected, and finally, the percent of estimated real water losses. Resources for the key assumptions used in the DSS Model in determining projected demands with and without plumbing codes can be found in Appendix D.

Table 3-2. List of Key Assumptions

Parameter	Model Input Value, Assumptions, and Key References		
Model Start Year	2018		
Water Demand Factor Year (Base Year)	2017*		
Non-Revenue Water in Start Year	8.2%		
	Source: 2016 system-wide water audit. (This value is consistent with the 8.4% used in the 2015 UWMP demand projections.)		
Population Source	Infrastructure Engineering Corporation (2018). *EVMWD Water Demand Projection Update 2018 Technical Memorandum – FINAL*		
Employment Source	Infrastructure Engineering Corporation (2018). *EVMWD Water Demand Projection Update 2018 Technical Memorandum – FINAL*		
Base Year Water Use Profile			
Customer Categories	**Start Year Accounts**	**Total Water Use Distribution**	**Demand Factors (gpd/acct)**
Single Family Residential	41,229	71.4%	330
Multifamily Residential	468	4.3%	1,752
Commercial	601	2.8%	873
Institutional	162	1.0%	1,204
Dedicated Irrigation	677	12.7%	3,586
Miscellaneous	298	3.6%	2,311
Residential Irrigation	8	0.2%	4,372
CII Irrigation	227	4.0%	3,321
Total	**43,670**	**100%**	N/A

*2017 base year selected as a representative rebound year for EVMWD's service area's new normal account water use.

The DSS Model forecasts service area water fixture use. In the codes and standards part of the DSS Model, specific fixture end-use type (point of use fixture or appliance), average water use, and lifetime are compiled. Additionally, state and national plumbing codes and appliance standards for toilets, urinals, showers, and clothes washers are modeled by customer category. These fixtures and plumbing codes can be added to, edited, or deleted by the user. This yields two demand forecasts: 1) with plumbing codes, and 2) without plumbing codes.

3.4 Fixture Estimates

As described in the previous Sections 3.1 through 3.3 and Appendix D, MWM reconciled water efficient fixtures and devices installed within the EVMWD service area and identified the number of inefficient fixtures outstanding. Determining the current level of efficient fixtures in a service area is part of the standard process while evaluating the passive savings in the DSS Model which is called "initial fixture proportions."

MWM used the DSS Model to perform a saturation analysis for each of the following plumbing fixtures: toilets, urinals, showers, faucets, and clothes washers. The process included a review of age of buildings from census data, number of rebates per device, and assumed natural replacement rates. MWM presumed the fixtures that were nearing saturation and worth analysis would include residential toilets and residential clothes washers as they have been a recommended conservation practice for over two decades.

The Water Research Foundation recently updated the Residential End Uses of Water Study (REUWS) in toward the end of 2014. The original study was published in 1999. Water utilities, industry regulators, and government planning agencies have considered it the industry benchmark of single family home indoor water use. The Business Plan incorporates the recent study results which reflect the change to the profile of water use in residential homes including the adoption of more water efficient fixtures in the past 15 years (1999 to 2014). The REUWS results were combined

with EVMWD's historical rebate and billing data to enhance and verify assumptions made for all customer accounts. This particularly included saturation levels on toilets, urinals, showerheads, clothes washers, and faucets as further described in Appendix D. Also included in the appendix are tables and figures that present the estimated current and projected proportions of these fixtures by efficiency level within EVMWD's service area.

3.5 Plumbing Code Savings

The following table presents EVMWD's estimated passive savings due to plumbing codes and standards. Since the plumbing code requires sales of more efficient water fixtures, typically EVMWD customers save 0.47 percent of their total demand each year when replacing older fixtures with new ones.

Table 3-3. Plumbing Code Savings

	2020	2025	2030	2035	2040
Plumbing Code Savings (acre-feet)	310	1,270	2,330	3,450	4,100

4. MEASURE REVIEW AND RECOMMENDATIONS

This section presents EVMWD's goal to develop a Business Plan that would result in the greatest ease and efficiency of program administration, the lowest cost of implementation, and the greatest water savings. The screening process undertaken with EVMWD staff to identify 25 measures for further evaluation is also presented.

4.1 Business Plan Conservation Programming Approach

Experience by many utilities has shown there is a reasonable limit to how many measures can be feasibly implemented at one time. Programs that consist of a large number of measures are historically difficult to implement successfully; therefore, prioritization of measures is important both as an outcome of this planning effort and as the program is implemented. The approach to program implementation is viewed as a "living" process where new opportunities may be adopted as new technologies become available over time. Program timelines can also be adjusted, but with the recognition that doing so will impact the savings objectives.

4.2 Potential New Conservation Measures

An important step in updating a water conservation program is the review and screening of water conservation measures. In this case, some of the measures reviewed have already been implemented by EVMWD, and some of the measures would be new. The new measures were designed with an implementation schedule reflecting future start dates.

This task included a review of EVMWD's current water conservation measures, identification of current and new measures that may be appropriate for the local entities, and the screening of these measures to a short-list for detailed evaluation (benefit-cost analysis). To complete this process, a list of potential water conservation measures for qualitative evaluation (screening) was compiled. Table 4-1 includes 25 conservation measures in the customer categories of:

- All Customers
- Residential
- Commercial
- Distribution System (System)

The list of potential measures was drawn from MWM and EVMWD's general experience and review of what other water agencies with conservation programs are currently implementing.

4.3 Screening of Conservation Measures – Selecting the Measures to Be Evaluated

A brief screening process was undertaken to develop a short-list of measures for evaluation in the DSS Model (water savings analysis and benefit-cost analysis). This evaluation was specific to the water use characteristics, economies of scale, demographics, and other factors that are unique to EVMWD's service area.

EVMWD considered the following parameters when evaluating whether a measure should be included in the DSS Model:

- **Service Area Match** – Refers to whether the measure or related technology is appropriate for the area's climate, building stock, or lifestyle. For example, promoting native and/or water efficient landscaping may not be appropriate where water use analysis indicates little outdoor irrigation.
- **Customer Acceptance/Equity** – Refers to whether retail customers within the service area would be willing to implement and accept the conservation measures. For example, will retail customers attend homeowner irrigation classes and implement lessons learned from these classes? If not, then the water savings associated with this measure will not be achieved and a measure with this characteristic would not be included. This

criterion also refers to retail customer equity (i.e., one category of retail customers receives benefit while another pays the costs without receiving benefits). Retail customer acceptance may be based on convenience, economics, perceived fairness, and/or aesthetics.

- **Additional Service Area Benefits** – Refers to benefits related to the saturation of devices and appliances based on past efforts as well as the response to and by customers from previous programs. This also includes the consideration of the following parameters:
    - **Technology/Market Maturity** – Refers to whether the technology needed to implement the conservation measure, such as an irrigation control device, is commercially available and supported by the local service industry. A device may be screened out if it is not yet commercially available in the region or if not yet supported by the local service industry.
    - **Savings Quantifiable** – Are the water savings quantifiable? For example, it is more difficult to determine the amount of water saved because of a Xeriscape demonstration garden versus replacing a grass playing field with an artificial turf sports field.

Each measure, project, and activity were evaluated and ranked by EVMWD staff and MWM according to the evaluation criteria. The evaluation criteria included but was not limited to the following:

- Cost-benefit analysis
- Quantifiable water savings potential
- Possible water savings potential
- Public interest
- Ease of implementation
- Schedule to complete
- Relationship to compliance with USBR and other regulations and programmatic conservation practices
- Relationship to UWMP requirements

Based on end-use data and evaluation of EVMWD's existing conservation measures, projects and activities, a list of 126 measures, projects and activities were provided to EVMWD to review and rank based on the evaluation criteria. Each measure to be reviewed included equipment/program type, the main focus of the program, incentive options, and measure description. For a full list of these measures, see Appendix E.

4.4 Conservation Measures Evaluated

Table 4-1 shows the results of the measure screening and the 25 measures that were selected for analysis. The list of measures includes devices or programs (e.g., new ultra-high efficiency toilets that would save water if installed by a water retailer, contractor, or customer) that can be used to achieve water conservation; methods through which the devices or programs can be implemented; and what distribution method, or mechanism, can be used to activate them. Funding sources and partnership opportunities as well as potential implementation obstacles for each measure are also listed.

Table 4-1. Measure Descriptions, Funding Sources and Opportunities, and Implementation Obstacles

Measure Name	Description	Funding Sources & Opportunities	Measure Implementation Issues/Obstacles
Public and School Education	Public and school education is used to raise awareness of water use efficiency measures available to customers. This measure includes: inserts/flyers, video production ads, landscape classes, signs for demonstration gardens, conservation advertising through giveaways including pens, books, etc., poster contests for schools, science fair program for schools, Solar Cup education program, educational materials and supplies for curriculums such as Admiral Splash and Potter the Otter educational books.	SoCal Water$mart also partially conducts this measure.	It is imperative to continue messaging in a variety of ways with conservation outreach. Often the public is unaware of the water saving rebates available to them or how they can benefit from water use efficiency programs. Keeping the messages current and continuous may be key in this measure.
District System Optimization Review	This measure covers efforts to find and repair leaks in the distribution system to reduce real water loss. Actions could include installation of data loggers and proactive leak detection. Leak repairs would be handled by existing crews at no extra cost. A ten-year program to reduce Non-Revenue Water (NRW) to a lower target level such as 10 percent of production or less could be proposed for a combination of this measure and actions to reduce apparent water losses. In conjunction with system accounting, includes audits that identify and quantify known legitimate uses of NRW to determine remaining UAW losses. Measure also includes computing Infrastructure Leakage Index (ILI) on an annual basis. Goal would be to lower the ILI and NRW every year by a pre-determined amount based on cost effectiveness. In early 2018, EVMWD applied for the Water Conservation Field Services grant to fund the exploration of current water loss levels and support a review of EVMWD's recent AWWA water audit to identify any potential to reduce current water loss levels. Additional features of this measure's implementation can be found in Appendix C.	Operations budget for water loss	Involves multi-departmental coordination and support. Internal task force would need to be developed with this measure to ensure involved departments are aware of opportunities related to this measure. Identification of vulnerable areas is required to be maximally effective. Locating leaks throughout different materials used in our system. Ex: we have a large amount of PVC pipe used however leak detection equipment cannot trace leaks in plastic pipes.
Water Neutrality Ordinance	This measure would require developers of new homes to either contribute money to the water conservation program to help generate the water needed to supply their new development project or conduct water-efficiency fixture direct	Primarily conducted by City of Elsinore Planning Department.	Can be implemented at multiple water conserving levels. Requires significant community support and stakeholder involvement. Would need to find a

Measure Name	Description	Funding Sources & Opportunities	Measure Implementation Issues/Obstacles
	installations. Appendix F represents a resource index for information from the Alliance for Water Efficiency, the City and County of San Francisco and the City of Santa Monica. Alternatively, this measure could focus on outdoor only and be an aggressive local landscape ordinance that's a step-up from CA's MWELO. Targeting new development only, this measure would aim to achieve "net-zero" outdoor water use by any method including the use of native plants, weather-based irrigation controllers, gray water systems, cisterns and rain barrels, etc. Consider modeling after Cambria CSD program.		balance that would cover costs and not inhibit growth.
CII Indoor Water Efficiency Evaluation	Conduct a multi-step process for identifying customers, including: online pre-screening, phone call screening, on-site evaluation, incentives offering, and follow-up/site visit and water use tracking. This measure includes documenting inventory of current water using fixtures to support commercial program design and benchmarking. Top water user customers from each category would be offered a professional water evaluation that would evaluate ways to save water and money. The evaluation would be for large accounts (i.e., accounts that use more than 5,000 gallons of water per day) such as microbreweries, hotels, restaurants, stores and schools. Measure to encourage participation in inefficient equipment upgrade and rebate measure for water efficient equipment.	EVMWD proposed funding but watch for grant or regional programs if they become available.	Can be challenging getting businesses to participate. They are often very reluctant to voluntarily open their back doors. Also, survey recommendations often have a high initial investment which can be unappealing to businesses even with a reasonable payback period. Not necessarily cost-effective.
CII Rebates to Replace Inefficient Equipment	Measure to offer rebates for a standard list of water efficient equipment. Included would be x-ray machines, icemakers, air-cooled ice machines, steamers, washers, spray valves, efficient dishwashers, replace once through cooling, dry vacuum pump and conductivity controller on cooling towers. Eligible project costs include labor, hardware and may include annual water management fees. This measure is planned to evolve as technology changes.	SoCal Water$mart also partially conducts this measure.	Can get complicated or time-consuming if done properly and water use before and after is tracked. The often-high initial investment can be unappealing to businesses even with a reasonable payback period. Not necessarily cost-effective for the customer. There has been minimal participation in the last few years.

Measure Name	Description	Funding Sources & Opportunities	Measure Implementation Issues/Obstacles
Public Agency Program	Measure will provide government facilities with enhanced financial incentives to replace indoor fixtures and upgrade landscape irrigation systems. To encourage agencies that have not already installed water-efficient landscape equipment to do so, SoCal Water$mart has a Public Agency program, offering enhanced incentives paid up-front for public agencies to install water-efficient devices at their facilities and on their grounds. EVMWD staff will assist with rebate applications as needed.	SoCal Water$mart also partially conducts this measure.	Coordinating with already busy public agency employees can be challenging; they oftentimes have priorities higher than water conservation as part of their job description. Not necessarily cost-effective for the public agency. Funding may not be readily available from city funds to use.
Require Plan Review for New CII	Require plan reviews for water use efficiency for all new business customers.	Primarily conducted by City of Elsinore Planning Department.	Multiple jurisdictions might have to be involved due to the service area's boundary. Involves multi-departmental coordination and support which can be time-consuming. Not necessarily cost-effective for the customer.
CII Leak Alert	This measure will use AMI data through the AquaHawk Alerting Portal to identify leaks in CII and dedicated Irrigation accounts. EVMWD requires all new CII developments to install dedicated irrigation meters.	EVMWD proposed funding but watch for grant or regional programs if they become available.	Customer communication can be time-consuming. This may require additional staff time, beyond current EVMWD staff to follow up with customers. Could be more difficult to get a hold of the correct person due to different people being at buildings/mgmt. not always available.
Cooling Tower Regulations	This measure will prohibit the discharge of cooling tower blow down unless the TDS of the water is at least a certain level (that would ensure a minimum of 5 cycles of concentration). Available cooling tower equipment rebates will be promoted. (See a list of BMPs for cooling towers in Appendix G.)	EVMWD proposed funding but watch for grant or regional programs if they become available.	Multiple jurisdictions might have to be involved due to service area boundary. Enforcement might require multiple agencies or departments and/or possibly be too sporadic to be effective. California Department of Public Health (CDPH) has guidelines due to Legionellosis concerns (CDPH, 2017). Not necessarily cost-effective for the customer.

Measure Name	Description	Funding Sources & Opportunities	Measure Implementation Issues/Obstacles
Financial Incentives for CII Irrigation and Landscape Upgrades	After the free water use evaluation has been completed, recommendations will be analyzed and provided to the customer. Free evaluations may be onsite or via a pre-screening online step. Staff may assist with completing rebate applications. Rebates may include such items as sprinkler nozzles, weather based irrigation controllers ("smart timers"), soil moisture sensors, mulch, drip irrigation, rain barrels and cisterns. Rebates primarily offered through SoCal Water$mart with Elsinore offering drip irrigation system rebates.	SoCal Water$mart also partially conducts this measure.	Can get complicated or time-consuming if done properly and water use before and after is tracked. The often-high initial investment can be unappealing to businesses even with a reasonable payback period. Depending on the upgrades, not necessarily cost-effective for the customer. There has been declining participation in the last few years.
Large Landscape Outdoor Water Efficiency Evaluation	All public and private irrigators of large landscapes, including residential and commercial, will be eligible for free landscape water efficiency evaluations. Customers with high water use will be targeted and provided a customized report. Evaluations include irrigation system assessment, irrigation schedule, and report. A consultant will be used to conduct the evaluation.	Western Municipal Water District also partially conducts this measure.	Can be challenging getting businesses to participate. They are often very reluctant to voluntarily open their back doors. Properties may not want/trust our help but prefer to use their own staff to do it.
Landscape Conversion or Turf Removal - CII	This measure provides a per square foot incentive for supporting the customer's cost to remove turf and replace with low water use plants or permeable hardscape. Rebate based on dollars per square foot removed, and capped at an upper limit per account. Measure includes a pre- and post-retrofit inspection of the landscape.	SoCal Water$mart also partially conducts this measure.	Can get complicated or time-consuming if done properly and water use before and after is tracked. The often-high initial investment can be unappealing to businesses even with a reasonable payback period. Many customers find the alternatives to turf aesthetically unappealing. Finding a landscaper who can manage a water efficient landscape after installed can be challenging.
Landscape Conversion or Turf Removal - Residential	This measure provides a per square foot incentive for supporting the customer's cost to remove turf and replace with low water use plants or permeable hardscape. Rebate based on dollars per square foot removed, and capped at an upper limit for single family residence. Measure includes a pre- and post-retrofit inspection of the landscape.	SoCal Water$mart also partially conducts this measure.	Can get complicated or time-consuming if done properly and water use before and after is tracked. The often-high initial investment can be unappealing to customers even with a reasonable payback period. Residential turf replacement is often not cost-effective

Measure Name	Description	Funding Sources & Opportunities	Measure Implementation Issues/Obstacles
			for residential customers with smaller initial outdoor water use. Many customers find alternatives to turf aesthetically unappealing. Customers become overwhelmed or discouraged when faced with new landscape/plants and how to care for them. Customers often do not know how to start.
Water Conserving Landscape and Irrigation Codes	Enforce CA Model Water Efficient Landscape Ordinance. Standards specify that development projects subject to design review be landscaped according to climate appropriate principals, with appropriate turf ratios, plant selection, efficient irrigation systems and smart irrigation controllers. In California, about half of the urban water is used for landscape irrigation. Substantial water savings can be gained by proper landscape design, installation and maintenance. To improve water savings in this sector, DWR updated the Model Water Efficient Landscape Ordinance. MWELO promotes efficient landscapes in new developments and retrofitted landscapes while increasing water efficiency standards for new and retrofitted landscapes through more efficient irrigation systems, greywater usage, onsite storm water capture, and by limiting the portion of landscapes that can be covered in turf. MWELO also requires reporting on the implementation and enforcement of local ordinances. To reduce the complexity and costs for the smaller landscapes now subject to ordinance, the 2015 revised MWELO has a prescriptive compliance approach for landscapes between 500 and 2,500 square feet. Landscapes within this size range can comply either through meeting the traditional MWELO approach or through the prescriptive approach. The size threshold for existing landscapes that are being rehabilitated has not changed, remaining at 2,500 square feet. Only rehabilitated landscapes that are associated with a building or	Primarily conducted by City Planning Department.	Multiple jurisdictions might have to be involved due to the service area's boundary. This measure would need to address the unincorporated areas of the district which can add more time for coordination. Involves multi-departmental coordination and support which can be time-consuming. Not necessarily cost-effective for the customer. There may be additional follow ups/inspections from EVMWD to confirm the jurisdictions are enforcing the rules.

Measure Name	Description	Funding Sources & Opportunities	Measure Implementation Issues/Obstacles
	landscape permit, plan check, or design review are subject to the ordinance.		
Require Weather Adjusting Smart Irrigation Controllers and/or Rain Sensors in New Development	Measure would require new development customers to install weather adjusting smart irrigation controllers and/or rain sensors. Might offer training class on how to install and program the device. The WBICs have onsite weather sensors or rely on a signal from a central weather station that modifies irrigation times at least weekly. Implementing this measure may include the development of an ordinance and coordination with the City's planning department and new development plan review check process.	Primarily conducted by City Planning Department.	Multiple jurisdictions might have to be involved due to the service area's boundary. This measure would need to address the unincorporated areas of the district which can add more time for coordination. Involves multi-departmental coordination and support which can be time-consuming. Not necessarily cost-effective for the customer. There could be the need to verify enforcement which could add more time spent.
Require Irrigation Designers/Installers be Certified (possibly by Irrigation Association or CA Landscape Contractor's Association)	Require the design and installation of irrigation systems by trained certified contractors. Certification might be through the California Landscape Contractors Association, Irrigation Association (IA) and/or specialized training provided by utility.	Primarily conducted by City Planning Department.	Multiple jurisdictions might have to be involved due to the service area's boundary. This measure would need to address the unincorporated areas of the district which can add more time for coordination. Involves multi-departmental coordination and support which can be time-consuming. Enforcement might be challenging and/or possibly too sporadic to be effective.
Hot Water Recirculating Pump Rebate	Measure will provide a rebate to equip homes with efficient hot water recirculating pumps (hot water on demand systems). These systems use a pump placed under the sink to recycle water sitting in the hot water pipes to reduce hot water waiting times by having an on-demand pump on a recirculation line. Can be installed on kitchen sink or master bath, wherever hot water waiting times are more than 1/2 minute.	Could partner with energy utilities.	Historically, customers were challenged by the application process, and only 30 percent of applications were awarded. Moving forward, EVMWD plans to simplify the application process. It can be challenging to retrofit older homes since an electrical outlet is required under the sink, which is not common in older home bathrooms.

Measure Name	Description	Funding Sources & Opportunities	Measure Implementation Issues/Obstacles
Residential Outdoor and Indoor Water Efficiency Evaluation	Measure will provide indoor and outdoor water efficiency evaluations for single family and multifamily residential customers. Evaluations will be conducted by an outside contractor. Target those with high water use and provide a customized report to owner. This measure includes a multi-step process for identifying customers, including an online pre-screening and phone call screening before the field evaluation to identify high water using customers.	Could partner with energy utilities.	Can be challenging getting residences to participate. They are often very reluctant to voluntarily open their doors to a public agency representative. Also, survey recommendations may have a high initial financial or behavioral investment which can be unappealing. There has been minimal participation in the last few years
Financial Incentives for Residential Irrigation and Landscape Upgrades	After the free water use evaluation has been completed, recommendations will be analyzed and provided to the customer. Free evaluations may be onsite or via a pre-screening online step. Customers are only eligible for rebates after this evaluation. Staff may assist with completing rebate applications. Rebates may include such items as sprinkler nozzles, weather-based irrigation controllers ("smart timers"), soil moisture sensors, mulch, drip irrigation, rain barrels and cisterns.	SoCal Water$mart also partially conducts this measure.	Can get complicated or time-consuming if done properly and water use before and after is tracked. The often-high initial investment can be unappealing. Depending on the upgrades, not necessarily cost-effective. There has been minimal participation in the last few years. People don't always trust 'smart' systems and want to be able to control their watering themselves.
High Efficiency Device Giveaway	EVMWD buys high efficiency devices in bulk and gives them away at the administrative office. Devices include low-flow showerheads (1.5 gallons per minute or "gpm"), faucet aerators (kitchen and bath), 5-minute shower timers, toilet dye tabs, and automatic shut off nozzles for garden hoses. This measure is planned to evolve as technology changes. Kits are distributed as requested to approximately 100 accounts per year in addition to all new service accounts who register at the administrative office.	Could partner with energy utilities.	Little assurance the devices are installed.
Partnership with Energy Utilities	Partnerships with local energy utilities to offer incentives to customers to save both water and energy. SoCalGas provides kits with three faucet aerators and a low-flow showerhead at no cost. EVMWD to optimize efforts with partnering entities by tracking relevant data (interventions, water savings, energy savings, etc.) and ensuring consistent messaging. May consider	Could partner with local businesses interested in savings water and energy that are willing to work with	Can be complicated or time-consuming to coordinate. SoCal Gas may not be willing/able to provide their data on work done, so this could call for more involvement and potentially funding

Measure Name	Description	Funding Sources & Opportunities	Measure Implementation Issues/Obstacles
	streamlining residential site surveys by combining water and energy and cross-training staff with one agency financially subsidizing the other's efforts.	both water and energy utilities.	from EVMWD to ensure we are capturing everything be performed.
Residential High Efficiency Toilet Rebate	Rebates are available for $40 (1.06 gpf or lower). Rebates are handled by SoCal Water$mart.	SoCal Water$mart also partially conducts this measure.	With the $40 rebate amount, it's not necessarily cost-effective for a customer unless they are planning to get a new toilet anyway. There has been declining participation over the last few years. Residents' concern with having to pay extra to have it installed or do the install themselves.
Clothes Washer Rebate	Rebates will be provided for residential clothes washers. Rebates are available through and handled by SoCal Water$mart and SoCalGas. SoCal Water$mart Rebates start at $85; SoCalGas rebates start at $50.	Could partner with energy utilities. SoCal Water$mart also partially conducts this measure.	Not necessarily cost-effective for the customer, unless they run full loads and/or were going to need a new machine anyway. Most effective water savings are achieved with full loads which can't be guaranteed. There has been declining participation over the last few years.
Pool Cover Rebate	Rebates will be provided for residential pool covers. Customers must submit a completed Rebate Request with a photo of their pool, a copy of the pool cover receipt and a copy of their current water bill.	Western Municipal Water District also partially funds this measure. Could also partner with pool equipment stores.	It is difficult to predict if the pool covers will be used. Not necessarily cost-effective.
Leak Repair and Plumbing Emergency Assistance for Low-Income Customers	Customer leaks can go uncorrected at properties where owners are least able to pay costs of repair. This program will require that customer leaks be repaired, but for low-income customers, be paid for with Rate Assistance for Residents of Elsinore Valley (RARE) funds that are paid back with customer monthly water bills over time.	Could partner with energy utilities.	Might require multiple departments to coordinate which can be time consuming. Customers may not pay back cost of repair on schedule. Could lead to further debt from the customer if not paying on-time. Customer's may not be as motivated to fix asap if they know the agency will fund it regardless. May need to have a time limit of when to fix it by.

5. COMPARISON OF INDIVIDUAL CONSERVATION MEASURES

This section presents the individual conservation measures analyzed, and describes the benefit-cost perspective, present value parameters, and measure assumptions.

5.1 Perspectives on Benefits and Costs

The determination of the economic feasibility of water conservation programs involves comparing the costs of the programs to the benefits provided. MWM performed a benefit-cost analysis on all past, present and future conservation programs since 2013 that were included in the measure list presented in the previous section. Then the DSS Model was used to calculate the maximum active and passive activity and identify what potential water use reduction remained within the service area. The DSS Model received the endorsement of CUWCC in 2006 and calculates savings at the end-use level. Additional details on the DSS Model and its assumptions can be found in Section 3 and Appendix D.

5.2 Present Value Analysis and the Utility and Community Perspective

Present value analysis, using constant 2018 (base year) dollars and a real discount rate of 3 percent per year, is used to discount costs and benefits back to the base year. From this analysis, benefit-cost ratios of each measure are computed. When measures are combined into programs, the model is set up to avoid double counting savings from multiple measures that act on the same end use of water. For example, multiple measures in a program may target toilet replacements. The model includes assumptions to apportion water savings between the multiple measures.

The time value of money is explicitly considered. Typically, the costs to save water occur early in the planning period whereas the benefits usually extend to the end of the planning period. A planning period of more than 25 years is typically not used because costs and benefits that occur beyond that timeframe have very little influence on the total present value of the costs and benefits. The value of all future costs and benefits is discounted to the first year in the DSS Model (i.e., the base year of 2018), at the real interest rate of 3 percent. The DSS Model calculates this real interest rate, adjusting the current nominal interest rate (assumed to be approximately 6.1 percent) by the assumed rate of inflation (3 percent). Cash flows discounted in this manner are herein referred to as “Present Value” sums.

Economic analysis can be performed from several different perspectives based on which party is affected. For planning water conservation programs for utilities, the perspectives most commonly used for benefit-cost analyses are the “utility” perspective and the “community” perspective. The “utility” benefit-cost analysis is based on the benefits and costs to the water provider. The “community” benefit-cost analysis includes the utility benefit and costs together with account owner/customer benefits and costs. These include customer energy and other capital or operating cost benefits plus costs of implementing the measure beyond what the utility pays.

The utility perspective offers two advantages. First, it considers only the program costs that will be directly borne by the utility. This enables the utility to fairly compare potential investments for saving versus supplying increased quantities of water. Second, revenue shifts are treated as transfer payments, which means program participants will have lower water bills and non-participants will have slightly higher water bills so that the utility’s revenue needs continue to be met. Therefore, the analysis is not complicated with uncertainties associated with long-term rate projections and retail rate design assumptions. It should be noted that there is a significant difference between the utility’s savings from the avoided cost of procurement and delivery of water and the reduction in retail revenue that results from reduced water sales due to conservation. This budget impact occurs slowly and can be accounted for in water rate planning. Because it

is the water provider's role in developing a conservation plan that is paramount in this study, the utility perspective was primarily used to evaluate elements of the plan.

Under the community perspective, costs incurred by customers striving to save water while participating in conservation programs are considered, as well as the benefits received in terms of reduced energy bills (from water heating costs) and wastewater savings, among others. Water bill savings are not a customer benefit in the aggregate for reasons described above.

Other factors external to the utility, such as environmental effects, are often difficult to quantify or are not necessarily under the control of the utility. They are therefore frequently excluded from economic analyses, including this one.

5.3 Assumptions About Measure Costs, Measure Savings, and Avoided Costs

Appendix H presents the measure assumptions and inputs used in the analysis to evaluate the water conservation measures selected by EVMWD. Information and assumptions regarding the following variables are made for each measure:

- Measure Device or Strategy – If a measure is not device-driven, the strategy being implemented and its benefits are described.
- Measure Sector/Targeted Water User Group End Use – This includes the water user group (e.g., single family residential) and end use (e.g., indoor or outdoor water use).
- Utility Unit Cost – This includes the cost of rebates, incentives, and contractors hired (by EVMWD) to implement measures. The assumed dollar values for the measure unit costs have been reviewed closely by EVMWD staff and found to be adequate for each individual measure. The values in most cases are in the range of what is currently offered by other water utilities in the region.
- Retail Customer Unit Cost – This is the cost for implementing measures that is paid by retail customers (i.e., the remainder of a measure's cost that is not covered by a rebate or incentive).
- Utility Administration and Marketing Cost – This is the cost to the utility for administering the measure, including consultant contract administration, marketing, and/or participant tracking. The mark-up is sufficient (in total) to cover local agency conservation staff time, general expenses, and overhead.

The unit costs vary according to the type of customer account and implementation method being addressed. For example, a measure might cost a different amount for a residential single family account than a residential multifamily account, and for a rebate versus an ordinance requirement or a direct installation implementation method. Typically, water utilities have found there are increased costs associated with achieving higher market saturation, such as conducting more surveys per year. The DSS Model calculates the annual costs based on the number of participants each year. The general formula for calculating annual utility costs is:

Annual Utility Cost = Annual market penetration rate x total accounts in category x unit cost per account x (1+administration and marketing markup percentage)

Annual Customer Cost = Annual number of participants x unit customer cost

Annual Community Cost = Annual utility cost + annual customer cost

5.3.1 Measure Costs

Costs were determined for each of the measures based on industry knowledge, previous experience, and data provided by EVMWD. Costs may have included incentive costs, usually determined on a per-participant basis; fixed costs, such as marketing; variable costs, such as the costs to staff the measures and to obtain and maintain equipment; and a one-time set-up cost. The set-up cost is for measure design by staff or consultants, any required pilot testing, and preparation of materials that will be used in marketing the measure. The model was run for 23 years (each year between 2018 and

2040). Costs were spread over the time period depending on the length of the implementation period for the measure and estimated voluntary customer participation levels.

Lost revenue due to reduced water sales was not included as a cost. This was because the conservation measures that were evaluated generally take effect over a long span of time sufficient to enable timely rate adjustments, if necessary, to meet fixed cost obligations and savings on variable costs such as energy and chemicals.

5.3.2 Measure Savings

Data necessary to forecast water savings of measures includes specifics on water use, demographics, market penetration, and unit water savings. Savings normally develop at a measured and predetermined pace, reaching full maturity after full market penetration is achieved. This may occur three to seven years after the start of implementation, depending upon the implementation schedule. For every conservation activity or replacement with more efficient devices, there is what is considered a useful life or "measure life". It is defined as how long a conservation measure stays in place and continues to save water. It is assumed that measures implemented because of codes, standards, or ordinances (e.g., toilets) will be permanent and not revert to an old inefficient level of water use if the device needed to be replaced. However, some measures that are primarily behavior-based (e.g., residential surveys) are assumed to need to be repeated on an ongoing basis to retain the water savings. For example, homeowners move away and the new homeowners may have less water efficient practices around the home. Using acquired demographic census data, potential water savings were quantified based on the number of end-users participating in a measure. Again, industry-established water savings estimates were assumed when the measure was device-driven, and in cases where no industry averages were available, historical water use data was consulted. Specific water savings estimates and assumptions are provided in each modeled measure's screenshot in Appendix H.

5.3.3 Avoided Costs

EVMWD has multiple sources of water: groundwater, surface water, imported water, and recycled water. Groundwater basins in both Elsinore and Temescal valleys are the primary sources of drinking water supply for EVMWD. Surface water supplies are stored in Canyon Lake, also known as Railroad Canyon Reservoir. Imported water supplies are provided from Metropolitan Water District of Southern California through Western Municipal Water District. EVMWD operates three Wastewater Reclamation Facilities (WRF): the Regional WRF, Horsethief Canyon WRF, and Railroad Canyon WRF. Furthermore, wastewater flow in the southern part of EVMWD's service area is treated at the Santa Rosa WRF operated by the Rancho California Water District (RCWD). Tertiary treated water is produced at these wastewater facilities for irrigation, lake replenishment and environmental enhancement.

The estimated avoided cost of purchasing imported treated water has been identified by EVMWD staff to be a rate of $1,344 per AF ($4,125 per MG). Costs are based on projected year 2026 purchase water cost to represent a time midpoint of the modeling analysis timeframe 2018-2040.

5.4 Comparison of Individual Measures

Table 5-1 presents how much water the measures will save through 2040, how much they will cost, and what cost of saved water per unit volume *if the measures were implemented on a stand-alone basis (i.e. without interaction or overlap from other measures that might address the same end use(s)).* Savings from measures which address the same

end use(s) are not additive; the model uses impact factors to avoid double counting in estimating the water savings from programs of measures.[4]

Since interaction between measures has not been accounted for in Table 5-1, it is not appropriate to include totals at the bottom of the table. However, the table is useful to give a close approximation of the cost effectiveness of each measure.

Cost categories are defined below:

- Utility Costs - those costs that EVMWD as a water utility will incur to operate the Water Conservation Program, including administrative costs.
- Utility Benefits - the avoided cost of producing water at the identified rate $1,344 per AF ($4,125 per MG).
- Customer Costs - those costs customers will incur to implement a measure in EVMWD's Conservation Program and maintain its effectiveness over the life of the measure.
- Customer Benefits - the savings other than from reduced water/sewer utility bills, such as energy savings resulting from reduced use of hot water. Conservation program participants will see lower water and sewer bills but overall there will be no net customer benefit.
- Community Costs and Benefits - Community Costs and Benefits include Utility Costs plus Customer Costs, and Utility Benefits plus Customer Benefits, respectively.

The column headings in Table 5-1 are defined as follows:

- Present Value (PV) of Utility and Community Costs and Benefits ($) = the present value of the 23-year time stream of annual costs or benefits, discounted to the base year (years 2018-2040).
- Utility Benefit-Cost ratio = PV of Utility Costs divided by PV of Utility Benefits over 23 years (2018-2040).
- Community Benefit-Cost ratio = (PV of Utility Benefits plus PV of customer energy savings) divided by (sum of PV of Utility Costs plus PV of Customer Costs), over 23 years (2018-2040).
- Five Years of Total Cost to Utility ($) = the sum of the annual Utility Costs for the years from 2018 to 2023. The measures start in the years as specified for each measure shown in Appendix H. Utility costs include administrative costs and staff labor.
- Water Savings in 2040 (AFY) = water saved in acre-feet per year. The year 2040 is provided as requested by EVMWD staff.
- Cost of Savings per Unit Volume ($/AF) = PV of Utility Costs over 23 years divided by the 23-Year Water Savings. The analysis period is 2018-2040. This value is compared to the utility's avoided cost of water as one indicator of the cost effectiveness of conservation efforts. It should be noted that the value somewhat undervalues the cost of savings because program costs are discounted to present value and the water benefit is not.

5.5 Measure Implementation Schedule

Table 5-2 presents the proposed implementation schedule for all 25 ongoing, planned, potential and analyzed measures.

[4] For example, if two measures are planned to address the same end use and both save 10 percent of the prior water use, then the net effect is not the simple sum of 20 percent. Rather, it is the cumulative impact of the first measure reducing the use to 90 percent of what it was originally, without the first measure in place. Then, the revised use of 90 percent is reduced by another 10 percent (10% x 90% = 9%) to result in the use being 81 percent (90% - 9% = 81%). In this example, the net savings is 19 percent, not 20 percent. Using impact factors, the model computes the reduction as follows, 0.9 x 0.9 = 0.81 or 19 percent water savings.

Table 5-1. Estimated Conservation Measure Costs and Savings

Measure Name	Present Value of Water Utility Benefits[a]	Present Value of Community Benefits[a]	Present Value of Water Utility Costs[a]	Present Value of Community Costs[a]	Water Utility Benefit-Cost Ratio	Community Benefit-Cost Ratio	Five Years of Water Utility Costs 2018–2023[b]	Water Savings in 2040 (AFY)	Cost of Savings per Unit Volume ($/AF)
Public and School Education	$2,070,000	$3,281,000	$1,740,000	$1,740,000	1.2	1.9	$419,000	110	$850
District System Optimization Review	$2,550,000	$2,550,000	$1,366,000	$1,366,000	1.9	1.9	$404,000	140	$510
Water Neutrality Ordinance	$51,166,000	$79,247,000	$2,625,000	$42,299,000	19.5	1.9	$447,000	4,830	$50
CII Indoor Water Efficiency Evaluation	$192,000	$348,000	$525,000	$767,000	0.4	0.5	$85,000	10	$2,640
CII Rebates to Replace Inefficient Equipment	$389,000	$708,000	$84,000	$1,323,000	4.7	0.5	$20,000	40	$200
Public Agency Program	$110,000	$158,000	$3,000	$200,000	31.9	0.8	$3,000	10	$30
Require Plan Review for New CII	$46,000	$84,000	$23,000	$217,000	2.0	0.4	$5,000	-	$470
CII Leak Alert	$2,209,000	$2,209,000	$121,000	$379,000	18.3	5.8	$24,000	240	$50
Cooling Tower Regulations	$364,000	$364,000	$368,000	$1,175,000	1.0	0.3	$59,000	40	$860
Financial Incentives for CII Irrigation and Landscape Upgrades	$7,153,000	$7,153,000	$1,477,000	$11,244,000	4.8	0.6	$347,000	520	$190
Large Landscape Outdoor Water Efficiency Evaluation	$3,198,000	$3,198,000	$1,454,000	$1,670,000	2.2	1.9	$341,000	230	$410
Landscape Conversion or Turf Removal - CII	$939,000	$940,000	$15,000	$1,323,000	61.4	0.7	$13,000	50	$20
Landscape Conversion or Turf Removal - Residential	$158,000	$158,000	$30,000	$403,000	5.2	0.4	$26,000	10	$180
Water Conserving Landscape and Irrigation Codes	$16,032,000	$16,032,000	$2,249,000	$42,715,000	7.1	0.4	$512,000	1,430	$120
Require Weather Adjusting Smart Irrigation Controllers and/or Rain Sensors in New Development	$6,470,000	$6,470,000	$1,586,000	$10,341,000	4.1	0.6	$273,000	650	$210
Require Irrigation Designers/Installers be	$2,646,000	$2,646,000	$547,000	$2,459,000	4.8	1.1	$92,000	200	$180

Measure Name	Present Value of Water Utility Benefits[a]	Present Value of Community Benefits[a]	Present Value of Water Utility Costs[a]	Present Value of Community Costs[a]	Water Utility Benefit-Cost Ratio	Community Benefit-Cost Ratio	Five Years of Water Utility Costs 2018–2023[b]	Water Savings in 2040 (AFY)	Cost of Savings per Unit Volume ($/AF)
Certified (possibly by Irrigation Association or CA Landscape Contractor's Association)									
Hot Water Recirculating Pump Rebate	$556,000	$1,270,000	$433,000	$982,000	1.3	1.3	$378,000	20	$810
Residential Outdoor and Indoor Water Efficiency Evaluation	$343,000	$489,000	$299,000	$356,000	1.1	1.4	$72,000	20	$850
Financial Incentives for Residential Irrigation and Landscape Upgrades	$436,000	$436,000	$491,000	$710,000	0.9	0.6	$118,000	30	$1,020
High Efficiency Device Giveaway	$674,000	$1,485,000	$112,000	$112,000	6.0	13.3	$27,000	60	$160
Partnership with Energy Utilities	$1,657,000	$3,730,000	$90,000	$90,000	18.4	41.5	$39,000	90	$50
Residential High Efficiency Toilet Rebate	$81,000	$81,000	$39,000	$250,000	2.1	0.3	$21,000	-	$490
Clothes Washer Rebate	$2,094,000	$5,570,000	$558,000	$6,073,000	3.8	0.9	$134,000	170	$260
Pool Cover Rebate	$2,000	$2,000	$10,000	$32,000	0.2	0.1	$11,000	-	$6,240
Leak Repair and Plumbing Emergency Assistance for Low-Income Customers	$240,000	$376,000	$146,000	$747,000	1.6	0.5	$24,000	20	$610

[a] Present value calculations use constant 2018 dollars and a real discount rate of 3 percent to discount costs and benefits through the analysis period of 2018-2040.

[b] Utility costs include administrative costs and staff labor.

Table 5-2. Proposed Implementation Schedule

Measure Name	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Public & School Education[A,B,C]																							
District System Optimization Review[A,B,C]																							
Water Neutrality Ordinance[B,C]																							
CII Indoor Water Efficiency Evaluation[B,C]																							
CII Rebates to Replace Inefficient Equipment[A,B,C]																							
Public Agency Program[B,C]																							
Require Plan Review for New CII[C]																							
CII Leak Alert[A,B,C]																							
Cooling Tower Regulations[C]																							
Financial Incentives for CII Irrigation & Landscape Upgrades[A,B,C]																							
Large Landscape Outdoor Water Efficiency Evaluation[A,B,C]																							
Landscape Conversion or Turf Removal - CII[B,C]																							
Landscape Conversion or Turf Removal - Residential[B,C]																							
Water Conserving Landscape & Irrigation Codes[A,B,C]																							
Require Smart Irrigation Controllers in New Development[C]																							
Require Irrigation Designers/Installers Be Certified[C]																							
Hot Water Recirculating Pump Rebate[B,C]																							
Residential Outdoor & Indoor Water Efficiency Evaluation[A,B,C]																							
Financial Incentives for Residential Landscape Upgrades[A,B,C]																							
High Efficiency Device Giveaway[A,B,C]																							
Partnership with Energy Utilities[A,B,C]																							
Residential High Efficiency Toilet Rebate[A,B,C]																							
Clothes Washer Rebate[A,B,C]																							
Pool Cover Rebate[A,B,C]																							
Leak Repair/Plumbing Assistance for Low-Income Customers[B,C]																							

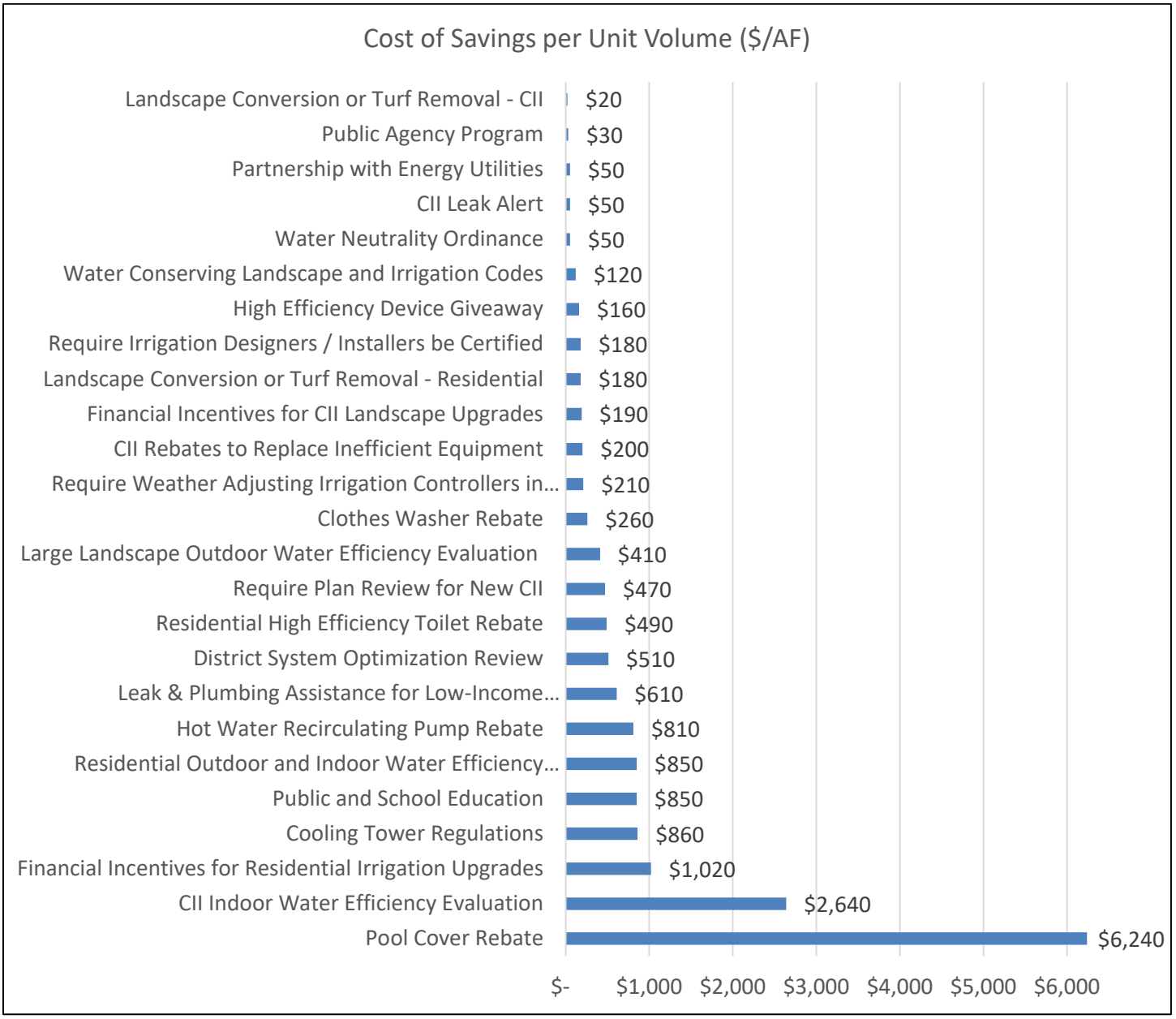
Notes:

1. Conservation programs are defined in the following section.
2. Some measure names have been shortened to better present schedule. Full measure names can be found in Table 5-1.
3. Superscript notes are defined as follows:
    1) A = measure is in Program A.
    2) B = measure is in Program B.
    3) C = measure is in Program C.

5.6 Economic Analysis of Potential Conservation Measures

MWM collected data to quantify the costs and water savings of these measures and conducted an economic evaluation of selected water conservation measures using the DSS Model developed for EVMWD. Water savings from each of the water conservation measures were estimated and expressed for each 5-year increment for 23 years. An economic analysis of these conservation measures/requirements was prepared for each individual measure. Dollar savings from reduced water demand was quantified annually and based on avoided costs provided by EVMWD. The following figure presents a comparison of each measure's cost of water saved.

Figure 5-1. Comparison of Conservation Between Cost of Programs and Water Savings



Notes:

1. Some measure names have been shortened to better present data. Full measure names are in Table 5-1.
2. The difference in costs, as previously discussed and shown in Table 4-2, is because some measures are funded by other agencies. For example, pool cover rebates are funded by EVMWD, but the landscape conversion or turf removal measure is funded by SoCal Water$mart.

6. CONSERVATION PROGRAM EVALUATION

This section provides a summary of which measures are included in each of the three alternative programs, and which program EVMWD has selected to implement. The three alternatives are designed to illustrate a range of various measure combinations and resulting water savings. The following three key items were taken into consideration during measure selection for Programs A, B, and C:

- Existing conservation measures
- Conservation measures recommended by AWWA, CalWEP (formerly CUWCC), USBR and others
- New and innovative measures (such as the Water Neutrality Ordinance)

This section identifies and prioritizes the conservation programs and projects by cost effectiveness, quantifiable water savings, and compliance with USBR requirements.)

6.1 Selection of Measures for Programs – Menu of Water Use Efficiency Alternative Programs (Programs A, B, C)

MWM developed an economic analysis to show the true cost of conducting conservation. EVMWD's existing conservation program was evaluated, then three increasingly aggressive programs were developed for EVMWD to consider. The proposed programs included a combination of existing regional measures as well as the effects of adopted code changes and legislation between 2009 and 2018.

Using the data gathered, MWM created a list of all potential program concepts that were appropriate for EVMWD's service area to meet future regulatory and conservation compliance mandates. The list included program concepts and traditional conservation measures as well as concepts that had not currently been implemented or considered by EVMWD. The results of the program analysis were reviewed, at which point EVMWD adjusted the program contents to determine which measures would be in each of the programs. Factors for determining which measure should be in each program included budgeting, feasibility to implement the program, and the time at which each measure would need to be introduced to promote conservation efforts. MWM compiled descriptions and parameters of the programs for EVMWD.

These programs are not intended to be rigid but rather to demonstrate the range in savings that could be generated if selected measures were run at the same time. When programs are analyzed, any overlap in water savings (and benefits) from individual measures is taken into account to provide a total combined water savings (and benefits). Each program evaluated is described below.

Program A – 14 measures. Program A represents EVMWD's currently active measures.

Program B – 21 Measures. Program B includes all the measures in Program A plus additional measures for future implementation that are generally cost-effective and save significant amounts of water.

Program C – All 25 measures evaluated. Program C represents the highest cost and water savings conservation program that would be implemented for more severe conservation-required situations.

The following table shows which measures are included in each of the three programs.

Table 6-1. Conservation Program Measures

Measures	Program A	Program B	Program C
Public and School Education	X	X	X
District System Optimization Review	X	X	X
Water Neutrality Ordinance		X	X
CII Indoor Water Efficiency Evaluation		X	X
CII Rebates to Replace Inefficient Equipment	X	X	X
Public Agency Program		X	X
Require Plan Review for New CII			X
CII Leak Alert	X	X	X
Cooling Tower Regulations			X
Financial Incentives for CII Irrigation and Landscape Upgrades	X	X	X
Large Landscape Outdoor Water Efficiency Evaluation	X	X	X
Landscape Conversion or Turf Removal - CII		X	X
Landscape Conversion or Turf Removal - Residential		X	X
Water Conserving Landscape and Irrigation Codes	X	X	X
Require Weather Adjusting Smart Irrigation Controllers and/or Rain Sensors in New Development			X
Require Irrigation Designers/Installers Be Certified (possibly by Irrigation Association or California Landscape Contractor's Association)			X
Hot Water Recirculating Pump Rebate		X	X
Residential Outdoor and Indoor Water Efficiency Evaluation	X	X	X
Financial Incentives for Residential Irrigation and Landscape Upgrades	X	X	X
High Efficiency Device Giveaway	X	X	X
Partnership with Energy Utilities	X	X	X
Residential High Efficiency Toilet Rebate	X	X	X
Clothes Washer Rebate	X	X	X
Pool Cover Rebate	X	X	X
Leak Repair and Plumbing Emergency Assistance for Low-Income Customers		X	X

6.2 Results of Program Evaluation

MWM compiled the best measures in the three program scenarios in EVMWD's DSS Model. Each program contains increasing levels of conservation effectiveness. The water savings, benefits, and costs of each program package have been computed. Figures 6-1 and 6-2 present estimated average AFY and GPCD savings use without conservation and with the plumbing codes only, as well as with plumbing codes and each of the three alternative programs. Plumbing code includes current local, state, and federal standards for retrofits of items such as toilets, showerheads, faucets, and pre-rinse spray valves.

Figure 6-1. Water Savings (AFY) with Different Program Options

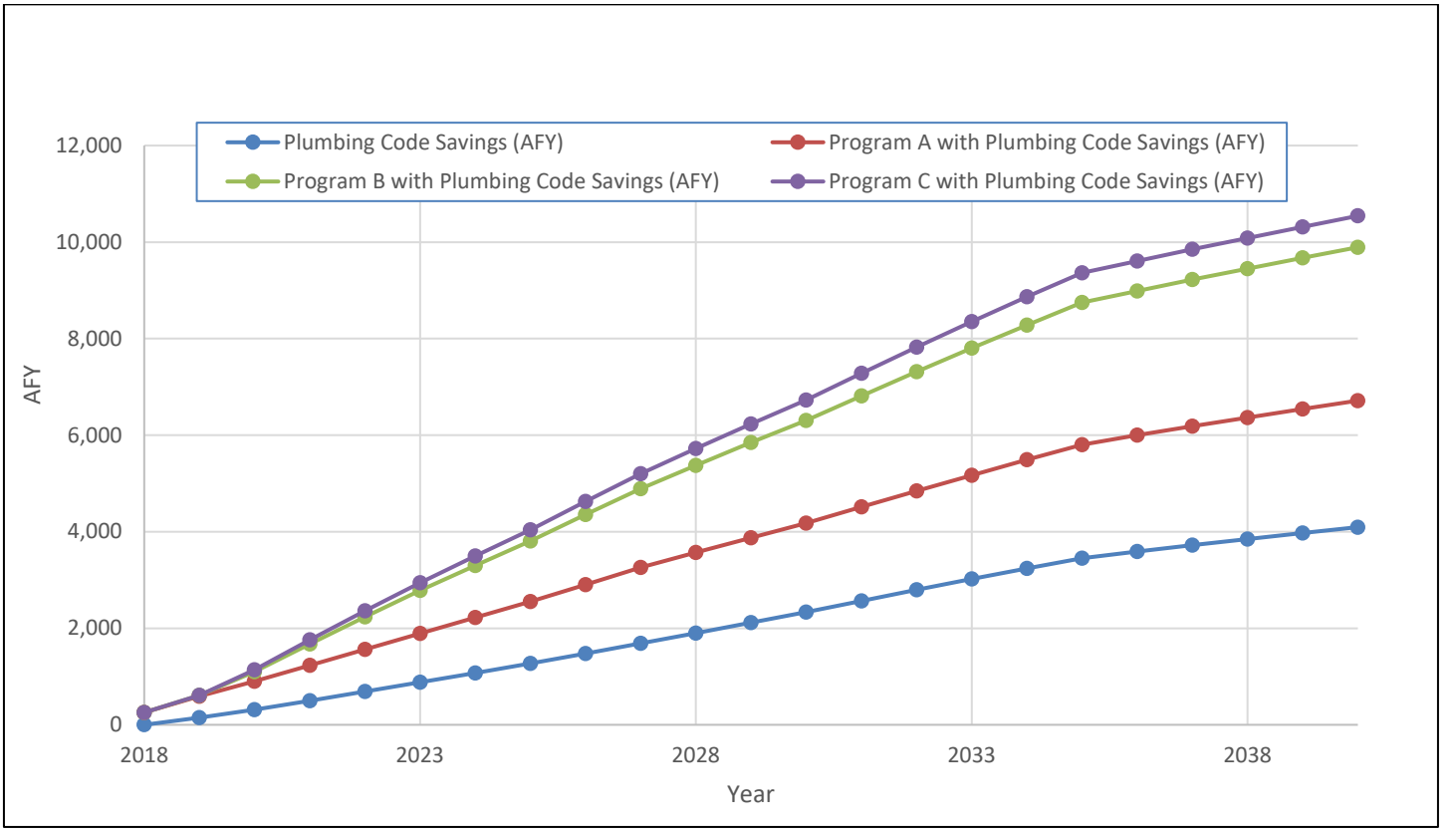


Figure 6-2. Water Savings (GPCD) with Different Program Options

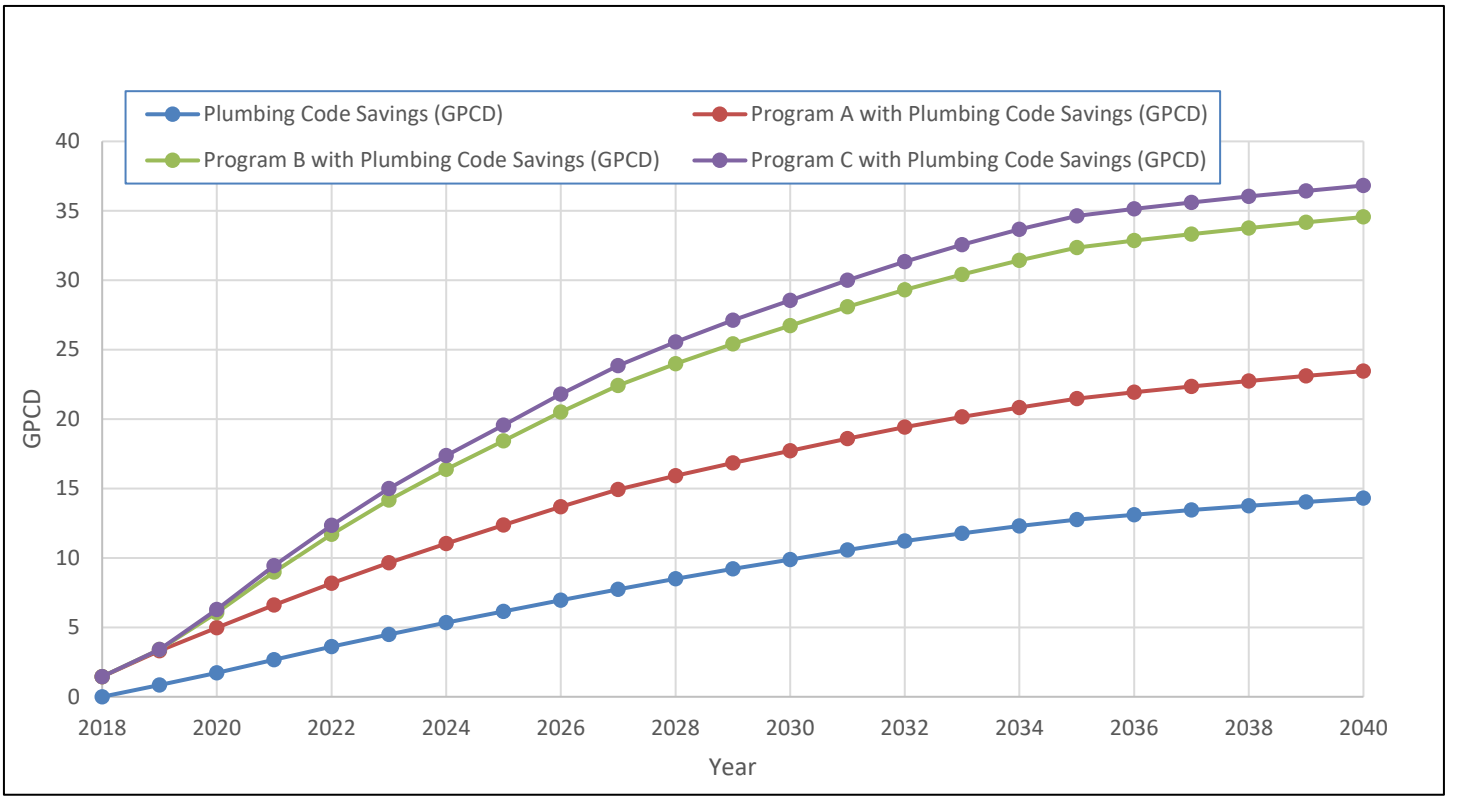


Table 6-2 shows the estimated annual savings in acre-feet per year in five-year increments for all three programs. EVMWD and customer benefit-cost ratios are also presented for each program, as well as the present value of water savings and utility costs.

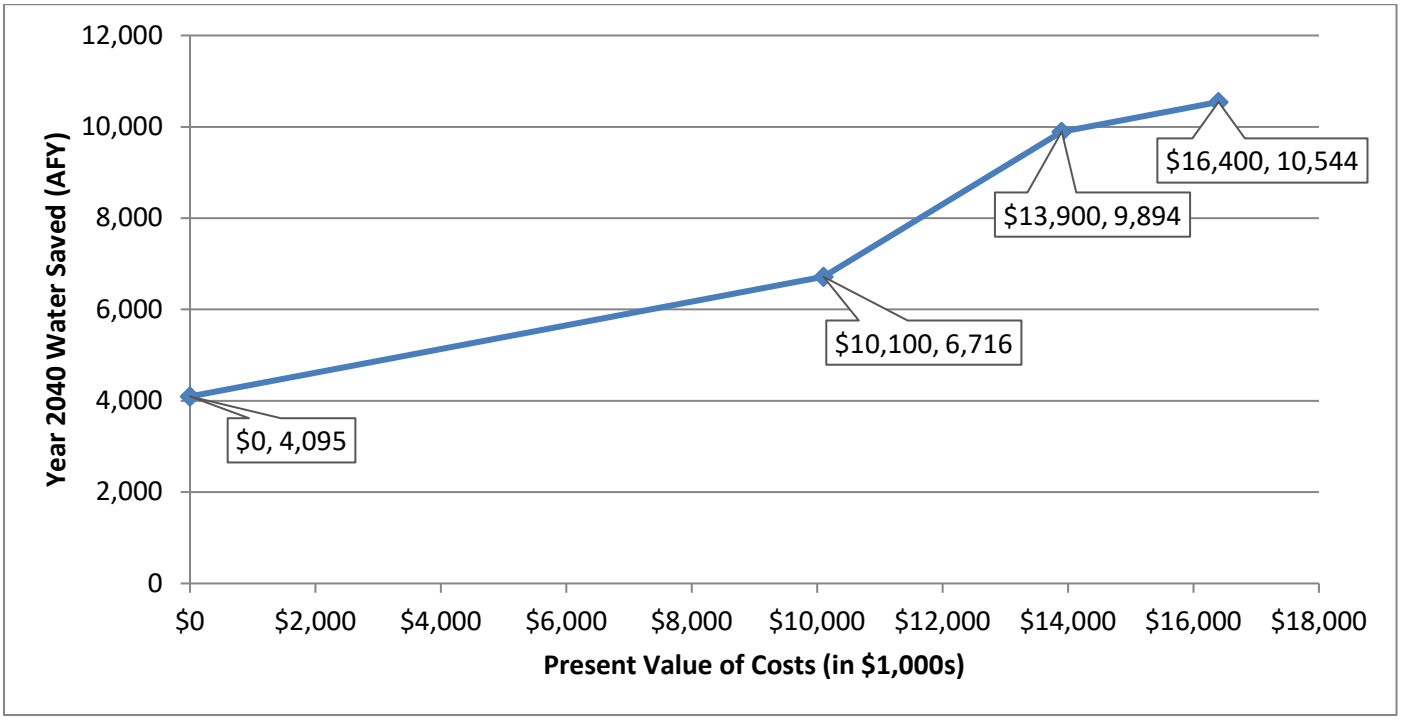
Table 6-2. Comparison of Program Estimated Costs and Water Savings

Conservation Program	Water Savings (AFY)					Water Utility Benefit-Cost Ratio	Present Value of Water Savings	Present Value of Utility Costs	Water Utility Cost of Water Saved ($/AF)
	2020	2025	2030	2035	2040				
Plumbing Code Only	310	1,270	2,330	3,450	4,100	N/A	N/A	N/A	N/A
Program A with Plumbing Code	900	2,550	4,180	5,800	6,720	3.4	$34,565,000	$10,089,000	$270
Program B with Plumbing Code	1,100	3,810	6,310	8,750	9,890	5.3	$72,940,000	$13,868,000	$170
Program C with Plumbing Code	1,140	4,040	6,730	9,360	10,540	4.9	$80,360,000	$16,391,000	$190

Note: Measure utility costs and staffing covered by SoCal Water$mart, WMWD, and other partners are not included. The costs presented here are directly attributed to EVMWD only.

Figure 6-3 illustrates how marginal returns change as more money is spent to achieve water savings in acre-feet per year in 2040. A cost-effectiveness curve displays the results of the present value of each program's costs versus the cumulative water savings at the end of the planning period. This curve is helpful in determining how far to push the "conservation envelope" as the point of diminishing economic returns will be evident. As the figure shows, the costs increase as the water savings increase from Program A to C, which corresponds to increasing the budget, staffing, and participation in the conservation programs.

Figure 6-3. Present Value of Utility Costs vs. Water Saved in 2040



6.3 Estimated Budget

The estimated three-year 2018, 2019, and 2020 costs to EVMWD to implement Program A, B, and C as described in the Business Plan are approximately $465,000, $582,000, and $619,000 per year, respectively. The budget includes staff time and expenses (materials, rebates, giveaways, etc.). This budget was developed while working closely with EVMWD staff on parts of the DSS Model evaluations for the level of activity by year. Many current and potential opportunities exist for cost sharing with other utilities (energy, sewer, or neighboring water utilities) to lower the cost of a conservation measure's budgetary needs for implementation. On an annual basis, EVMWD should continue to develop detailed annual work plans and use the DSS Model to monitor progress on demand reductions along with updates to the implementation cost estimates and associated budgets.

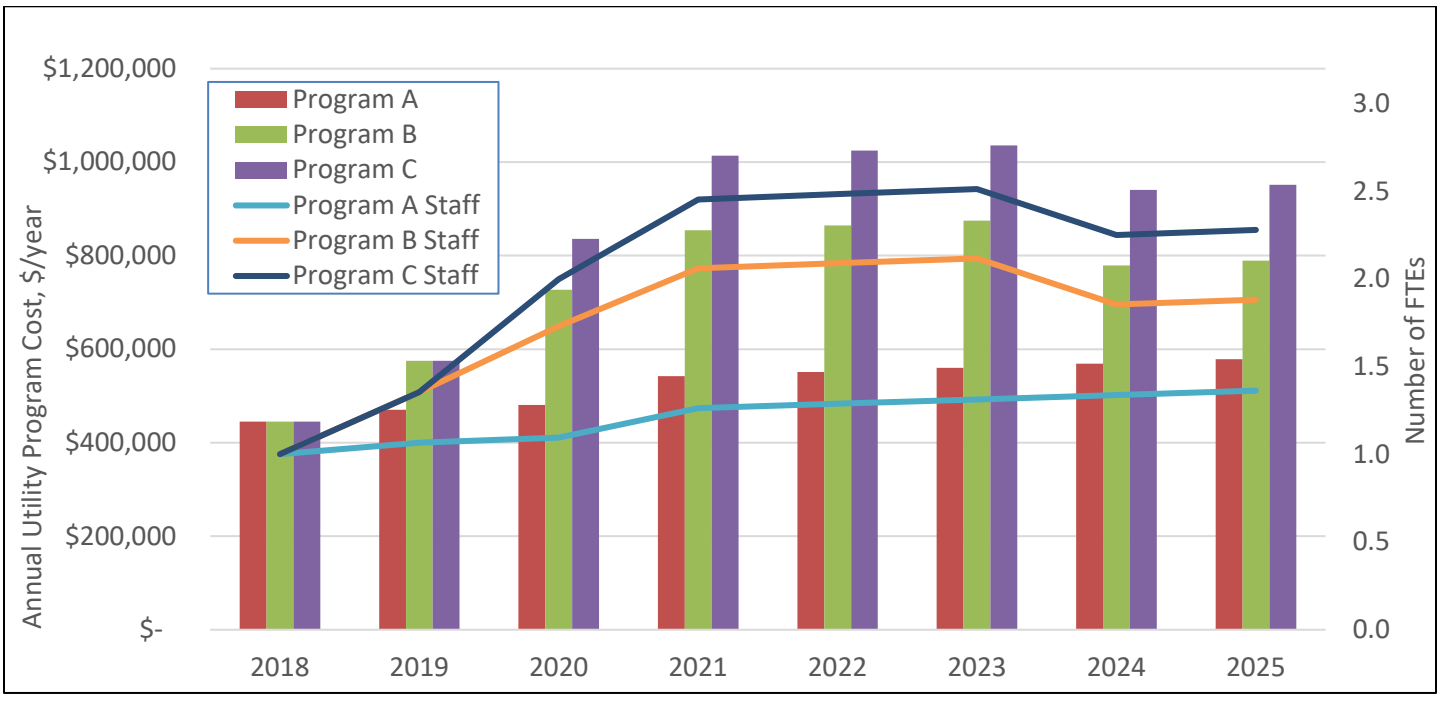
Figure 6-4 illustrates the proposed implementation budget for the planned and ongoing EVMWD Programs A-C measures. Measure elements and costs funded by SoCal Water$mart and other partners are not included. Utility costs include unit costs (incentives and rebates) as well as administrative costs. Individual measure costs (including utility, administrative, and customer costs) can be found in the measure input sheets in Appendix H.

6.4 Staffing Needs

As part of this planning effort, consideration has been given to program staffing levels for EVMWD's effort in operating the service area measures. As mentioned previously, many of EVMWD's measures are partially funded, staffed, or outsourced by MWD, WMWD, developers, and customers such that the overall measure costs to EVMWD are low. However, addressing the initiatives needed to reduce water demand is applicable across many departments for EVMWD's staff and will require a coordinated effort. Current and proposed future needs for staff support of the conservation program is presented in this section.

Figure 6-4 presents the staffing EVMWD would need to implement any of the three modeled conservation programs. EVMWD staffing needs were calculated by dividing annual administrative costs by an average annual EVMWD salary of $45 per hour or, estimating 2,087 work hours per year, approximately $94,000 per staff person per year. Administrative costs were derived for each measure by taking a percentage of each measure's utility costs.

Figure 6-4. Annual Estimated Conservation Program Utility Costs and Staffing



6.5 Recommended Program

EVMWD has elected to implement Program B, which has the highest utility and customer benefit-cost ratios, offering significant savings at an appropriate cost. Program B was selected because many of the measures are currently being implemented and the other measures could be reasonably accomplished with existing staffing, consulting assistance, or in partnership with MWD and WMMD. Program C offers a little more savings for more cost to both EVMWD and customers but is much more severe than the other two programs. Therefore, EVMWD would only pursue Program C if a water shortage called for more drastic conservation measures.

7. PROGRAM B FIVE-YEAR IMPLEMENTATION PLAN

This section presents a potential conservation program implementation plan for EVMWD. The selected conservation Program B measure descriptions, potential obstacles, funding sources, existing and potential partnerships, schedule, utility costs and potential staffing requirements are provided.

7.1 Five-Year Schedule

Table 7-1 presents the implementation schedule for the planned EVMWD measures. Over the next five years, EMVWD plans to implement Program B. However, this may need to be reviewed based on any future mandates that are released based the newly adopted state regulations as noted earlier.

7.2 Measure Description, Obstacles, Funding, and Partnership Sources

Table 7-2 presents the 21 measures that were selected for inclusion in the recommended Program B. Funding sources and partnership opportunities as well as potential implementation obstacles for each measure are listed.

Table 7-1. Proposed Five-Year Implementation Schedule for Program B

Measure Name	2018	2019	2020	2021	2022
Public and School Education					
District System Optimization Review					
Water Neutrality Ordinance					
CII Indoor Water Efficiency Evaluation					
CII Rebates to Replace Inefficient Equipment					
Public Agency Program					
CII Leak Alert					
Financial Incentives for CII Irrigation and Landscape Upgrades					
Large Landscape Outdoor Water Efficiency Evaluation					
Landscape Conversion or Turf Removal - CII					
Landscape Conversion or Turf Removal - Residential					
Water Conserving Landscape and Irrigation Codes					
Hot Water Recirculating Pump Rebate					
Residential Outdoor and Indoor Water Efficiency Evaluation					
Financial Incentives for Residential Landscape Upgrades					
High Efficiency Device Giveaway					
Partnership with Energy Utilities					
Residential High Efficiency Toilet Rebate					
Clothes Washer Rebate					
Pool Cover Rebate					
Leak Repair/Plumbing Assistance for Low-Income Customers					

Notes:

1. Some measure names have been shortened to better present schedule. Full measure names can be found in Table 7-2.

Table 7-2. Program B Measure Descriptions, Funding Sources and Opportunities, and Implementation Obstacles

Measure Name	Description	Funding Sources & Opportunities	Measure Implementation Issues/Obstacles
Public and School Education	Public and school education is used to raise awareness of water use efficiency measures available to customers. This measure includes: inserts/flyers, video production ads, landscape classes, signs for demonstration gardens, conservation advertising through giveaways including pens, books, etc., poster contests for schools, science fair program for schools, Solar Cup education program, educational materials and supplies for curriculums such as Admiral Splash and Potter the Otter educational books.	SoCal Water$mart also partially conducts this measure.	It is imperative to continue messaging in a variety of ways with conservation outreach. Often the public is unaware of the water saving rebates available to them or how they can benefit from water use efficiency programs. Keeping the messages current and continuous may be key in this measure.
District System Optimization Review	This measure covers efforts to find and repair leaks in the distribution system to reduce real water loss. Actions could include installation of data loggers and proactive leak detection. Leak repairs would be handled by existing crews at no extra cost. A ten-year program to reduce Non-Revenue Water to a lower target level such as 10 percent of production or less could be proposed for a combination of this measure and actions to reduce apparent water losses. In conjunction with system accounting, includes audits that identify and quantify known legitimate uses of NRW to determine remaining UAW losses. Measure also includes computing Infrastructure Leakage Index on an annual basis. Goal would be to lower the ILI and NRW every year by a pre-determined amount based on cost effectiveness. In early 2018, EVMWD applied for the Water Conservation Field Services grant to fund the exploration of current water loss levels and support a review of EVMWD's recent AWWA water audit to identify any potential to reduce current water loss levels. Additional features of this measure's implementation can be found in Appendix C.	Operations budget for water loss	Involves multi-departmental coordination and support. Internal task force would need to be developed with this measure to ensure involved departments are aware of opportunities related to this measure. Identification of vulnerable areas is required to be maximally effective. Locating leaks throughout different materials used in our system. Ex: we have a large amount of PVC pipe used however leak detection equipment cannot trace leaks in plastic pipes.
Water Neutrality Ordinance	This measure would require developers of new homes to either contribute money to the water conservation program to help generate the water needed to supply their new development project or conduct water-efficiency fixture direct installations. Appendix F represents a resource index	Primarily conducted by City of Elsinore Planning Department.	Can be implemented at multiple water conserving levels. Requires significant community support and stakeholder involvement. Would need to find a balance that would cover costs and not inhibit growth.

Measure Name	Description	Funding Sources & Opportunities	Measure Implementation Issues/Obstacles
	for information from the Alliance for Water Efficiency, the City and County of San Francisco and the City of Santa Monica. Alternatively, this measure could focus on outdoor only and be an aggressive local landscape ordinance that's a step-up from CA's MWELO. Targeting new development only, this measure would aim to achieve "net-zero" outdoor water use by any method including the use of native plants, weather-based irrigation controllers, gray water systems, cisterns and rain barrels, etc. Consider modeling after Cambria CSD program.		
CII Indoor Water Efficiency Evaluation	Conduct a multi-step process for identifying customers, including: online pre-screening, phone call screening, on-site evaluation, incentives offering, and follow-up/site visit and water use tracking. This measure includes documenting inventory of current water using fixtures to support commercial program design and benchmarking. Top water user customers from each category would be offered a professional water evaluation that would evaluate ways to save water and money. The evaluation would be for large accounts (i.e., accounts that use more than 5,000 gallons of water per day) such as microbreweries, hotels, restaurants, stores and schools. Measure to encourage participation in inefficient equipment upgrade and rebate measure for water efficient equipment.	EVMWD proposed funding but watch for grant or regional programs if they become available.	Can be challenging getting businesses to participate. They are often very reluctant to voluntarily open their back doors. Also, survey recommendations often have a high initial investment which can be unappealing to businesses even with a reasonable payback period. Not necessarily cost-effective.
CII Rebates to Replace Inefficient Equipment	Measure to offer rebates for a standard list of water efficient equipment. Included would be x-ray machines, icemakers, air-cooled ice machines, steamers, washers, spray valves, efficient dishwashers, replace once through cooling, dry vacuum pump and conductivity controller on cooling towers. Eligible project costs include labor, hardware and may include annual water management fees. This measure is planned to evolve as technology changes.	SoCal Water$mart also partially conducts this measure.	Can get complicated or time-consuming if done properly and water use before and after is tracked. The often-high initial investment can be unappealing to businesses even with a reasonable payback period. Not necessarily cost-effective for the customer. There has been minimal participation in the last few years.
Public Agency Program	Measure will provide government facilities with enhanced financial incentives to replace indoor fixtures and upgrade landscape irrigation systems. To encourage agencies that have not already installed water-efficient landscape equipment to	SoCal Water$mart also partially conducts this measure.	Coordinating with already busy public agency employees can be challenging; they oftentimes have priorities higher than water conservation as part of their

Measure Name	Description	Funding Sources & Opportunities	Measure Implementation Issues/Obstacles
	do so, SoCal Water$mart has a Public Agency program, offering enhanced incentives paid up-front for public agencies to install water-efficient devices at their facilities and on their grounds. EVMWD staff will assist with rebate applications as needed.		job description. Not necessarily cost-effective for the public agency. Funding may not be readily available from city funds to use.
CII Leak Alert	This measure will use AMI data through the AquaHawk Alerting Portal to identify leaks in CII and dedicated Irrigation accounts. EVMWD requires all new CII developments to install dedicated irrigation meters.	EVMWD proposed funding but watch for grant or regional programs if they become available.	Customer communication can be time-consuming. This may require additional staff time, beyond current EVMWD staff to follow up with customers. Could be more difficult to get a hold of the correct person due to different people being at buildings/mgmt. not always available.
Financial Incentives for CII Irrigation and Landscape Upgrades	After the free water use evaluation has been completed, recommendations will be analyzed and provided to the customer. Free evaluations may be onsite or via a pre-screening online step. Staff may assist with completing rebate applications. Rebates may include such items as sprinkler nozzles, weather based irrigation controllers ("smart timers"), soil moisture sensors, mulch, drip irrigation, rain barrels and cisterns. Rebates primarily offered through SoCal Water$mart with Elsinore offering drip irrigation system rebates.	SoCal Water$mart also partially conducts this measure.	Can get complicated or time-consuming if done properly and water use before and after is tracked. The often-high initial investment can be unappealing to businesses even with a reasonable payback period. Depending on the upgrades, not necessarily cost-effective for the customer. There has been declining participation in the last few years.
Large Landscape Outdoor Water Efficiency Evaluation	All public and private irrigators of large landscapes, including residential and commercial, will be eligible for free landscape water efficiency evaluations. Customers with high water use will be targeted and provided a customized report. Evaluations include irrigation system assessment, irrigation schedule, and report. A consultant will be used to conduct the evaluation.	Western Municipal Water District also partially conducts this measure.	Can be challenging getting businesses to participate. They are often very reluctant to voluntarily open their back doors. Properties may not want/trust our help but prefer to use their own staff to do it.
Landscape Conversion or Turf Removal - CII	This measure provides a per square foot incentive for supporting the customer's cost to remove turf and replace with low water use plants or permeable hardscape. Rebate based on dollars per square foot removed, and capped at an upper limit per account. Measure includes a pre- and post-retrofit inspection of the landscape.	SoCal Water$mart also partially conducts this measure.	Can get complicated or time-consuming if done properly and water use before and after is tracked. The often-high initial investment can be unappealing to businesses even with a reasonable payback period. Many customers find the alternatives to turf aesthetically unappealing. Finding a landscaper who

Measure Name	Description	Funding Sources & Opportunities	Measure Implementation Issues/Obstacles
			can manage a water efficient landscape after installed can be challenging.
Landscape Conversion or Turf Removal - Residential	This measure provides a per square foot incentive for supporting the customer's cost to remove turf and replace with low water use plants or permeable hardscape. Rebate based on dollars per square foot removed, and capped at an upper limit for single family residence. Measure includes a pre- and post-retrofit inspection of the landscape.	SoCal Water$mart also partially conducts this measure.	Can get complicated or time-consuming if done properly and water use before and after is tracked. The often-high initial investment can be unappealing to customers even with a reasonable payback period. Residential turf replacement is often not cost-effective for residential customers with smaller initial outdoor water use. Many customers find the alternatives to turf aesthetically unappealing. Customers become overwhelmed or discouraged when faced with a new landscape/plants they are unsure of how to care for. Customers often don't know how to start.
Water Conserving Landscape and Irrigation Codes	Enforce CA Model Water Efficient Landscape Ordinance. Standards specify that development projects subject to design review be landscaped according to climate appropriate principals, with appropriate turf ratios, plant selection, efficient irrigation systems and smart irrigation controllers. In California, about half of the urban water is used for landscape irrigation. Substantial water savings can be gained by proper landscape design, installation and maintenance. To improve water savings in this sector, DWR updated the Model Water Efficient Landscape Ordinance. MWELO promotes efficient landscapes in new developments and retrofitted landscapes while increasing water efficiency standards for new and retrofitted landscapes through more efficient irrigation systems, greywater usage, onsite storm water capture, and by limiting the portion of landscapes that can be covered in turf. MWELO also requires reporting on the implementation and enforcement of local ordinances. To reduce the complexity and costs for the smaller landscapes now subject to ordinance, the 2015 revised MWELO has a	Primarily conducted by City Planning Department.	Multiple jurisdictions might have to be involved due to the service area's boundary. This measure would need to address the unincorporated areas of the district which can add more time for coordination. Involves multi-departmental coordination and support which can be time-consuming. Not necessarily cost-effective for the customer. There may be additional follow ups/inspections from EVMWD to confirm the jurisdictions are enforcing the rules.

Measure Name	Description	Funding Sources & Opportunities	Measure Implementation Issues/Obstacles
	prescriptive compliance approach for landscapes between 500 and 2,500 square feet. Landscapes within this size range can comply either through meeting the traditional MWELO approach or through the prescriptive approach. The size threshold for existing landscapes that are being rehabilitated has not changed, remaining at 2,500 square feet. Only rehabilitated landscapes that are associated with a building or landscape permit, plan check, or design review are subject to the ordinance.		
Hot Water Recirculating Pump Rebate	Measure will provide a rebate to equip homes with efficient hot water recirculating pumps (hot water on demand systems). These systems use a pump placed under the sink to recycle water sitting in the hot water pipes to reduce hot water waiting times by having an on-demand pump on a recirculation line. Can be installed on kitchen sink or master bath, wherever hot water waiting times are more than 1/2 minute.	Could partner with energy utilities.	Historically, customers were challenged by the application process, and only 30 percent of applications were awarded. Moving forward, EVMWD plans to simplify the application process. It can be challenging to retrofit older homes since an electrical outlet is required under the sink, which is not common in older home bathrooms.
Residential Outdoor and Indoor Water Efficiency Evaluation	Measure will provide indoor and outdoor water efficiency evaluations for single family and multifamily residential customers. Evaluations will be conducted by an outside contractor. Target those with high water use and provide a customized report to owner. This measure includes a multi-step process for identifying customers, including an online pre-screening and phone call screening before the field evaluation to identify high water using customers.	Could partner with energy utilities.	Can be challenging getting residences to participate. They are often very reluctant to voluntarily open their doors to a public agency representative. Also, survey recommendations may have a high initial financial or behavioral investment which can be unappealing. There has been minimal participation in the last few years
Financial Incentives for CII Irrigation and Landscape Upgrades	After the free water use evaluation has been completed, recommendations will be analyzed and provided to the customer. Free evaluations may be onsite or via a pre-screening online step. Staff may assist with completing rebate applications. Rebates may include such items as sprinkler nozzles, weather based irrigation controllers ("smart timers"), soil moisture sensors, mulch, drip irrigation, rain barrels and cisterns. Rebates primarily offered through SoCal Water$mart with Elsinore offering drip irrigation system rebates.	SoCal Water$mart also partially conducts this measure.	Can get complicated or time-consuming if done properly and water use before and after is tracked. The often-high initial investment can be unappealing to businesses even with a reasonable payback period. Depending on the upgrades, not necessarily cost-effective for the customer. There has been declining participation in the last few years.

Measure Name	Description	Funding Sources & Opportunities	Measure Implementation Issues/Obstacles
High Efficiency Device Giveaway	EVMWD buys high efficiency devices in bulk and gives them away at the administrative office. Devices include low-flow showerheads (1.5 gpm), faucet aerators (kitchen and bath), 5-minute shower timers, toilet dye tabs, and automatic shut off nozzles for garden hoses. This measure is planned to evolve as technology changes. Kits are distributed as requested to approximately 100 accounts per year in addition to all new service accounts who register at the administrative office.	Could partner with energy utilities.	Little assurance the devices are installed.
Partnership with Energy Utilities	Partnerships with local energy utilities to offer incentives to customers to save both water and energy. SoCalGas provides kits with three faucet aerators and a low-flow showerhead at no cost. EVMWD to optimize efforts with partnering entities by tracking relevant data (interventions, water savings, energy savings, etc.) and ensuring consistent messaging. May consider streamlining residential site surveys by combining water and energy and cross-training staff with one agency financially subsidizing the other's efforts.	Could partner with local businesses interested in savings water and energy that are willing to work with both water and energy utilities.	Can be complicated or time-consuming to coordinate. SoCal Gas may not be willing/able to provide their data on work done, so this could call for more involvement and potentially funding from EVMWD to ensure we are capturing everything be performed.
Residential High Efficiency Toilet Rebate	Rebates are available for $40 (1.06 gpf or lower). Rebates are handled by SoCal Water$mart.	SoCal Water$mart also partially conducts this measure.	With the $40 rebate amount, it's not necessarily cost-effective for a customer unless they are planning to get a new toilet anyway. There has been declining participation over the last few years. Residents are concerned with having to pay extra to have it installed or do the install themselves.
Clothes Washer Rebate	Rebates will be provided for residential clothes washers. Rebates are available through and handled by SoCal Water$mart and SoCalGas. SoCal Water$mart Rebates start at $85; SoCalGas rebates start at $50.	Could partner with energy utilities. SoCal Water$mart also partially conducts this measure.	Not necessarily cost-effective for the customer, unless they run full loads and/or were going to need a new machine anyway. Most effective water savings are achieved with full loads which can't be guaranteed. There has been declining participation over the last few years.
Pool Cover Rebate	Rebates will be provided for residential pool covers. Customers must submit a completed Rebate Request with a photo of their pool, a copy of the pool cover receipt and a copy of their current water bill.	Western Municipal Water District also partially funds this measure. Could also	It is difficult to predict if the pool covers will be used. Not necessarily cost-effective.

Measure Name	Description	Funding Sources & Opportunities	Measure Implementation Issues/Obstacles
		partner with pool equipment stores.	
Leak Repair and Plumbing Emergency Assistance for Low-Income Customers	Customer leaks can go uncorrected at properties where owners are least able to pay costs of repair. This program will require that customer leaks be repaired, but for low-income customers, be paid for with Rate Assistance for Residents of Elsinore Valley (RARE) funds that are paid back with customer monthly water bills over time.	Could partner with energy utilities.	Might require multiple departments to coordinate which can be time consuming. Customers may not pay back cost of repair on schedule. Could lead to further debt from the customer if not paying on-time. Residents are concerned with having to pay extra to have it installed or do the install themselves.

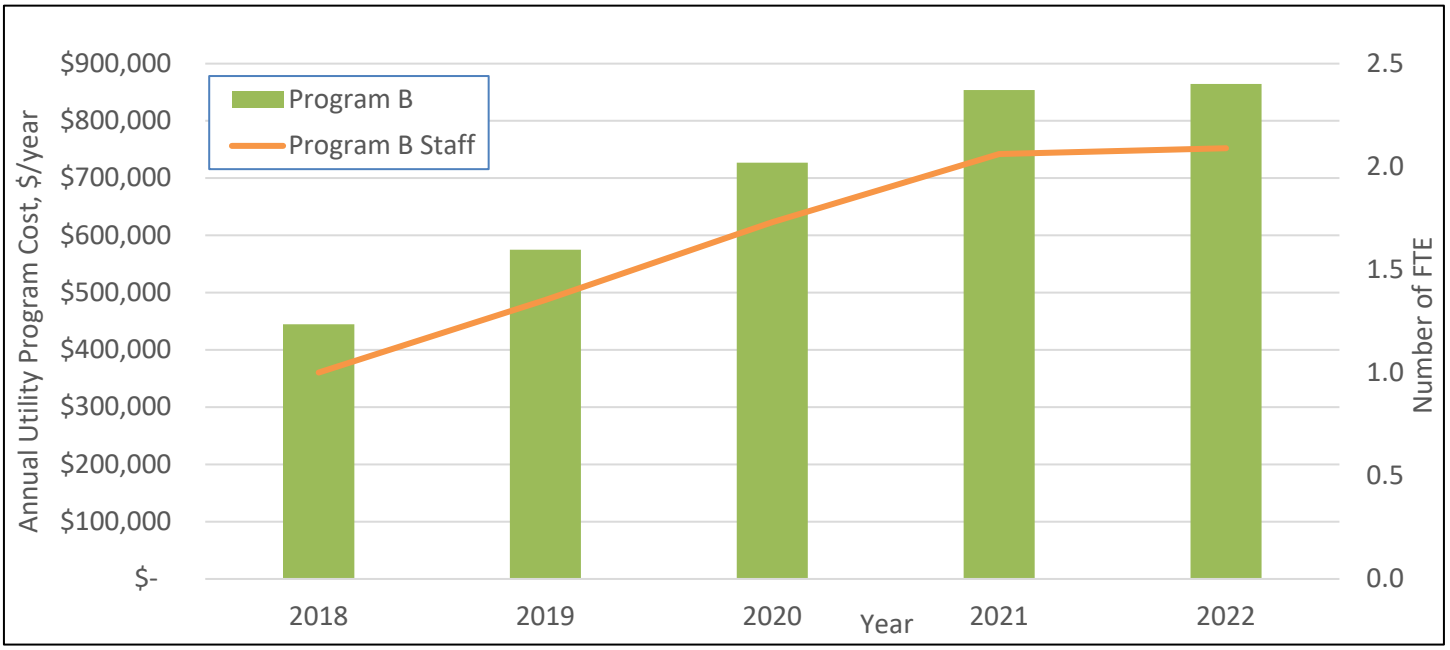
7.3 Five-Year Budget and Staffing

The estimated five-year 2018-2022 costs to EVMWD to implement Programs A, B, and C as described in the Business Plan are approximately $2,489,000, $3,465,000, and $3,895,000, respectively (or $498,000, $693,000, and $779,000 per year, respectively). The budget includes staff time and expenses (materials, rebates, giveaways, etc.).

The following figure presents the proposed implementation budget for the planned and ongoing EVMWD Program B measures. As noted earlier in this report, measure costs and staffing covered by SoCal Water$mart and other partners are not included. Utility costs include unit costs (incentives and rebates) as well as administrative costs. Individual measure costs (including utility costs, administrative costs, and customer costs) can be found in the measure input sheets in Appendix H.

The following figure also presents the staffing EVMWD would need to implement Program B over the next five years. EVMWD staffing needs were calculated by dividing annual administrative costs by an average annual EVMWD salary of $45 per hour or, estimating 2,087 work hours per year, approximately $94,000 per staff person per year. Administrative costs were derived for each measure by taking a percentage of each measure's utility costs.

Figure 7-1. Five-year Estimated Conservation Program B EVMWD Utility Costs and Staffing



Note: Measure utility costs and staffing covered by SoCal Water$mart, WMWD, and other partners are not included. The costs and staffing levels presented here are directly attributed to EVMWD only.

This following table presents EVMWD's Program B approximate utility costs including fixture/incentive costs as well as administrative costs for the next five years.

Table 7-3. Conservation Program Utility Costs

Year	Program B Utility Costs
2018	$445,004
2019	$574,899
2020	$726,763
2021	$854,086
2022	$864,476

Note: The Conservation Program Utility Costs for Programs A, B, and C through 2040 can be found in Appendix I.

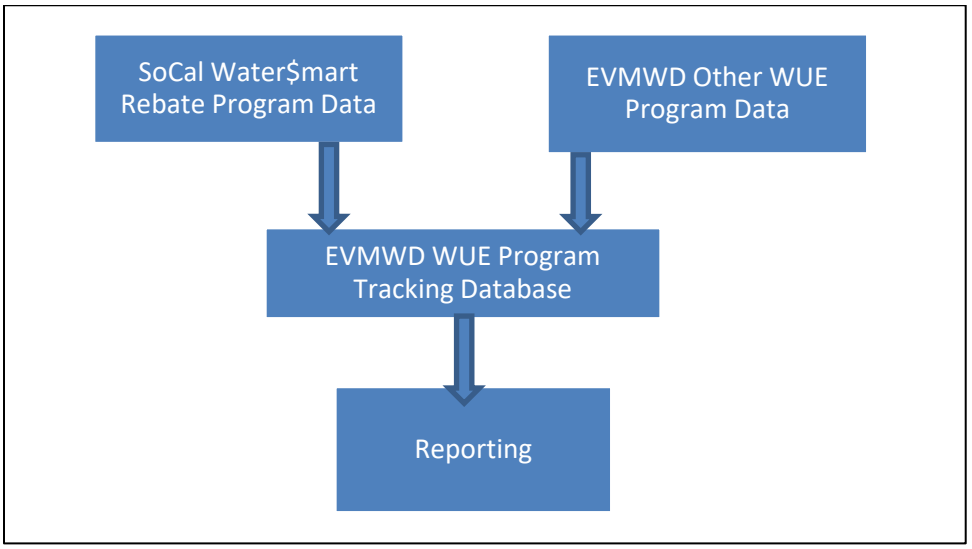
7.4 Monitoring Progress

It is recommended that EVMWD develop a tool that tracks the level of participation and program effectiveness of EVMWD's conservation programs. A tracking database in an Excel spreadsheet could store monthly data collected by EVMWD from each conservation measure as well as monthly rebate program data provided by SoCal Water$mart. The tracking database could be designed to easily filter data for reporting purposes and updated monthly to reflect up-to-date program participation.

As shown in Figure 7-2 the tracking database could incorporate the following data:

- Customer information – Name, address, account number, type of business (e.g., CII customers)
- Water Use Efficiency (WUE) measure or device – Type (including make and model), quantity, unit water savings, life expectancy
- Cost information - Rebate amount
- Other documentation or data as appropriate (i.e., survey reports)

Figure 7-2. Components of Tracking Tool Development



Each year a progress update will be used to analyze the progress made meeting the Business Plan's targeted water savings. It is imperative to track activities, as well as water demand, to understand the level of progress being made in meeting overall goals.

Business Plan participation may be evaluated by tracking the following:

- Number of hits on the public information campaign website
- Cost of website development
- Number of water bills with campaign messaging
- Number of customers reached by water bills with campaign messaging
- Quantity and cost of electronic messaging via billboards
- Quantity and cost of radio and television advertising
- Number of impressions generated by radio and television advertising
- Number of teachers implementing lesson plans about water and water conservation
- Number and age range of students reached through teacher lesson plans
- Number of contests held to promote water efficiency and ages of participating students
- Number and cost of workshops as well as attendance

- Number of demonstration gardens installed and cost of installation/maintenance
- Number of citizen visits or tours of demonstration garden (administrative office)
- Customer satisfaction with the program or any complaints

Program participation by individual accounts may be evaluated by tracking the following:

- Number of occupants in the home/business
- Number and type of rebates or other incentives issued (including water saving details for rebates such as efficiency level of washing machines installed through incentive program)
- Water use before and after documented changes in replacement of fixtures or other implementation (including behavioral changes from survey)

7.5 Five-Year Implementation Recommendations

Recommendations to assist with implementation over the next five years include the following:

- Track upcoming state regulations regarding residential, CII, landscape, and water loss management
- Consider launching pilot studies for new measures
- Consider soliciting and tracking community input and feedback via an online or phone survey or at outreach and education events
- Prioritize measures that contribute the most to meeting the per capita use targets and are relatively easy to operate with limited staff
- Consider working with the largest 100 water using customers to reduce water use
- Develop annual work plan for each plan year as soon as budget is adopted (or in concert with budget planning process)
- Form partnerships and apply for grants where appropriate
- Outsource, if and as needed, to gain enough staff support to administer the expanded program
- Develop analytical tools to track water use by customer class and overall per capita water use, adjusted for the weather and external factors
- Set up a database to store and manage measure participation, cost, and other data to gauge successes and areas that need improvement or added attention
- Use the tools annually to help decide on priorities for the following plan year
- Annually update the plan, including actual measure participation, projected water savings, and expected per capita water use reductions, to ensure EVMWD is on track to meet conservation goals

8. CONCLUSIONS

This section presents a summary of the conservation program projected water savings as well as EVMWD's monitoring and implementation plan, including outreach, funding, and partnership opportunities.

Current conditions have encouraged EVMWD to implement Program B based on its effective methods. However, water use in a service area is very dynamic and responds to changes in service area population, economy, weather, efficiency of devices, and types of industry. In the future, as EVMWD's community evolves and water use patterns and weather change, there remains the possibility that EVMWD will elect to adjust measure implementation targets and schedules. This may include switching between implementing Program A, B, or C to be effective in achieving conservation goals. Additional measures (i.e., from Program C) may be necessary to further encourage EVMWD customers to conserve more water and to support EVMWD's conservation efforts. Whether these additional measures become necessary would be dependent on several factors, some of which include the following:

- Potential future drought conditions
- Compliance with the annual aggregate water use objectives as provided by the State in new regulations adopted in 2018
- EVMWD's ability to support new and more innovative programs

8.1 Projected Water Savings

Over 76 percent of EVMWD's service area water usage is associated with residential water use. Consequently, residential and irrigation conservation programs will produce the most savings. At 24 percent of overall water use, EVMWD's service area does not include intensive commercial activity, and therefore the conservation potential for the commercial sector is not particularly high. Some overall water savings conclusions are as follows:

- The total range of savings from Program A to Program C is 18 to 28 percent of projected demand with plumbing codes in 2040.
- The average cost of water saved from Programs A, B and C from the utility standpoint is $270 per AF, $170 per AF, and $190 per AF, respectively; all of which are significantly less than the avoided cost of water at $1,344 per AF.
- All programs have the possibility to reduce per capita water use in a cost-effective manner based on the implementation level of the plan.

It is important to note, costs are low and savings are high, yielding high conservation program benefit-cost ratios due to many of the measures being partially funded by MWD, WMWD, developers, and customers.

8.2 Conservation Program Evaluation

To track the success of EVMWD's conservation program, water use should be recorded before and after the conservation measure's initiation. In some instances, evaluation may be done on an individual site basis. If the water use at a residence or business does not decrease, then it is possible conditions have changed within the facility. For example, water use could change if a home has been sold or if additional tenants move into a commercial facility.

Maintaining a database of water use records will be needed to measure water savings. In addition, data may be normalized to account for unusual events that will affect water use such as:

- Abnormal weather

- Recessions and recovery
- Water price increases
- Changes in plumbing and appliance code regulations

Also, for tracking individual account water use changes, the following are some options to be considered:

- Changes in home ownership
- Changes in occupancy or uses of the facility
- Changes to landscape

To address the above factors, 5 to 10 years of monthly pre-program initiation water use data and 2 to 3 years of post-program initiation water use data should be gathered and statistically evaluated by qualified professionals.

8.3 Future Funding Opportunities, Partnerships, and Stakeholder Participation

EVMWD has expressed interest in creating partnerships with several public agencies, energy, and sewer utilities and local stakeholder groups who could provide cost-sharing or in-kind program support for the Business Plan. For example, EVMWD partners with SoCal Water$mart to offer rebates for high efficiency toilets. EVMWD should create or continue, these partnerships to achieve program goals for minimum cost as well as maximize outreach and customer awareness/participation. A summary of EVMWD's current conservation program financing system is presented in Section 2.4.

The following is a list of suggested actions for EVMWD related to program financing:

- Budget for the selected Program B average 2018-2020 cost of approximately $582,000 per year to cover the cost of implementing the program's measures.
- Staff conservation programs appropriately so that customer participation is successful. Both the Business Plan and meeting state mandates are largely driven by voluntary customer changes in equipment and behaviors that need to be permanent (including after the drought).
- Review program staff needs and hire staff to adequately support program needs.
- Seek testimonials of success to help with outreach materials and presentations to garner more customer participation.
- Look for new or expanded partnerships with local irrigation equipment contractors.
- Strengthen relationships with landscape professional associations, non-profits (e.g., University of California Cooperative Extension, Native Plant Society, etc.) to gain more word-of-mouth exposure to the community that is installing new or re-landscaping properties. This will help capture the maximum water savings from the point of initial installation of new landscapes and meeting local storm water permit needs.
- Seek additional new funding sources, such as Proposition 1E[5], 84[6], Cap & Trade[7] and/or US Bureau of Reclamation funds to support Business Plan budget needs. The existing budgets may be used as a cost-share to leverage into funding more activities, especially the less cost-effective measures.
- Seek additional financial support through the California Department of Water Resources Water-Energy Grant Program[8]. The DWR Water-Energy Grant Program provides funds to implement water efficiency programs or projects that reduce greenhouse gas emissions and water and energy use. The grant program is part of the California Climate Investments[9], a statewide program that puts billions of cap-and-trade dollars to work reducing greenhouse gas emissions, strengthening the economy, and improving public health and the environment, particularly in disadvantaged communities.

[5] http://bondaccountability.resources.ca.gov/p1e.aspx
[6] http://bondaccountability.resources.ca.gov/p84.aspx
[7] https://www.edf.org/climate/how-cap-and-trade-works
[8] https://www.water.ca.gov/Work-With-Us/Grants-And-Loans/Water-Energy-Grant-Programs
[9] http://www.caclimateinvestments.ca.gov/

- Market conservation opportunities through accredited program membership lists as a low-cost means to spread the word to other professionals in the water industry (e.g., Green Plumbers, WaterSense Partners, Irrigation Association Certified Professionals, etc.).
- Prioritize measures for implementation, with the highest priority for implementation given to those that contribute the most to meeting water saving targets and/or can be implemented with relative ease. To launch implementation of a conservation program, EVMWD may consider answering a series of key questions to determine measures, budget, and schedule for the Business Plan. These questions could include:
    - What level of support will be required from conservation staff to run the selected measures?
    - What other support is needed (e.g., outsourced support or other sources of funding) that is needed or wanted to run these programs?
- Prepare an annual work plan for each Business Plan year in concert with the budget planning process.
- Form additional partnerships and continue to apply for grants where appropriate.
- Set up a method to store and manage measure participation, cost, and other data to gauge successes and areas that need improvement.

Review Business Plan goals in the DSS Model annually and update measure participation or other elements that are refined. Track water use to ensure the Business Plan is on track to meet water use reduction goals. Use the input from EVMWD staff and the annual work planning process as the forum to amend the plan, budgets, staffing, contracting, schedule, and so forth to stay on track.

Periodically, EVMWD will be preparing comprehensive water conservation pricing and rate studies. EVMWD will also continue to actively pursue applications for state and federal grants as well as partnering opportunities.

8.4 Summary

The following is a summary of the water conservation analysis findings:

- Creating expanded water conservation efforts appears to be a feasible and cost-effective means of:
    - Meeting 20x2020 (SB X7-7) conservation reduction targets;
    - Being more sustainable within existing water supplies;
    - Remaining up-to-date with the USBR requirements to maintain programs in line with the former CUWCC's Best Management Practices;
    - Addressing reduction in water use as previously required by the statewide drought emergency declaration recently lifted; and
    - Implementing the mandated statewide prohibitions in the Governor's Executive Orders going forward (e.g., only serving water upon request, no watering for 48 hours after a rain event, etc.).
- EVMWD should track development of DWR framework into new state mandates for what is planned for 2021-2025 and beyond. The Governor recently signed SB 606 and SB 1668 into state law to create a more permanent conservation standard as part of implementing "Making Water Conservation a California Way of Life."
- The results provided in this Business Plan confirm that conservation is the least expensive means of meeting future water supply needs for the area. The implementation of these conservation measures should reduce per capita water use and have the potential to defer the need for further expansion infrastructure. While the conservation actions identified can have a significant cost, the cost of not doing conservation and having to address increased demands through engineering solutions are even higher. Furthermore, with climate change, long-term drought, and environmental restrictions on the delivery of imported water, additional water supplies may not be available to meet future increases in demands without conservation.
- Based on the analysis, EVMWD has selected to implement Program B, with 21 measures, which has the highest benefit-cost ratio (at 5.3) of all three modeled programs. The cost of water saved in Program B is $170 per AF versus the cost of purchasing imported, treated water estimated at $1,344 per AF.

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APPENDIX A – GRANT REQUIREMENT ELEMENT REFERENCE KEY

The following table presents the location of various grant-required elements within the Business Plan. Per the MWM/EVMWD scope, the Business Plan will provide the following components listed in the first column and found in the section identified in the second.

Table A-1. Grant Requirement Reference Key

Business Plan Element Directly from Scope	Location in Business Plan
Executive summary	Executive Summary
Chapter on data collection methods and results • End-users by sector	Section 2.1 Information Review and Data Collection Methods Section 2.3. Consumption by User Category Section 3.3 Key Inputs to the DSS Model Section 3.4 Fixture Estimates
EVMWD implemented programs and program analyses	Section 2.4 Historical and Current Conservation Program Section 5 Comparison of Individual Conservation Measures Section 6 Conservation Program Evaluation Section 7 Implementation Plan/Five-Year Action Plan Section 8 Conclusions
Chapter on available program options • Residential sector • CII sectors • Large landscape sector • Other opportunities	Executive Summary Table ES-1 Section 6 Conservation Program Evaluation
Chapter on new program recommendations	Section 6 Conservation Program Evaluation
Chapter on recommended program mixes	Section 6 Conservation Program Evaluation Section 6.5 Recommended Program
Chapter on five-year action plan	Section 7 Program B Five-Year Implementation Plan
Funding opportunities	Section 8.3 Future Funding Opportunities, Partnerships and Stakeholder Participation
Chapter on program life cycles (staff input) • Recommended program changes & transitions	Section 7 Implementation Plan/Five-Year Action Plan – presents the recommended program (Program B) Appendix H – presents individual measure life (life cycles) for each of the 25 analyzed measures
Chapter on periodic updates to the Water Conservation Business Plan and flexibility in the program mix (staff input)	Section 8 Conclusions – introduction paragraph discusses program flexibility Section 7.4 Monitoring Progress
Conclusion	Section 8 Conclusions Section 8.4 Summary

APPENDIX B – EVMWD WATER, WASTEWATER, AND METER FEES

This appendix presents EVMWD's water commodity rates, monthly fixed meter charges, wastewater rates, water capacity fees for 3/4-inch meters, and meter installation charges.

Figure B-1. Water Commodity Rates

Commodity Rates	Block	Current Rate per CCF	Approved Rate 8/1/2017 per CCF	Approved Rate 7/1/2018 per CCF
Elsinore Water Division				
Domestic				
Indoor Use	1	$2.27	$2.29	$2.34
Outdoor Use	2	2.77	2.78	2.84
Inefficient Use	3	4.38	5.05	5.05
Excessive Use	4	6.32	7.48	7.48
Irrigation				
Outdoor Use	1	2.86	2.87	2.93
Inefficient Use	2	4.56	5.25	5.25
Excessive Use	3	6.90	8.08	8.08
Commercial/Institutional		2.77	2.78	2.84
Hydrant Water		5.38	5.38	5.49
Recycled/Non-Potable				
Outdoor Use	1	2.36	2.28	2.29
Inefficient Use	2	4.01	4.12	4.14
Excessive Use	3	5.42	4.68	4.70
Inter-agency / Wholesale				
Tier 1		2.43	2.43	2.48
Tier 2		3.95	4.61	4.61
Tier 3		5.07	6.25	6.25
Temescal Water Division				
Domestic				
Indoor Use	1	1.16	0.74	0.76
Outdoor Use	2	1.60	1.23	1.26
Inefficient Use	3	3.20	1.53	1.56
Excessive Use	4	4.80	5.74	5.86
Irrigation				
Outdoor Use	1	1.60	1.32	1.35
Inefficient Use	2	3.20	1.73	1.77
Excessive Use	3	4.80	6.34	6.47
Commercial		$2.08	$0.94	$0.96

1 AF = 435.6 CCF
1 CCF = 748 gallons

Figure B-2. Monthly Fixed Meter Charges

Meter Sizes (inches)	Elsinore Current Rate	Temescal Current Rate	Approved Rate 7/1/2017	Approved Rate 7/1/2018
3/4	$21.27	$16.58	$23.77	$26.27
1	33.36	28.18	37.16	41.29
1 1/2	63.58	54.70	70.63	78.85
2	99.84	87.85	110.79	123.91
3	214.67	165.76	237.96	266.59
4	383.90	276.82	425.37	476.87
6	970.16	551.98	1,074.63	1,205.35
8	1,695.43	883.49	1,877.83	2,106.55
10	2,541.58	-	2,814.89	3,157.94

**Both water divisions will have same fixed charges going forward*

Figure B-3. Wastewater Rates

Classification	Current Rate per CCF	Approved Rate 8/1/2017 per CCF	Proposed Rate 7/1/2018* per CCF
Domestic			
I-A Single Family Residential	$43.50	$45.87	N/A
I-B Multiple Family Residential	33.79	45.87	N/A
No Water Usage	13.52	18.96	N/A
Low Water Usage	33.79	30.92	N/A
I Fixed Charge*			20.29
I Variable Charge*			6.93
Commercial (applies to all service areas)			
II Commercial	3.99	3.87	4.15
III Commercial	4.40	4.67	5.00
IV Commercial	8.29	8.68	9.29
V Institutional	3.98	3.51	3.76
VII Septage (per gallon)	0.074	0.11	0.12
VIII Schools	3.81	3.51	3.76

NOTE: Canyon Lake sewer surcharges remain the same

*Sewer rate will swith to a mixed (fixed/variable) charge starting 7/1/2018.

*The variable component of the rate will be based on persons per household

Figure B-4. Water Capacity Fees (3/4-inch meter)

Component	Current Fee FY 2017 7/1/2016	Approved FY 2018 8/1/2017
Administration	$44	$44
Pumping Plant	1,372	1,372
Storage	1,117	1,117
Temescal Valley Project	1,988	2,416
Source of Supply	1,656	1,656
Transmission Facilities	2,679	2,679
TOTAL	**$8,856**	**$9,284**

Figure B-5. Meter Installation Charges

Meter Size (inches)	Current Charge		Approved Charge 8/1/2017		Approved Charge 7/1/2018	
	Hang Service	Full Service	Hang Service	Full Service	Hang Service	Full Service
3/4	$540	$2,420	$505	$2,385	$525	$2,445
1	575	2,450	545	2,420	565	2,480
1 1/2 - Turbine	1,325	3,550	1,315	3,540	1,365	3,630
1 1/2 - Compound	1,815	4,040	1,760	3,985	1,825	4,085
2 - Turbine	1,550	3,735	1,545	3,730	1,605	3,825
2 - Compound	2,080	4,350	2,030	4,300	2,105	4,410

APPENDIX C – IMPLEMENTATION OF DISTRICT SYSTEM OPTIMIZATION REVIEW

In mid-2018, EVMWD applied for the Water Conservation Field Services grant through the US Bureau of Reclamation. The grant is intended to fund the exploration of current water loss levels and support a review of EVMWD's recent AWWA water audit to identify any potential for reducing current water loss levels. If the grant effort is successful, the funding would support the planned items for implementation of EVMWD's selected District System Optimization Review conservation measure, as listed below:

- A collaboration between Water Conservation staff and Operations staff to discuss water loss opportunity, verify water loss magnitude, and ascertain if there is more potential to reduce system water loss
- A better understanding of EVMWD's water distribution system – materials, size, how many miles of service, age of area(s), weaknesses/strengths, etc.
- A discussion of current actions by EVMWD that reduce water loss with an investigation into whether any can be expanded upon should a new approach be taken
    - For example, currently, EVMWD conducts meter testing internally, with approximately 500 meters out of over 46,000 tested annually. There is potential to expand testing procedures using an outside consultant.
    - EVMWD seeks to improve its methods of tracking Non-Revenue Water. Leak detection is challenging for the large portion of the system made up of PVC pipe.
- Operations staff soliciting input from potential consultants to optimize what their approach for leak detection might be
- Staff reaching out to consultants for quotes and examples of services performed to gain knowledge of potential water loss management implementation practices
- The development of a scope of work based on Operations staff suggestions and consultant service examples

Figure C-1. Standard AWWA Water Balance*

<table>
<tr><td rowspan="12">Water from Own Sources</td><td rowspan="12">System Input Volume</td><td colspan="4">Water Exported</td><td rowspan="2">Revenue Water</td></tr>
<tr><td rowspan="11">Water Supplied</td><td rowspan="3">Authorized Consumption</td><td rowspan="2">Billed Authorized Consumption</td><td>Billed Metered Consumption</td></tr>
<tr><td>Billed Unmetered Consumption</td></tr>
<tr><td rowspan="2">Unbilled Authorized Consumption</td><td>Unbilled Metered Consumption</td><td rowspan="10">Nonrevenue Water</td></tr>
<tr><td>Unbilled Unmetered Consumption</td></tr>
<tr><td rowspan="8">Water Losses</td><td rowspan="3">Apparent Losses</td><td>Unauthorized Consumption</td></tr>
<tr><td>Customer Metering Inaccuracies</td></tr>
<tr><td>Systematic Data Handling Errors</td></tr>
<tr><td rowspan="5">Real Losses</td><td>Leakage on Mains</td></tr>
<tr><td>Leakage on Service Connections</td></tr>
<tr><td>Leakage on Appurtenances</td></tr>
<tr><td>Leakage and Overflow at Storage Tanks</td></tr>
<tr><td>Water Imported</td></tr>
</table>

* Based on AWWA Manual M36, Water Audits and Loss Control Programs (AWWA, 2016).

APPENDIX D – DEMAND AND PASSIVE SAVINGS METHODOLOGY

This appendix presents information regarding the various plumbing codes applied in the DSS Model, DSS Model key assumption resources related to determining plumbing code savings, and the EVMWD current fixture proportions for several fixture types by customer category.

D.1 National Plumbing Code

The Federal Energy Policy Act of 1992, as amended in 2005, mandates that only fixtures meeting the following standards can be installed in new buildings:

- Toilet – 1.6 gal/flush maximum
- Urinals – 1.0 gal/flush maximum
- Showerhead – 2.5 gal/min at 80 pounds per square inch (psi)
- Residential faucets – 2.2 gal/min at 60 psi
- Public restroom faucets – 0.5 gal/min at 60 psi
- Dishwashing pre-rinse spray valves – 1.6 gal/min at 60 psi

Replacement of fixtures in existing buildings is also governed by the Federal Energy Policy Act, which mandates that only devices with the specified level of efficiency (as shown above) can be sold as of 2006. The net result of the plumbing code is that new buildings will have more efficient fixtures and old inefficient fixtures will slowly be replaced with new, more efficient models. The national plumbing code is an important piece of legislation and must be carefully taken into consideration when analyzing the overall water efficiency of a service area.

In addition to the plumbing code, the U.S. Department of Energy regulates appliances, such as residential clothes washers, further reducing indoor water demands. Regulations to make these appliances more energy efficient have driven manufactures to dramatically reduce the amount of water these machines use. Generally, front loading washing machines use 30 to 50 percent less water than conventional models (which are still available).

In this analysis, the DSS Model forecasts a gradual transition to high efficiency clothes washers (using 12 gallons or less) so that by the year 2025 that will be the only type of machine available for purchase. In addition to the industry becoming more efficient, rebate programs for washers have been successful in encouraging customers to buy more water efficient models. Given that machines last about 10 years, eventually all machines on the market will be the more water efficient models. Energy Star washing machines have a water factor of 6.0 or less – the equivalent of using 3.1 cubic feet (or 23.2 gallons) of water per load. The maximum water factor for residential clothes washers under current federal standards is 9.5. The water factor equals the number of gallons used per cycle per cubic foot of capacity. Prior to year 2000, the water factor for a typical new residential clothes washer was about 12. In March 2015, the federal standard reduced the maximum water factor for top- and front-loading machines to 8.4 and 4.7, respectively. In 2018, the maximum water factor for top-loading machines was further reduced to 6.5. For commercial washers, the maximum water factors were reduced in 2010 to 8.5 and 5.5 for top- and front-loading machines, respectively. Beginning in 2015, the maximum water factor for Energy Star certified washers was 3.7 for front-loading and 4.3 for top-loading machines. In 2011, the US Environmental Protection Agency estimated that Energy Star washers comprised more that 60 percent of the residential market and 30 percent of the commercial market (Energy Star, 2011). A new Energy Star compliant washer uses about two-thirds less water per cycle than washers manufactured in the 1990s.

D.2 State Plumbing Code

This section describes California State Laws and Code of Regulations applicable to the State Plumbing Code.

D.2.1 California State Law – AB 715

Plumbing codes for toilets, urinals, showerheads, and faucets were initially adopted by California in 1991, mandating the sale and use of ultra-low flush toilets (ULFTs) using 1.6 gpf, urinals using 1 gpf, and low-flow showerheads and faucets. California Code of Regulations Title 20 updated based on California State Law (Assembly Bill 715) requires high efficiency toilets and high efficiency urinals be exclusively sold in the State by 2014. Effective January 1, 2014, AB 715 (enacted in 2007) required that toilets and urinals sold and installed in California cannot have flush ratings exceeding 1.28 gpf (toilets) and 0.5 gpf (urinals).

D.2.2 California State Laws – SB 407 and SB 837

SB 407 addresses plumbing fixture retrofits on resale or remodel. The DSS Model carefully considers the overlap with SB 407, the plumbing code (natural replacement), CALGreen, AB 715 and rebate programs (such as toilet rebates). SB 407 (enacted in 2009) requires that properties built prior to 1994 be fully retrofitted with water conserving fixtures by the year 2017 for single family residential houses and 2019 for multifamily and commercial properties. SB 407 program length is variable and continues until all the older high flush toilets have been replaced in the service area. The number of accounts with high flow fixtures is tracked to make sure that the situation of replacing more high flow fixtures than actually exist does not occur. Additionally, SB 407 conditions issuance of building permits for major improvements and renovations upon retrofit of non-compliant plumbing fixtures. SB 837 (enacted in 2011) requires that sellers of real property disclose on their Real Estate Transfer Disclosure Statement whether their property complies with these requirements. Both laws are intended to accelerate the replacement of older, low efficiency plumbing fixtures, and ensure that only high efficiency fixtures are installed in new residential and commercial buildings.

D.2.3 2015 CALGreen and 2015 CA Code of Regulations Title 20 Appliance Efficiency Regulations

Fixture characteristics in the DSS Model are tracked in new accounts, which are subject to the requirements of the 2016 California Green Building Code and 2015 California Code of Regulations Title 20 Appliance Efficiency Regulations adopted by the California Energy Commission (CEC) on September 1, 2015. The CEC 2015 appliance efficiency standards apply to the following new appliances, if they are sold in California: showerheads, lavatory faucets, kitchen faucets, metering faucets, replacement aerators, wash fountains, tub spout diverters, public lavatory faucets, commercial pre-rinse spray valves, urinals, and toilets. The DSS Model accounts for plumbing code savings due to the effects these standards have on showerheads, faucets, aerators, urinals, and toilets.

- Showerheads – July 2016: 2.0 gpm; July 2018: 1.8 gpm
- Wall Mounted Urinals – January 2016: 0.125 gpf (pint)
- Lavatory Faucets and Aerator – July 2016: 1.2 gpm at 60 psi
- Kitchen Faucets and Aerator – July 2016: 1.8 gpm with optional temporary flow of 2.2 gpm at 60 psi
- Public Lavatory Faucets – July 2016: 0.5 gpm at 60 psi

In summary, the controlling law for **toilets** is Assembly Bill 715. This bill requires high efficiency toilets (1.28 gpf) to be exclusively sold in California beginning January 1, 2014. The controlling law for wall-mounted urinals is the 2015 CEC efficiency regulations requiring that ultra-high efficiency pint **urinals** (0.125 gpf) be exclusively sold in California

beginning January 1, 2016. This is an efficiency progression for urinals from AB 715's requirement of high efficiency (0.5 gpf) urinals starting in 2014.

Standards for **residential clothes washers** fall under the regulations of the U.S. Department of Energy. In 2018, the maximum water factor for standard top-loading machines was reduced to 6.5.

Showerhead flow rates are newly regulated under the 2015 California Code of Regulations Title 20 Appliance Efficiency Regulations adopted by the CEC, which requires the exclusive sale in California of 2.0 gpm showerheads at 80 psi as of July 1, 2016 and 1.8 gpm showerheads at 80 psi as of July 1, 2018. The WaterSense specification applies to showerheads that have a maximum flow rate of 2.0 gpm or less. This represents a 20 percent reduction in showerhead flow rate over the current federal standard of 2.5 gpm, as specified by the Energy Policy Act of 1992.

Faucet flow rates have likewise been recently regulated by the 2015 CEC Title 20 regulations. This standard requires that the residential faucets and aerators manufactured on or after July 1, 2016 be exclusively sold in California at 1.2 gpm at 60 psi; and public lavatory and kitchen faucets/aerators sold or offered for sale on or after July 1, 2016 be 0.5 gpm at 60 psi and 1.8 gpm at 60 psi (with optional temporary flow of 2.2 gpm), respectively. Previously, all faucets had been regulated by the 2010 California Green Building Code at 2.2 gpm at 60 psi.

D.3 DSS Model Key Assumptions Resources

The following table presents the references for the key assumptions used in the DSS Model in determining projected demands with and without plumbing codes.

Table D-1. Key Assumptions Resources

Parameter	Resource
Residential End Uses	Key Reference: CA DWR Report "California Single Family Water Use Efficiency Study," (DeOreo, 2011 – Page 28, Figure 3: Comparison of household end-uses) and AWWA Research Foundation (AWWARF) Report "Residential End Uses of Water, Version 2 - 4309" (DeOreo, 2016). Table 2-A. Water Consumption by Water-Using Plumbing Products and Appliances - 1980-2012. PERC Phase 1 Report. Plumbing Efficiency Research Coalition. 2013. http://www.map-testing.com/content/info/menu/perc.html Model Input Values are found in the "End Uses" section of the DSS Model on the "Breakdown" worksheet.
Non-Residential End Uses, percent	Key Reference: AWWARF Report "Commercial and Institutional End Uses of Water" (Dziegielewski, 2000 – Appendix D: Details of Commercial and Industrial Assumptions, by End Use). Santa Clara Valley Water District Water Use Efficiency Unit. "SCVWD CII Water Use and Baseline Study." February 2008. Model Input Values are found in the "End Uses" section of the DSS Model on the "Breakdown" worksheet.
Efficiency Residential Fixture Current Installation Rates	U.S. Census, Housing age by type of dwelling plus natural replacement plus rebate program (if any). Key Reference: California Urban Water Conservation Council Potential Best Management Practice Report "High Efficiency Plumbing Fixtures – Toilets and Urinals" (Koeller, 2005 – Page 42, Table 8 and Table 9: Residential toilet installation rates in California). Key Reference: Consortium for Efficient Energy (www.cee1.org). Model Input Values are found in the "Codes and Standards" green section of the DSS Model by customer category fixtures.
Water Savings for Fixtures, gal/capita/day	Key Reference: AWWARF Report "Residential End Uses of Water, Version 2 - 4309" (DeOreo, 2016).

Parameter	Resource
	Key Reference: CA DWR Report "California Single Family Water Use Efficiency Study" (DeOreo, 2011 – Page 28, Figure 3: Comparison of household end-uses). WCWCD supplied data on costs and savings; professional judgment was made where no published data was available. Key Reference: California Energy Commission, Staff Analysis of Toilets, Urinals and Faucets, Report # CEC-400-2014-007-SD, 2014. Model Input Values are found in the "Codes and Standards" green section on the "Fixtures" worksheet of the DSS Model.
Non-Residential Fixture Efficiency Current Installation Rates	Key Reference: 2010 U.S. Census, Housing age by type of dwelling plus natural replacement plus rebate program (if any). Assume commercial establishments built at same rate as housing, plus natural replacement. California Energy Commission, Staff Analysis of Toilets, Urinals and Faucets, Report # CEC-400-2014-007-SD, 2014. Santa Clara Valley Water District Water Use Efficiency Unit. "SCVWD CII Water Use and Baseline Study." February 2008. Model Input Values are found in the "Codes and Standards" green section of the DSS Model by customer category fixtures.
Residential Frequency of Use Data, Toilets, Showers, Faucets, Washers, Uses/user/day	Key Reference: AWWARF Report "Residential End Uses of Water, Version 2 - 4309" (DeOreo, 2016). Summary values can be found in the full report: http://www.waterrf.org/Pages/Projects.aspx?PID=4309 Key Reference: California Energy Commission, Staff Analysis of Toilets, Urinals and Faucets, Report # CEC-400-2014-007-SD, 2014. Key Reference: Alliance for Water Efficiency, The Status of Legislation, Regulation, Codes & Standards on Indoor Plumbing Water Efficiency, January 2016. Model Input Values are found in the "Codes and Standards" green section on the "Fixtures" worksheet of the DSS Model and confirmed in each "Service Area Calibration End Use" worksheet by customer category.
Non-Residential Frequency of Use Data, Toilets, Urinals, and Faucets, Uses/user/day	Key References: Estimated based on AWWARF Report "Commercial and Institutional End Uses of Water" (Dziegielewski, 2000 – Appendix D: Details of Commercial and Industrial Assumptions, by End Use). Key Reference: California Energy Commission, Staff Analysis of Toilets, Urinals and Faucets, Report # CEC-400-2014-007-SD, 2014. Fixture uses over a 5-day work week are prorated to 7 days. Non-residential 0.5gpm faucet standards per Table 2-A. Water Consumption by Water-Using Plumbing Products and Appliances - 1980-2012. PERC Phase 1 Report. Plumbing Efficiency Research Coalition, 2012. http://www.map-testing.com/content/info/menu/perc.html Model Input Values are found in the "Codes and Standards" green section on the "Fixtures" worksheet of the DSS Model, and confirmed in each "Service Area Calibration End Use" worksheet by customer category.
Natural Replacement Rate of Fixtures (percent per year)	Residential Toilets 2 percent (1.28 gpf and lower), 3 percent (1.6 gpf toilets), 4 percent (3.5 gpf and higher toilets)
	Non-Residential Toilets 2 percent (1.6 gpf and lower), 3 percent (3.5 gpf and higher toilets)
	Residential Showers 4 percent (corresponds to 25-year life of a new fixture)
	Residential Clothes Washers 10 percent (based on 10-year washer life). Key References: "Residential End Uses of Water" (DeOreo, 2016) and "Bern Clothes Washer Study, Final Report" (Oak Ridge National Laboratory, 1998).

Parameter	Resource
	Residential Faucets 10 percent and Non-Residential Faucets 6.7 percent (every 15 years). CEC uses an average life of 10 years for faucet accessories (aerators). A similar assumption can be made for public lavatories, though no hard data exists and since CII fixtures are typically replaced less frequently than residential, 15 years is assumed. CEC, Analysis of Standards Proposal for Residential Faucets and Faucet Accessories, a report prepared under CEC's Codes and Standards Enhancement Initiative, Docket #12-AAER-2C, August 2013.
	Model Input Value is found in the "Codes and Standards" green section on the "Fixtures" worksheet of the DSS Model.
Residential Future Water Use	Increases Based on Population Growth and Demographic Forecast
Non-Residential Future Water Use	Increases Based on Employment Growth and Demographic Forecast

There are several aspects of the DSS Model that were not used in this analysis effort, which result in empty spreadsheets within the DSS Model. They remain available in the DSS Model should EVMWD choose to employ them in future efforts.

D.4 Fixture Estimates

As discussed in Section 3, the Business Plan incorporates the recent results from the Water Research Foundation REUWS study reflecting the water use change in residential homes and the implementation of more water efficient fixtures over the past 15 years. The REUWS results and EVMWD's historical rebate and billing data was combined to strengthen and justify assumptions made on all customer accounts, including saturation levels on toilets, urinals, showerheads, clothes washers, and faucets. The following tables and figures present the estimated current and projected proportions of these fixtures by efficiency level within EVMWD's service area. These proportions were calculated by:

- Using standards in place at the time of building construction;
- Taking the initial proportions of homes by age (corresponding to fixture efficiency levels);
- Adding the net change due to natural replacement; and
- Adding the change due to rebate measure minus the "free rider effect."

Again, the projected fixture proportions do NOT include any future active conservation measures implemented by EVMWD. More information about the development of initial and projected fixture proportions can be found in Section 3 as well as in the DSS Model "Codes and Standards" section.

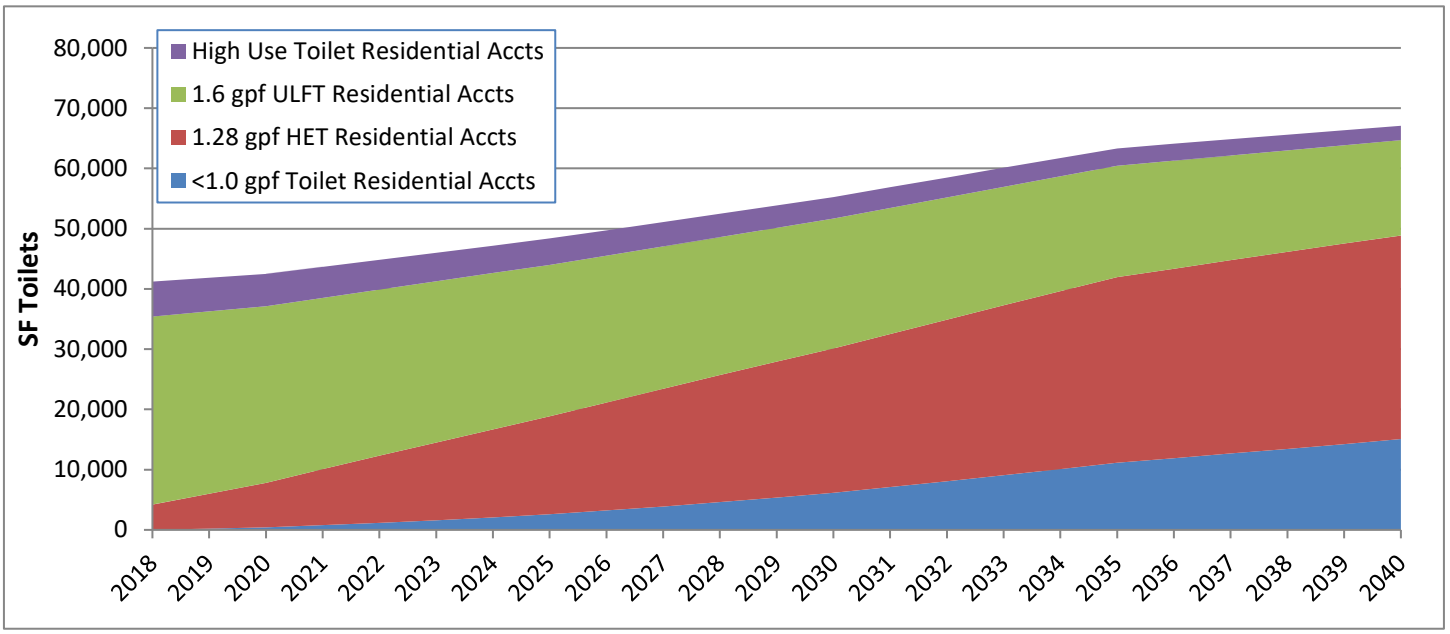
It is also important to note that in water conservation program management, free-ridership occurs when a customer, who would have purchased the targeted high efficiency fixture without a rebate, applies for and receives the rebate. In this case, the rebate was not the incentive in their purchase but a "bonus." Rebate measures are designed to target those customers needing financial incentive to install the more efficient fixture beyond current codes or standards.

D.4.1 Toilets

The following figures present the estimated number of current and projected toilets by customer category within the service area based on the effects of current and estimated plumbing codes and standards. Initial proportions are determined by taking the initial proportions of homes by age (corresponding to efficiency levels) and adding the net change due to natural replacement and rebate measures less any "free rider effect."

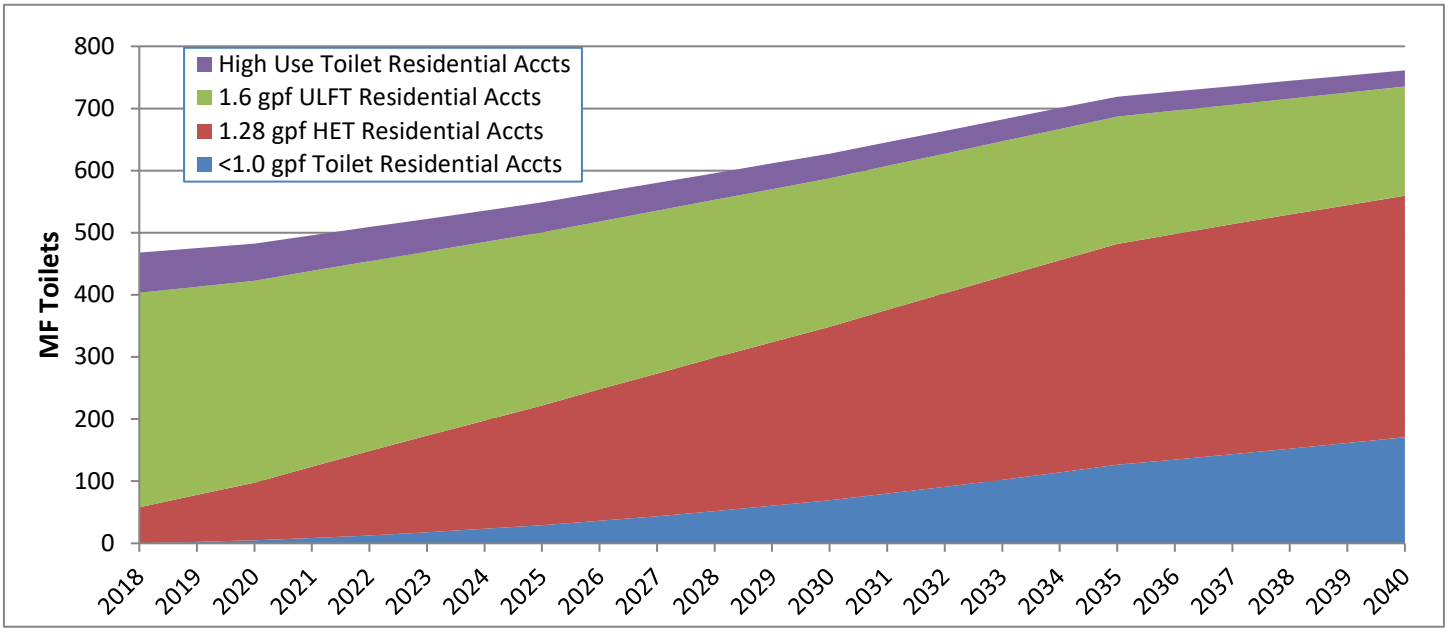
The following figure presents the estimated number of current and projected residential toilets for single family (SF) accounts.

Figure D-1. Single Family Toilets



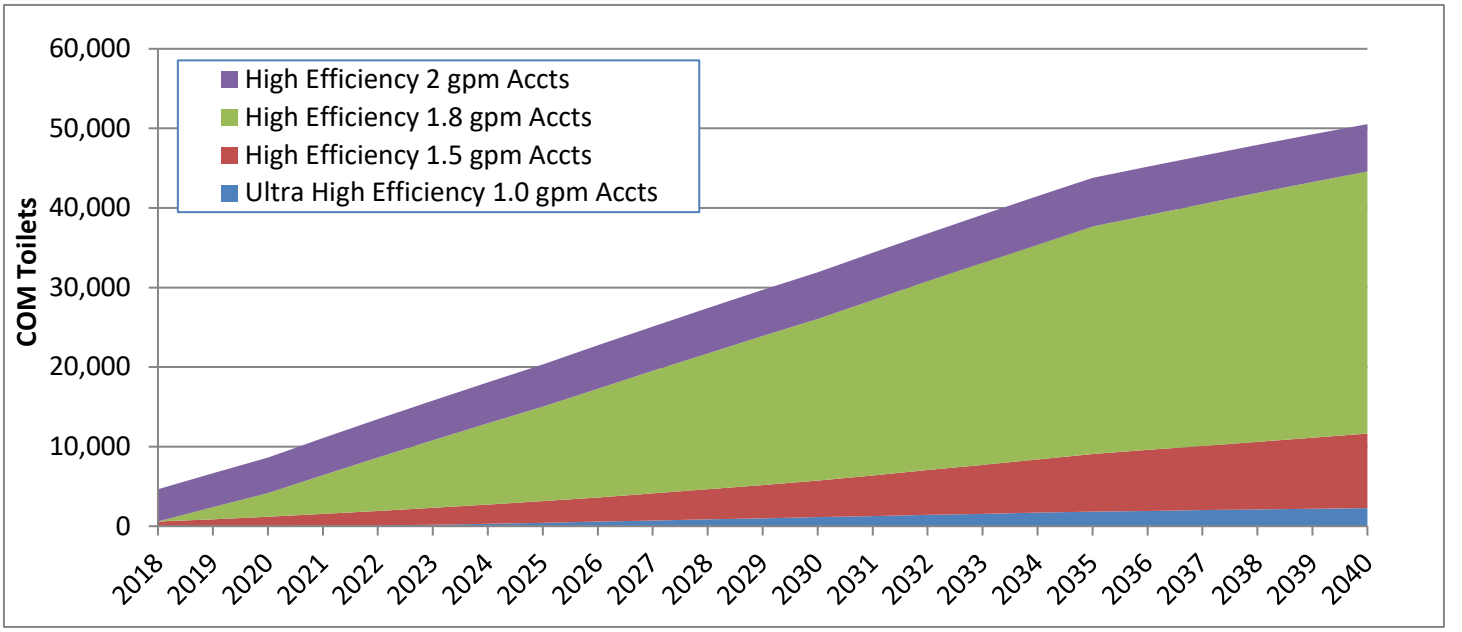
The following figure presents the estimated number of current and projected residential toilets for multifamily (MF) accounts based on the effects of current and estimated plumbing codes and standards.

Figure D-2. Multifamily Toilets



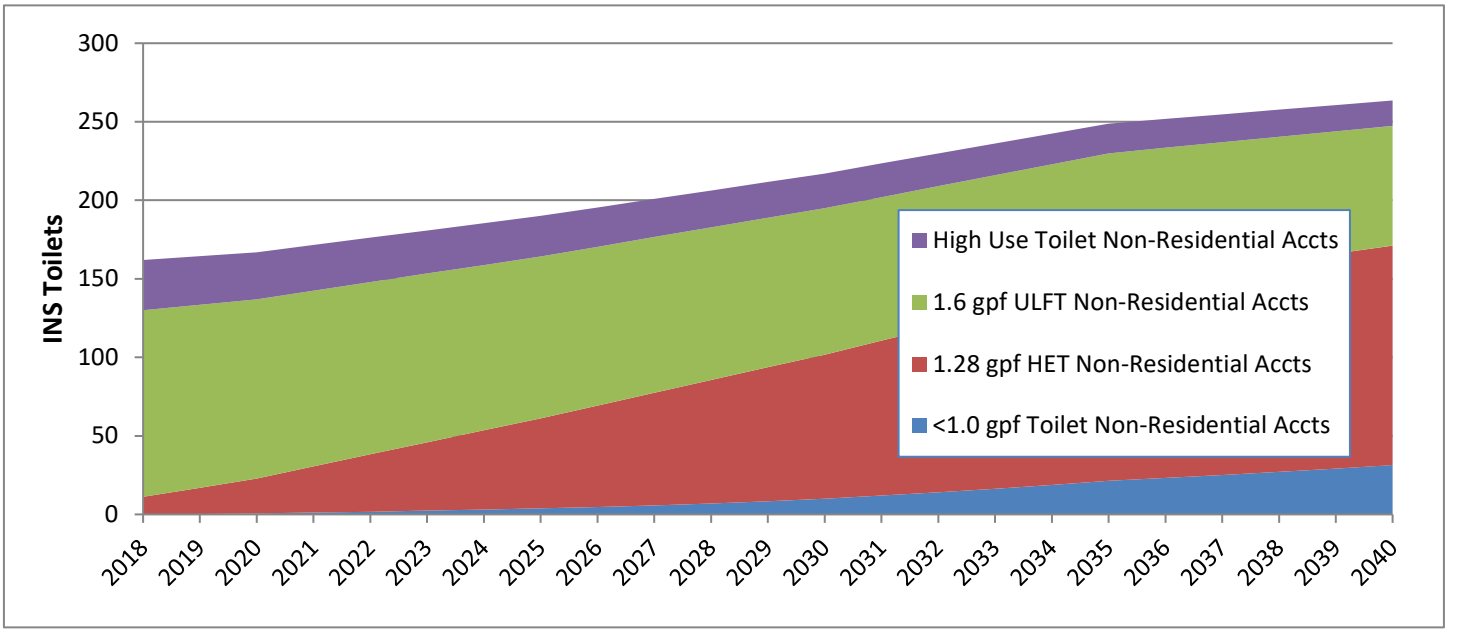
The following figure presents the estimated number of current and projected non-residential toilets for commercial (COM) accounts based on the effects of current and estimated plumbing codes and standards.

Figure D-3. Commercial Toilets



The following figure presents the estimated number of current and projected non-residential toilets for institutional (INS) accounts based on the effects of current and estimated plumbing codes and standards.

Figure D-4. Institutional Toilets



D.4.2 Showerheads

The following figures present the estimated number of current and projected showerheads by customer category within the service area based on the effects of current and estimated plumbing codes and standards. The initial proportions are determined by taking the initial proportions of homes by age (corresponding to efficiency levels) and adding the net change due to natural replacement and rebate measures less any "free rider effect."

Figure D-5 presents the estimated number of current and projected residential showerheads for SF accounts.

Figure D-5. Single Family Showerheads

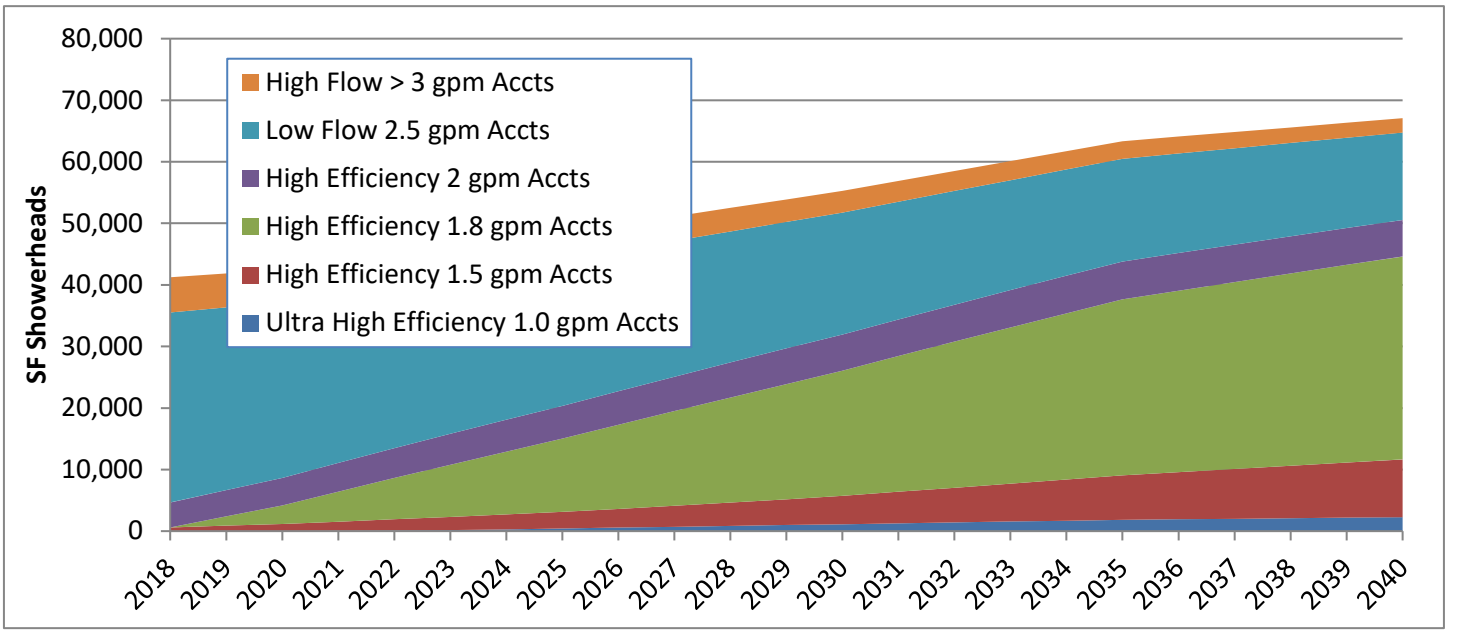
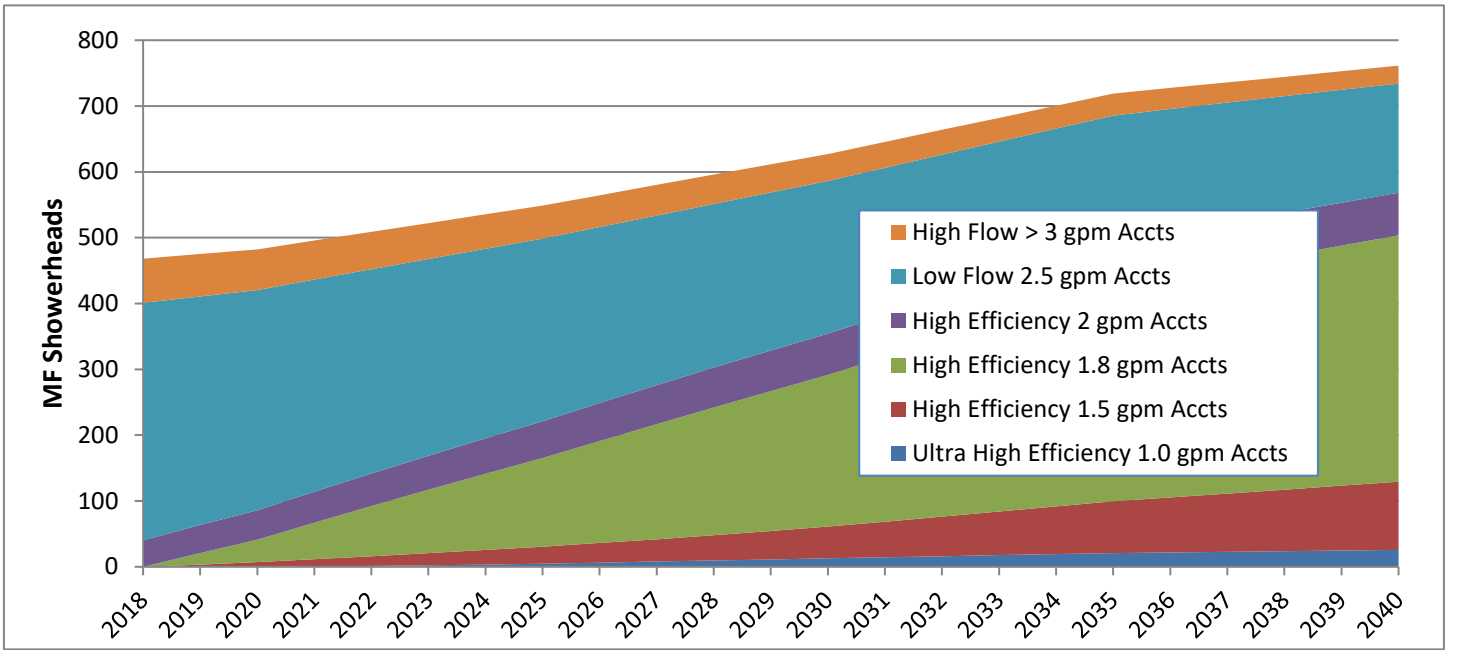


Figure D-6 presents the estimated number of current and projected residential showerheads for MF accounts based on the effects of current and estimated plumbing codes and standards.

Figure D-6. Multifamily Showerheads



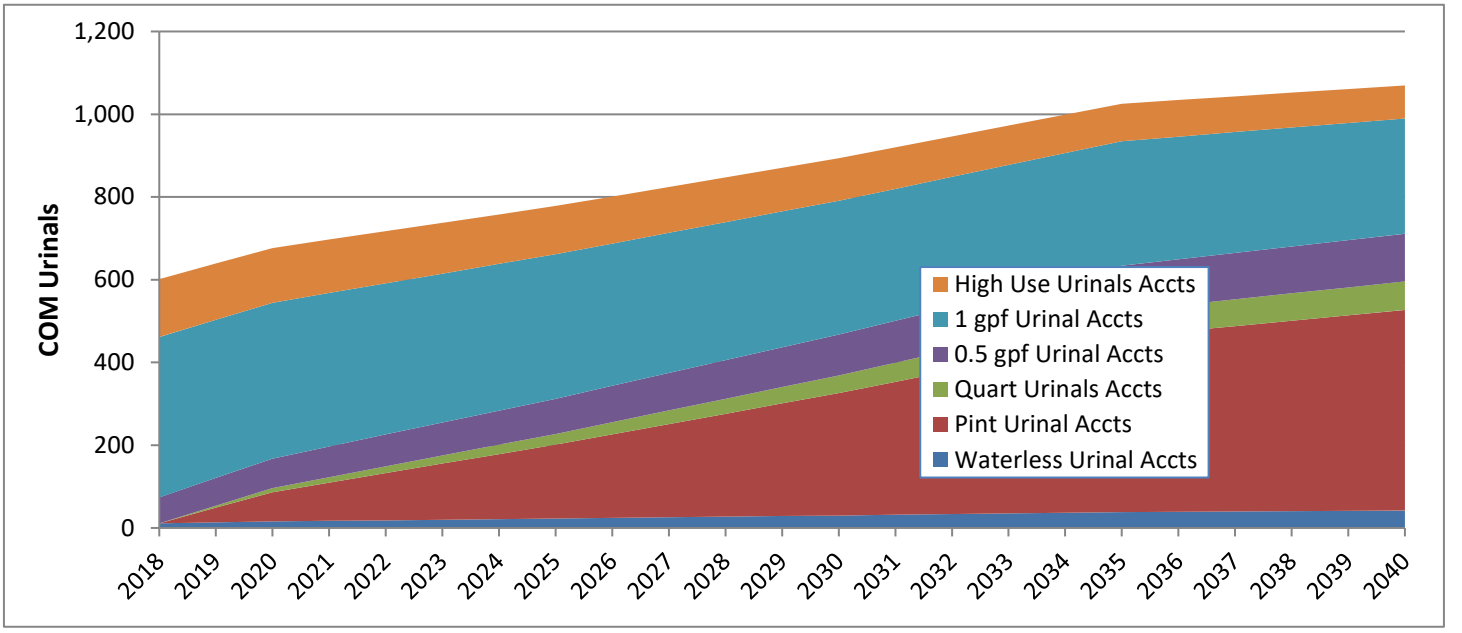
D.4.3 Urinals

The following figures present the estimated number of current and projected urinals by customer category within the service area based on the effects of current and estimated plumbing codes and standards. Initial proportions are

determined by taking the initial proportions of homes by age (corresponding to efficiency levels) and adding net change due to natural replacement and rebate measures less any "free rider effect."

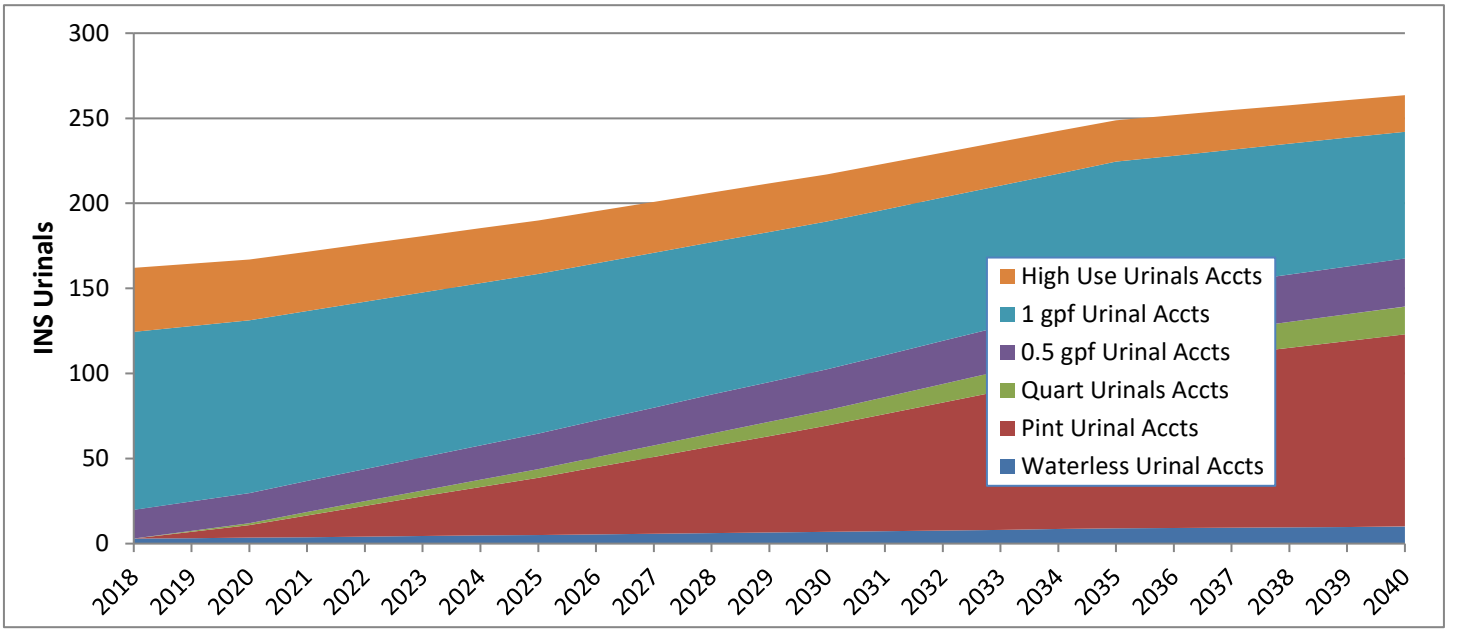
Figure D-7 presents the estimated number of current and projected urinals for COM accounts.

Figure D-7. Commercial Urinals



D-8 presents the estimated number of current and projected urinals for INS accounts based on the effects of current and estimated plumbing codes and standards.

Figure D-8. Institutional Urinals



D.4.4 Residential Clothes Washers

The following figures present the estimated number of current and projected clothes washers by customer category within the service area based on the effects of current and estimated plumbing codes and standards. The initial

proportions are determined by taking the initial proportions of homes by age (corresponding to efficiency levels) and adding the net change due to natural replacement and rebate measures less any "free rider effect."

Figure D-9 presents the estimated number of current and projected clothes washers for SF accounts.

Figure D-9. Single Family Clothes Washers

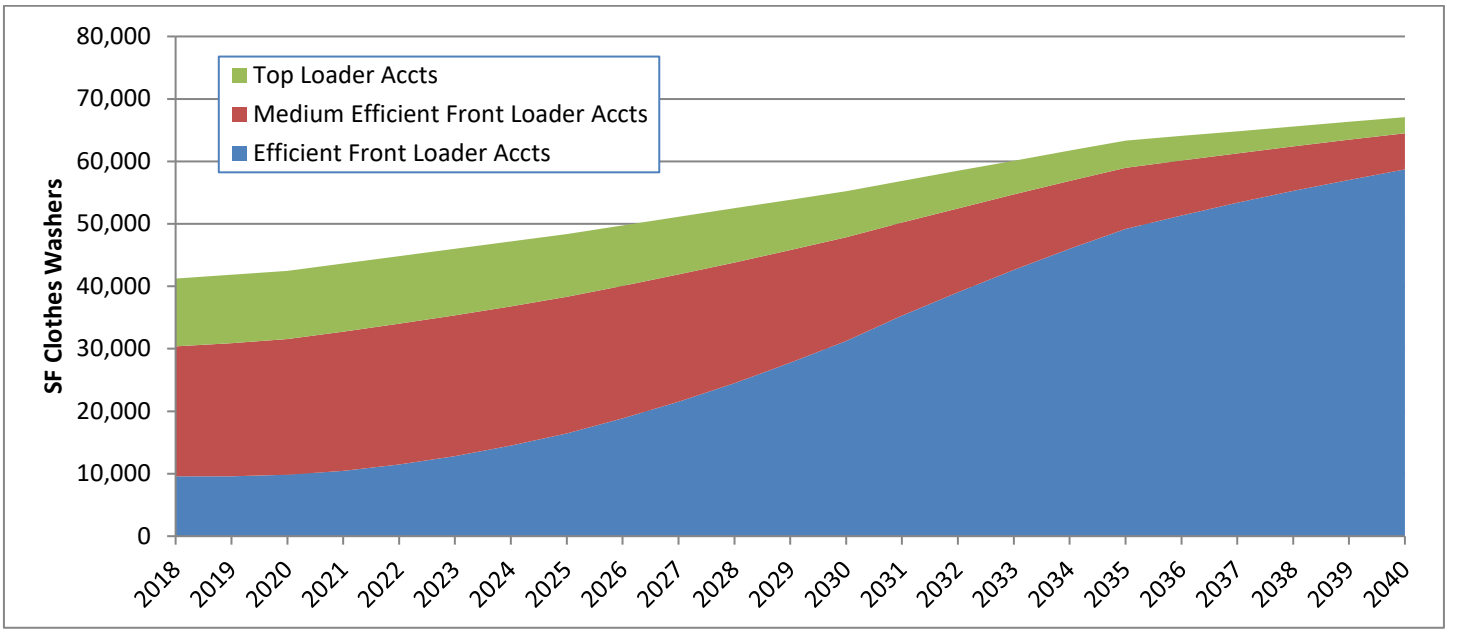
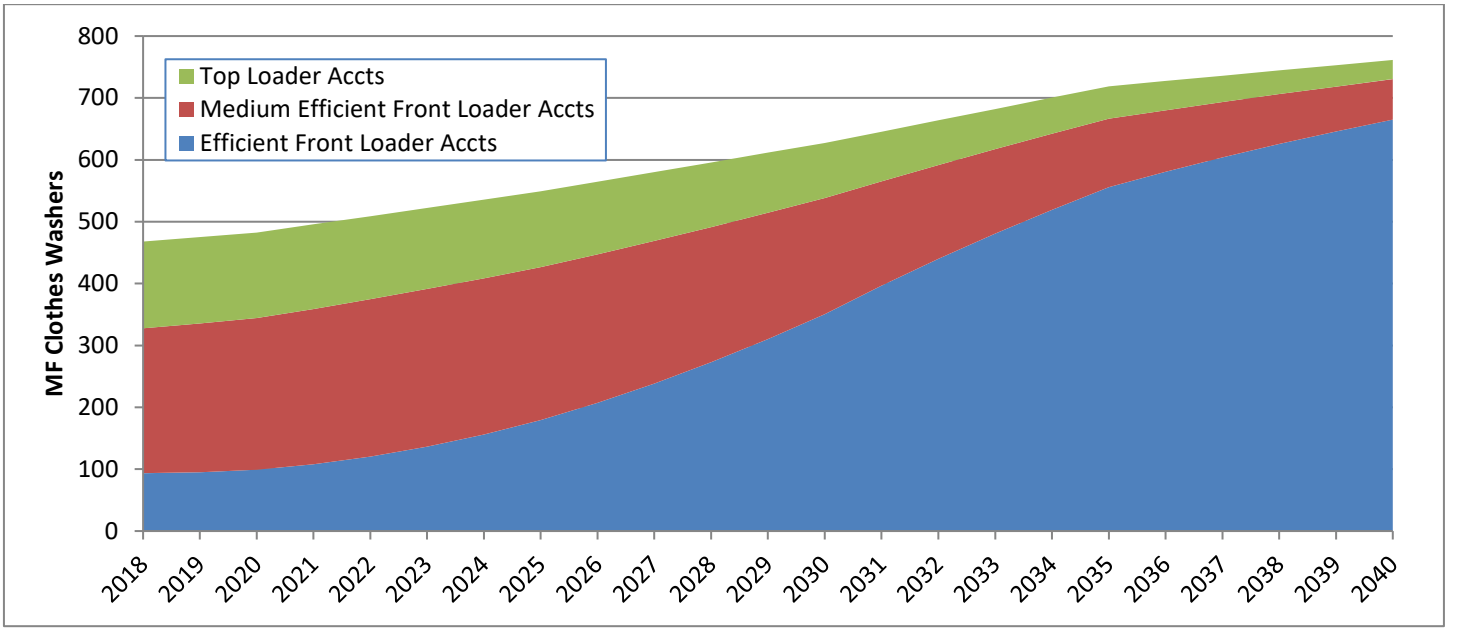


Figure D-10 presents the estimated number of current and projected clothes washers for MF accounts based on the effects of current and estimated plumbing codes and standards.

Figure D-10. Multifamily Clothes Washers



D.4.5 Faucets

The following figures present the estimated number of current and projected residential and non-residential lavatory and non-lavatory faucets by customer category within the service area. The initial proportions are determined by taking

the initial proportions of homes by age (corresponding to efficiency levels) and adding the net change due to natural replacement and rebate measures less any "free rider effect."

Figures D-11 and D-12 present the estimated number of current and projected faucets for SF accounts.

Figure D-11. Single Family Lavatory Faucets

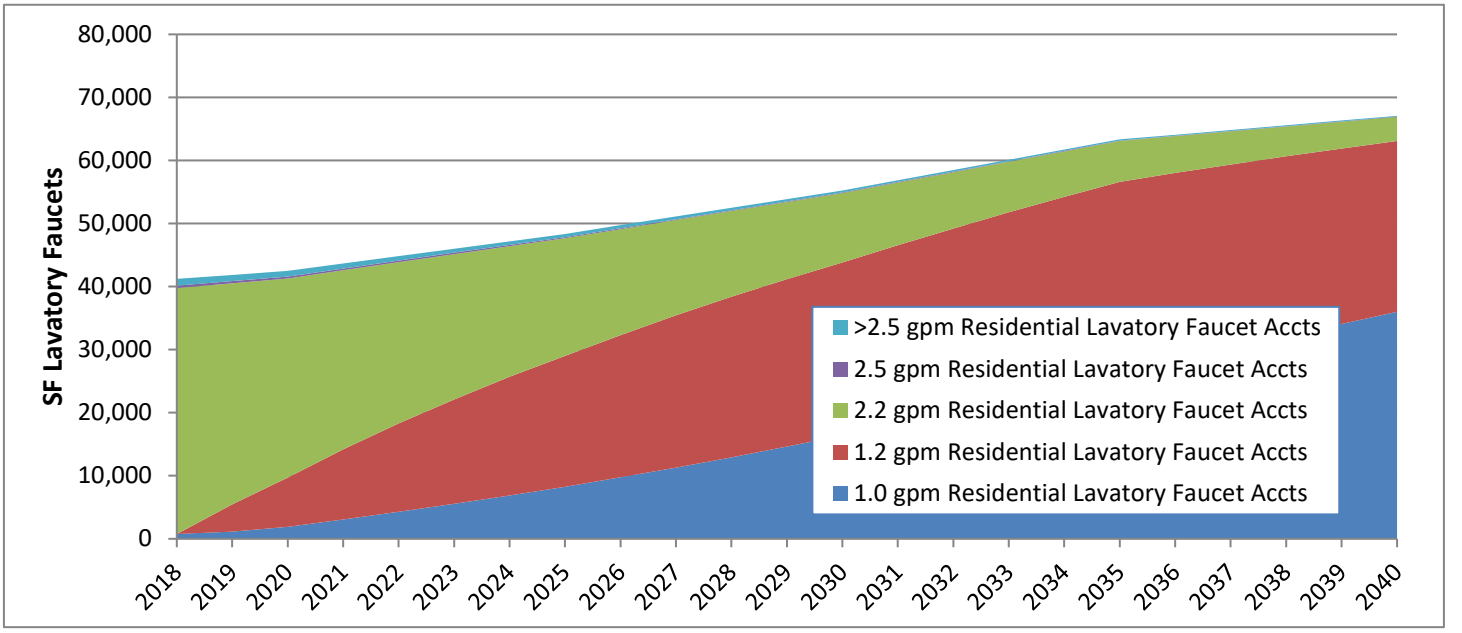
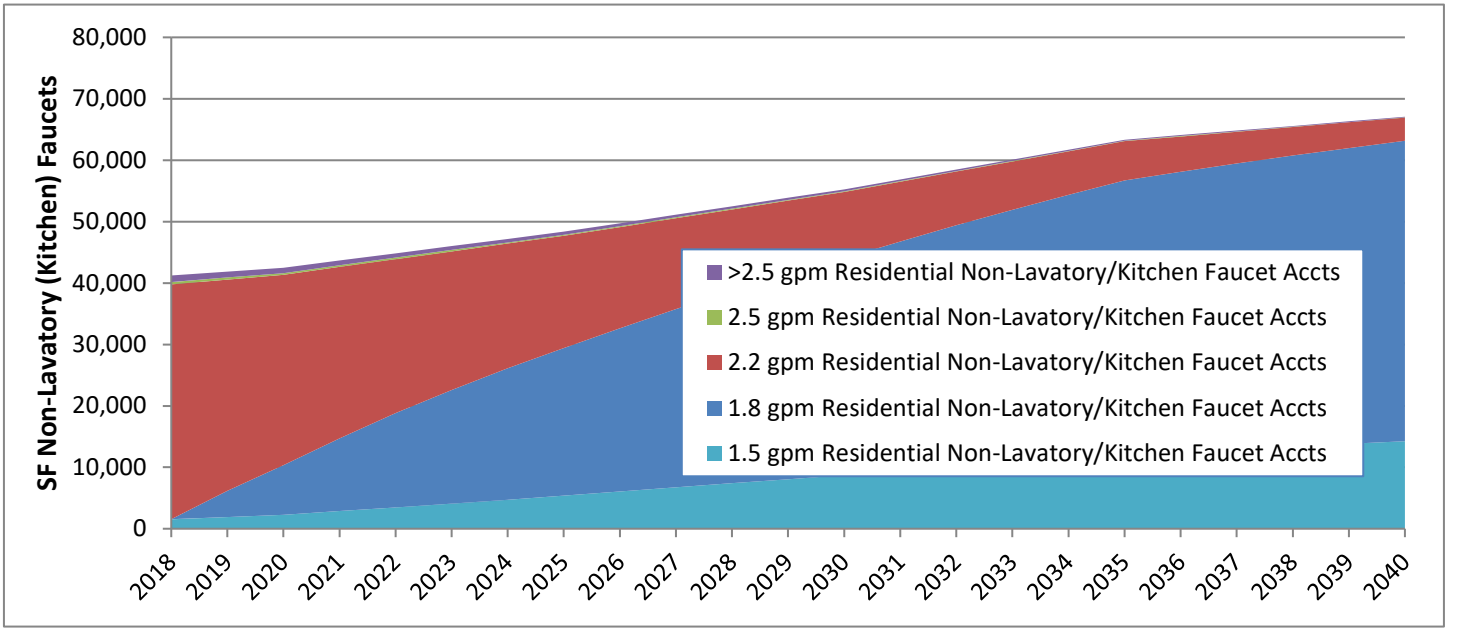


Figure D-12. Single Family Non-Lavatory (Kitchen) Faucets



Figures D-13 and D-14 present the estimated number of current and projected faucets for MF accounts based on the effects of current and estimated plumbing codes and standards.

Figure D-13. Multifamily Lavatory Faucets

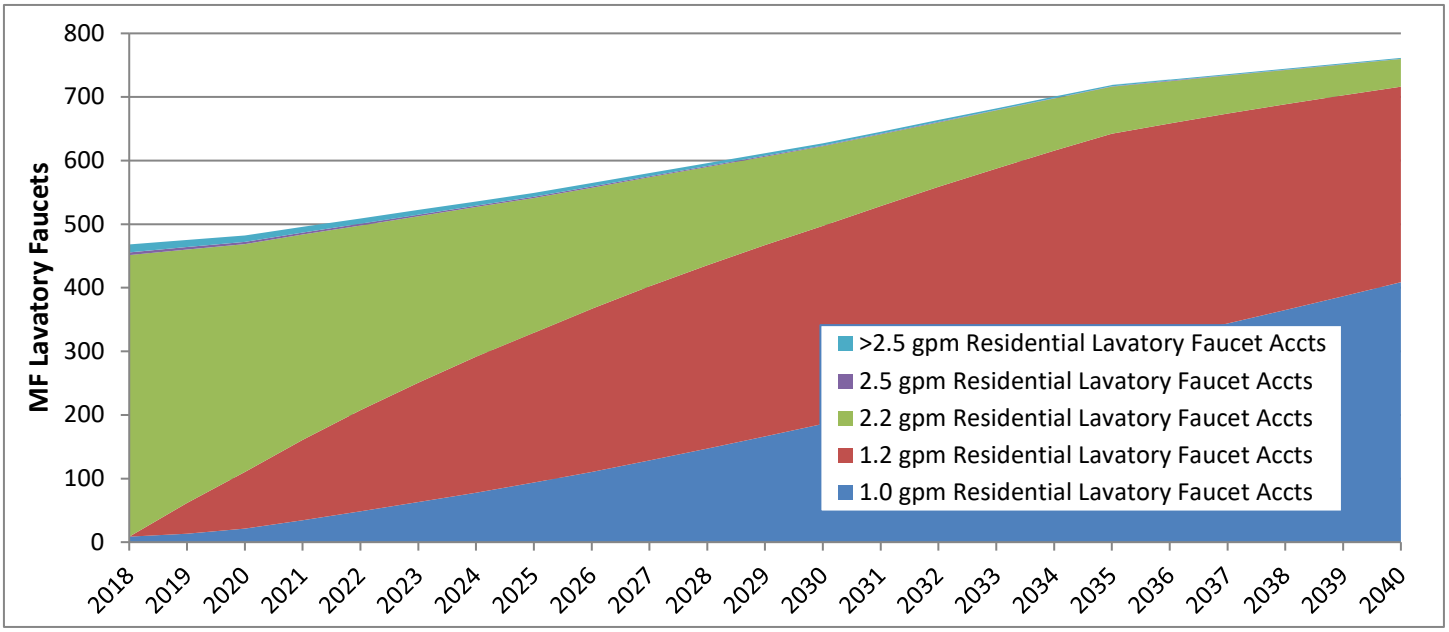
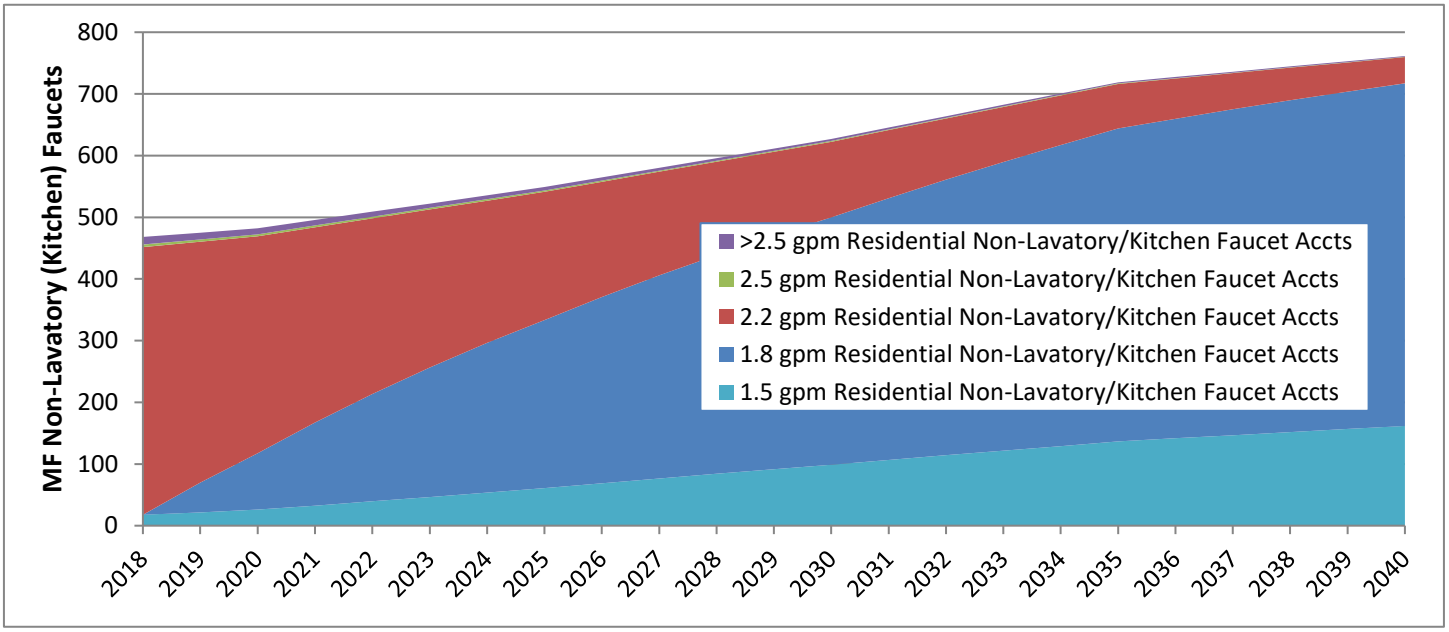


Figure D-14. Multifamily Non-Lavatory (Kitchen) Faucets



Figures D-15 and D-16 present the estimated number of current and projected faucets for COM accounts based on the effects of current and estimated plumbing codes and standards.

Figure D-15. Commercial Lavatory Faucets

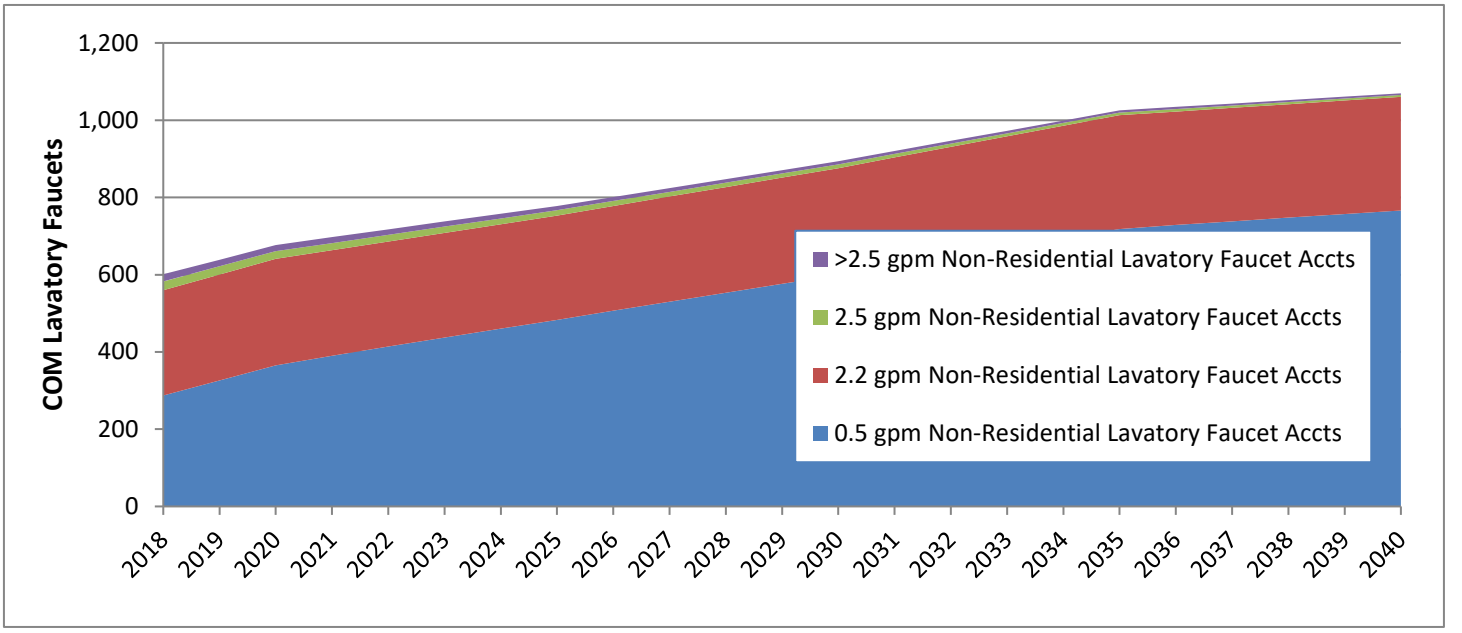
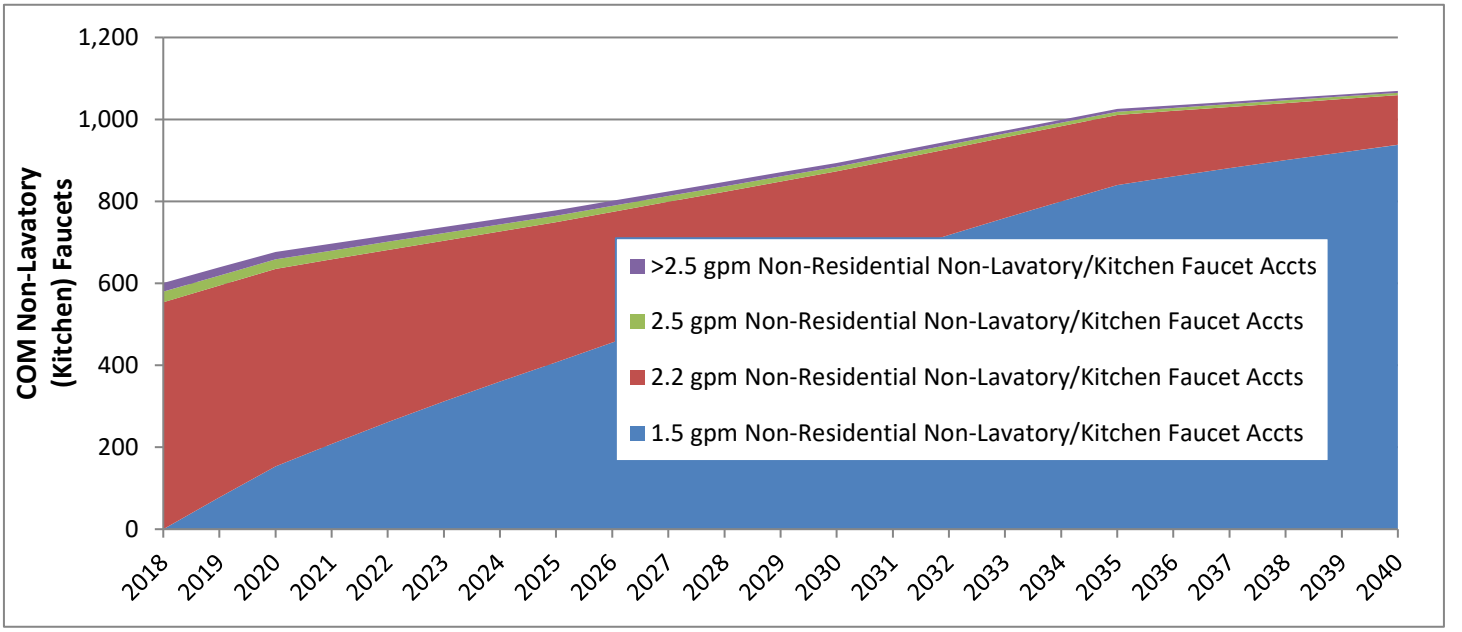


Figure D-16. Commercial Non-Lavatory (Kitchen) Faucets



Figures D-17 and D-18 present the estimated number of current and projected faucets for INS accounts based on the effects of current and estimated plumbing codes and standards.

Figure D-17. Institutional Lavatory Faucets

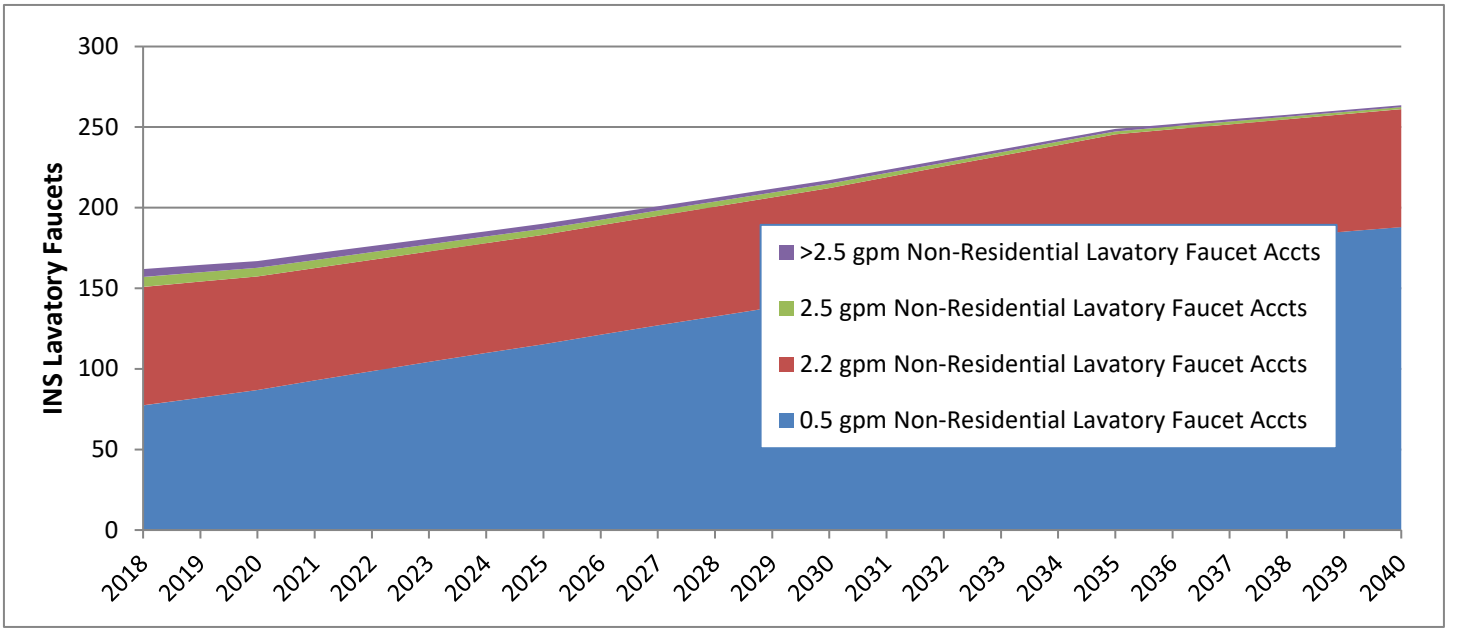
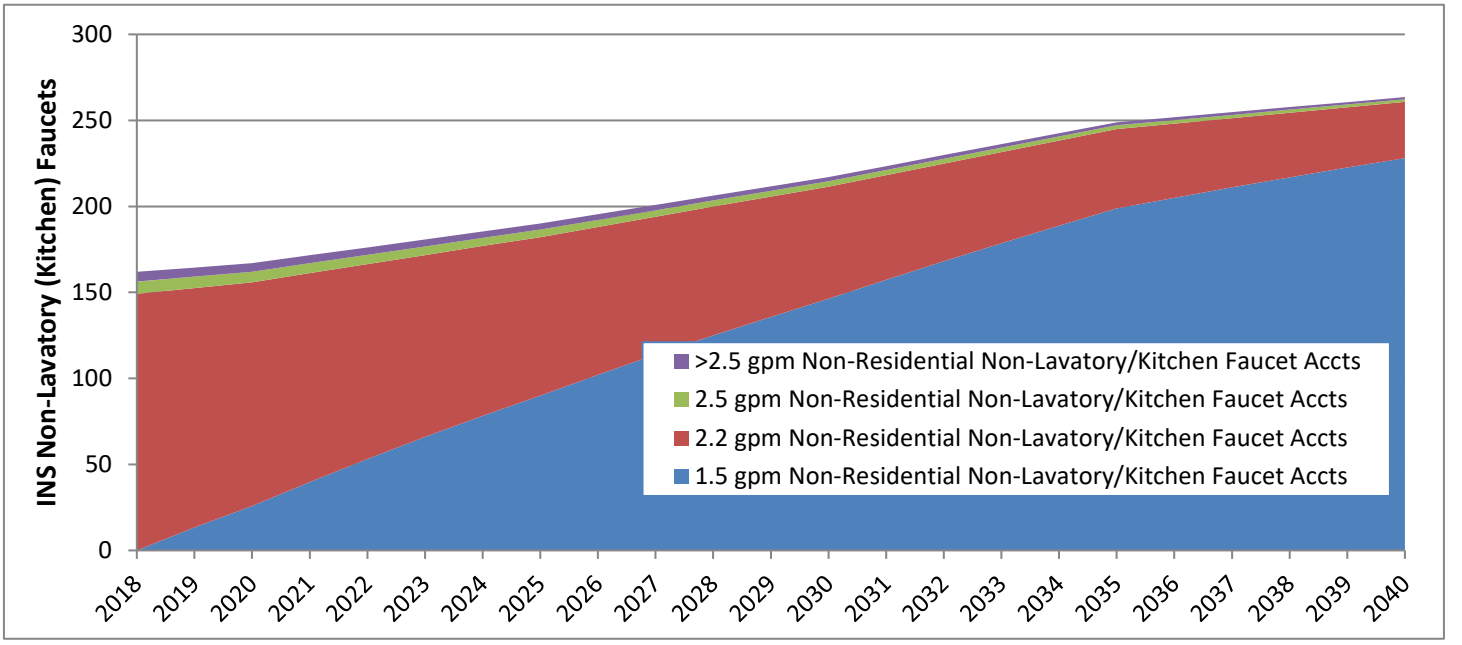


Figure D-18. Institutional Non-Lavatory (Kitchen) Faucets



APPENDIX E – CONSERVATION MEASURE SCREENING LIST

This table contains a preliminary list of measures suggested by MWM for EVMWD's consideration, 25 of which were chosen for further evaluation.

Table E-1. Conservation Measure Screening List

ID #	Equipment or Program Type	Specific Program	Focus of Program
1A	Water Loss Plus	Conduct Annual System Water Use Accounting	System
1B	Water Loss	Compute ILI on an Annual Basis	System
2A	Water Loss	Apparent Loss Reduction - Billing System	System
2B	Water Loss	Apparent Loss Reduction - Meter Testing	System
3	Water Loss	Real Water Loss Reduction	System
4	Water Loss	Real Water Loss Reduction - Leak Repair Assistance	SF
5A	Water Loss - Pressure Regulation	Distribution System Pressure Regulation	System
5B	Water Loss - Pressure Regulation	Pressure Regulation at Individual Properties	ALL
5C	Water Loss - Pressure Regulation	Pressure Regulation at Individual Properties	ALL
6A	AMI	Install AMI	ALL
6B	AMI	Install AMI New Development	ALL
6C	AMI	Targeted AMI to Irrigation or Large User Accounts	ALL
6D	AMI	Targeted AMI data to specified customer categories	ALL
7A	Water Rates	Rate Structure Evaluation	ALL
7B	Water Rates	Modification to or Implementation of Tiered Rate Conservation Pricing	SF Indoor/Outdoor
7C	Water Rates	Modification to or Implementation of Tiered Rate Conservation Pricing	Multifamily CII Outdoor is Primary Focus
7D	Water Rates	Establish Separate Pricing Structure for Irrigation Accounts	ALL Outdoor
8	Water Rates	Water budget based billing	ALL or selected categories; Outdoor is primary focus
9A	Submetering	Mobile Home Park Submetering	MF Indoor
9B	Submetering	MF Submeter Incentive	Existing MF Indoor
9C	Submetering	MF Submeter Incentive	New MF Indoor
9D	Submetering	Require Multifamily Submetering for New Developments	New MF Indoor
10A	Indoor Plumbing Fixtures	Single Family Water Surveys	SF Indoor
10B	Indoor Plumbing Fixtures	Multifamily Water Surveys	MF Indoor
11A	Indoor Plumbing Fixtures	High Efficiency Faucet/Aerator/Showerhead Giveaway	SF MF CII
11B	Indoor Plumbing Fixtures	Require High Efficiency Faucets and Showerheads in New Development	ALL
11C	Indoor Plumbing Fixtures	Real Customer Water Loss Reduction - Leak Repair and Plumbing Emergency Assistance	SF, MF
11D	Indoor Plumbing Fixtures	Pressure Reduction	ALL

ID #	Equipment or Program Type	Specific Program	Focus of Program
11E	Indoor Plumbing Fixtures	Leak Detection Technology	SF, MF
12A	Indoor Plumbing Fixtures	High Efficiency Toilet Rebates	SF MF CII
12B	Indoor Plumbing Fixtures	High Efficiency Urinal Rebates	CII
12C	Indoor Plumbing Fixtures	High Efficiency Toilet and/or Urinal Bulk Purchase Program	ALL
12D	Indoor Plumbing Fixtures	High Efficiency Toilet and/or Urinal Exchange Day	ALL
12E	Indoor Plumbing Fixtures	Plumber Initiated High Efficiency Toilet and/or Urinal Retrofit Program	ALL
12F	Indoor Plumbing Fixtures	High Efficiency Toilet Rebates	CII
13A	Indoor Plumbing Fixtures	Install High Efficiency Fixtures in Government Buildings	CII Indoor
13B	Indoor Plumbing Fixtures	Install High Efficiency Toilets, Urinals, and Showerheads in Commercial Buildings	CII Indoor
14A	Indoor Plumbing Fixtures	Require High Efficiency Toilets in New Development	ALL (New Development)
14B	Indoor Plumbing Fixtures	Fixture Retrofit on Resale or Name Change on Water Account	ALL
14C	Indoor Plumbing Fixtures	Require <0.125 gal/flush urinals in new development	CII (New Development)
14D	Indoor Plumbing Fixtures	Require Fixture Replacement by a Deadline	ALL
15A	Indoor Plumbing Fixtures	Garbage Disposal	SF Indoor
15B	Indoor Plumbing Fixtures	Non-Regenerative Water Softeners Incentives	SF Other
16A	Hot Water on Demand	Require Hot Water on Demand/Structured Plumbing in New Developments	SF Indoor
16B	Hot Water on Demand	Provide a Rebate for Hot Water on Demand Pump Systems	SF Indoor
17A	Clothes Washers	Residential Washer Rebate	SF, MF Indoor
17B	Clothes Washers	High Efficiency Washer Rebate	CII Indoor
17C	Clothes Washers	Require High Efficiency Clothes Washers in New Development	New SF Indoor
18A	Dishwashers	Efficient Dishwasher Rebates	SF Indoor
18B	Dishwashers	Require Efficient Dishwashers in New Development	SF Indoor
19	Irrigation	Outdoor Water Surveys	SF MF
20	Irrigation	Outdoor Water Audit	Large Irrigation Customers – Outdoor Only
21	Irrigation	Water Budgeting/Monitoring	Large Landscape
21A	Irrigation	Water Budgeting	ALL
21B	Irrigation	Landscape Area Measurements	ALL
22	Irrigation	Financial Incentives for Irrigation and Landscape Upgrades	ALL
23A	Irrigation	Landscape Conversion or Turf Removal	SF
23B	Irrigation	Landscape Conversion or Turf Removal	MF CII
23C	Irrigation	Artificial Turf Sports Fields	IRR Outdoor
23D	Irrigation	Shade Tree Program	ALL
24	Irrigation	Weather-Based Irrigation Controller Rebates	ALL

ID #	Equipment or Program Type	Specific Program	Focus of Program
25A	Irrigation	Require Weather Adjusting Smart Irrigation Controllers and/or Rain Sensors in New Development	ALL
25B	Irrigation	Rebate or Free Rain Sensors	Outdoor ALL or Selected
25C	Irrigation	Require Rain Sensors	Outdoor ALL or Selected
25D	Irrigation	Rotating Sprinkler Nozzle Rebates	ALL Outdoor
25E	Irrigation	Rebate or FreeSoil Moisture Sensors	Outdoor ALL or Selected
25F	Irrigation	Drip Irrigation	SF
25G	Irrigation	Pressure Regulation	ALL
26A	Irrigation	Water Conserving Landscape and Irrigation Codes	ALL
26B	Irrigation	Require Irrigation Designers/Installers be Certified (possibly by Irrigation Association or CA Landscape Contractor's Association)	CII Outdoor
26C	Irrigation	Landscape irrigation restricted to designated days and times	ALL Outdoor
27	Irrigation	NetZero Landscape Ordinance	ALL Outdoor
27A	Irrigation	Dedicated Irrigation Meters	ALL Outdoor
27B	Irrigation	New Zero Runoff Landscape - Mulch Program	ALL Outdoor
27C	Irrigation	Z-Zones	ALL Outdoor
27D	Irrigation	Soil Amendment	ALL Outdoor
27E	Irrigation	Tap Fee Credit	ALL Outdoor
28A	Rainwater Catchment	Provide Rain Barrel Incentive	SF Outdoor
28B	Rainwater Catchment	Provide Incentive for Large Rainwater Catchment Systems	MF CII IRR Outdoor
28C	Rainwater Catchment	Require Rain Barrel	SF Outdoor
29A	Gray water	Gray water Retrofit SF	SF Outdoor
29B	Gray water	Require Plumbing for Gray Water in New SF Development	SF Outdoor
29C	Gray water	Rebate for Gray Water Systems in New CII Development	CII Outdoor
29D	Gray water	Rebate Lavatory Sink Water Recycle System for Toilet Flushing	SF, MF
29E	Gray water	Point of Use Recycling	SF, MF
30	Other Outdoor	Require or Rebate Swimming Pool Covers	ALL Outdoor
31	Other Outdoor	Prohibit Water Waste and Practices	All Outdoor
32	CII Equipment	Top 25 Water Users Program (Top 25 customers from each individual district)	CII Indoor/Outdoor
33A	CII Equipment	Customized Top Users Incentive Program	CII Indoor/Outdoor
33B	CII Equipment	CII Rebates to Replace Inefficient Equipment	Existing Customers CII
33C	CII Equipment	Water Savings Performance Program	CII Indoor
34	CII Equipment	Require Plan Review for new CII	CII Indoor/Outdoor
35	CII Equipment	Promote Restaurant Spray Nozzles	CII Indoor

ID #	Equipment or Program Type	Specific Program	Focus of Program
36	CII Equipment	School Building Retrofit	CII Indoor/Outdoor
37A	CII Equipment	Focused Water Audits for Hotels/Motels	CII Indoor/Outdoor
37B	CII Equipment	Hotels/Motels Retrofit w/Financial Assistance	CII Indoor
37C	CII Equipment	Hotels/Motels Retrofit	CII Indoor
38A	CII Equipment	Rebates for Sub meters on Cooling Towers	CII Indoor
38B	CII Equipment	Cooling Tower Regulations	CII Indoor
38C	CII Equipment	Rebates for Conductivity Controllers on Cooling Towers	CII Indoor
39	CII Equipment	Dry Vacuum Pump	CII Indoor
39A	CII Equipment	Dry Heat Sterilization in the Pharmaceutical Industry (versus steam)	CII Indoor
40A	Public Education	Conservation Print Media	ALL
40B	Public Education	Electronic Conservation Options/Web Site/Social Media	ALL
40C	Public Education	Conservation Print Media, Electronic Conservation Options/Web Site/Social Media, Speakers Bureau/Event Participation, Media Campaign: such as the “Use Only What You Need” or “Beat the Peak”, Billing Report Educational Tool	ALL
40D	Public Education	Speakers Bureau/Event Participation	ALL
40E	Public Education	Schools Education Programs	SF, MF
41	Public Education	Media Campaign: such as the “Beat the Peak” or “Twenty Gallon Challenge”	ALL
41B	Public Education	Media Campaign: such as “Take Control of your Controller"	ALL
41C	Public Education	Billing Report Educational Tool	ALL
42A	Public Education	Recognition Programs for Water Savings by Residences & Apartments Program, Recognition Programs for Water Savings by Businesses	SF Outdoor, CII Indoor/Outdoor
42B	Public Education	Recognition Programs for Water Savings by Residences & Apartments Program	SF Outdoor
42C	Public Education	Recognition Programs for Water Savings by Businesses	CII Indoor/Outdoor
43A	Public Education - Irrigation Focus	Outdoor Residential Focused Public Awareness Information Program	SF Outdoor Only
43B	Public Education - Irrigation Focus	Efficient Outdoor Use Education and Training Programs	SF/MF/CII Outdoor
43C	Public Education - Irrigation Focus	Train Landscape Maintenance Workers (Green Gardener Program)	ALL Outdoor
44	Public Education - Irrigation Focus	Networking with Landscaping Industry	ALL Outdoor
45	Public Education - Irrigation Focus	Landscape Water Calculator	ALL
46	Public Education - Irrigation Focus	Xeriscape Demonstration Gardens	ALL
47	Public Education	Promote Green Buildings	ALL
48	Other	Developer Financed Zero Footprint New Development	ALL
49	Other	Prohibit Once through Cooling, Non-Recycling Fountains, Water Wasting Fixtures and Practices	CII
50	Other	Water conservation policy in new/existing supply contracts	System
51	Other	Low Impact New and Remodeled Development	ALL
52	Other	Encourage "Life Cycle Analysis" Mentality of Sustainability and Reliability	ALL
53	Other	Partnership with Energy Utilities	ALL

Note: “All” = Single Family, Multifamily, and Commercial, Industrial and Institutional; “System” = utility’s distribution system

APPENDIX F – WATER NEUTRALITY RESOURCE INDEX

This appendix represents a resource index for water neutrality related information from the Alliance for Water Efficiency (AWE), the City and County of San Francisco and the City of Santa Monica below. Please also note that at a minimum there are water neutrality ordinances in the following areas: Lompoc, Morro Bay, Napa, St. Helena; San Luis Obispo County, San Francisco; and water districts in Cambria, Monterey and Soquel Creek.

Alliance for Water Efficiency – Net Blue

The Alliance for Water Efficiency (AWE) Net Blue is a collaborative initiative of the Alliance for Water Efficiency, the Environmental Law Institute (ELI), and River Network to support sustainable community growth.

Summary – AWE Net Blue

The Net Blue template for a model ordinance requires or incentivizes offsetting the impact of new development's water use via water efficiency measures. Building on AWE's initial research report, Water Offset Policies for Water-Neutral Community Growth, ELI did the following: analyzed the legal language used in existing water offset ordinances; identified potentially useful supplemental language in other ordinances; assessed a variety of institutional configurations that may influence the adoption and implementation of a water offset ordinance; and examined legal opportunities for and constraints on expanding the concept to new places.

The final work product resulted in a model ordinance worksheet, a user's guide, and three examples of customized ordinances. Due to the variety of circumstances that occur in a county, municipality, or utility, and the diversity of legal constraints and authorities that can dictate the form of such an ordinance, a "one size fits all" approach does not work in this context. Thus, the model ordinance is in the form of a dynamic worksheet, developed in consultation with land use law experts, municipal planners, and experienced developers, to ensure its practicality, accuracy, and ease-of-use in customizing the ordinance for the needs of the community.

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The Model Ordinance worksheet leads a user through the sections of the ordinance, and flags the decisions that need to be made by the user to develop a tailored product that addresses the specific challenges and circumstances of the locality.

The Model Ordinance User's Guide details how the worksheet functions, explains the various cues, and provides tips for maximizing the potential of the worksheet.

Three Net Blue ordinance examples demonstrate the diverse outputs of the worksheet and some of the many problems, actors, and constraints that it can accommodate.

List of Resources – AWE Net Blue

Background information about the program as well as programmed Excel spreadsheets can be found on the MWM FTP site. To request the model ordinance worksheet, user guide, and example ordinances and the offset methodology, user guide, and example offsets, go to the following link and fill out the form, and hit "Submit" http://www.allianceforwaterefficiency.org/netblue-request.aspx . Accessing AWE's resources this way, as opposed to using the same resources posted to the MWM FTP site, will ensure your team receives relevant updates to the tools. More online resources with background information on the tools can be found here:
http://www.allianceforwaterefficiency.org/net-blue.aspx
http://www.allianceforwaterefficiency.org/net-blue-landing-page.aspx
http://www.allianceforwaterefficiency.org/net-blue-research.aspx

City of Santa Monica – Water Neutrality Ordinance

The City of Santa Monica Office of Sustainability and the Environment created a Water Neutrality Stakeholder Committee to develop this Water Neutrality Ordinance. It is comprised of representatives of residents, water agencies, non-governmental organizations, sustainability consultants, architects, developers, manufacturers, engineers, plumbers, The County of Los Angeles; the City's Water Advisory Committee; and staff from the Public Works Department, Planning and Community Development Department, and the City Attorney's Office.

Summary – Santa Monica Water Neutrality Ordinance

On July 1, 2017, the Water Neutrality Ordinance went into effect capping water use for new developments to an average of the past five-year historical use for that individual parcel. A stakeholder committee of residents, building industry professionals, non-profits, manufacturers, and local governments created the proposed ordinance to meet Council's directive. This ordinance is one strategy to achieve the City's goal for water self-sufficiency by 2020. By maximizing water-efficiency, local groundwater and alternate water supplies, the city will no longer need to import water to meet all its needs. Only new developments (residential and commercial) will need to comply with this ordinance. New developments, in this case, are defined as new buildings with plumbing fixtures, existing buildings that demolish 50 percent or more the exterior walls/structural support, and new or enlarged pools, spas, ponds, water features.

To comply new development projects must be as water-efficient as possible so that they will not use more water than the historical use of the development site. The five-year average water use for the existing property will be used as the baseline. Each new development is responsible for calculating how much water it is projected to use each year. The difference between the baseline and the projected water use is called the "new water demand." If the new water demand is equal to or less than the baseline, then the project is compliant. If the difference is greater than the baseline, the new development will need to rethink its design, perhaps adding more efficient toilets, showerheads, clothes washers, etc. to lower the projected use; or incorporating more advanced technologies like graywater, rainwater or recycled water systems. The City provides a technical design assistance program to guide applicants through the process and make them aware of technologies that could help them achieve compliance.

If the final design shows the new water demand is greater than the historical usage for the site, then the applicant will need to offset that water somewhere else in the city. The options for offsets are the following:

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www.savewater@smgov.net

City Direct Install Option – A fee-based turn-key solution with a pre-certified contractor that installs water saving toilets, showerheads, and faucet aerators at other properties throughout the city to offset your project's water use.

Developer Installation Option – The applicant will find properties in the City to retrofit, determine the water saving calculations, pay for the installations and permit fee for each device installed, and have each device inspected by the City.

List of Resources – Santa Monica Water Neutrality Ordinance

Background information about the program as well as programmed Excel spreadsheet Water Neutrality Calculators can be found here: https://www.smgov.net/Departments/OSE/Categories/Water/Water_Neutrality.aspx and on the MWM ftp site.

San Francisco – Non-potable Water Program

In September 2012, the City and County of San Francisco adopted the Onsite Water Reuse for Commercial, Multi-Family, and Mixed-Use Development Ordinance. Commonly known as the Non-potable Water Ordinance, it added Article 12C to the San Francisco Health Code, allowing for the collection, treatment, and use of alternate water sources for non-potable uses in buildings. Since 2012, the Non-potable Water Ordinance has been amended to allow for district-scale projects, where two or more parcels can share alternate water sources. In 2015, Article 12C became a mandatory requirement for new development projects over 250,000 square feet of gross floor area to install and operate an onsite non-potable water system.

Onsite non-potable water systems, also referred to as alternate water source systems, provide a myriad of benefits such as reducing potable water use for toilet flushing and irrigation, meeting Stormwater Management Ordinance requirements, and helping San Francisco achieve greater water supply resiliency and reliability. The Non-potable Water Program was established to create a streamlined permitting process for onsite non-potable water systems and help designers and developers assess a project's available alternate water sources and non-potable demands. The program also supports San Francisco's OneWater approach of matching the right water source for the right use and looking holistically at the utility's services to develop programs and policies that provide multiple benefits to conserve resources and promote ecosystem health.

Summary – San Francisco Non-potable Water Program

Requirements for onsite non-potable water systems apply to new development projects with 250,000 square feet or more of gross floor area that were issued a site permit after November 1, 2016. The project must meet its toilet and urinal flushing and irrigation demands through the collection, treatment, and use of available graywater, rainwater, and foundation drainage. While not required, projects may use treated blackwater or stormwater if desired. Projects under 250,000 square feet may install an onsite non-potable water system to reduce the use of potable water and meet the requirements of the Stormwater Management Ordinance. The 8 steps for successfully implementing the onsite non-potable water system are:

1. Submit a Water Budget Application to the San Francisco Public Utilities Commission (SFPUC)
2. Submit a Non-potable Implementation Plan to SFPUC (district-scale projects only)
3. Submit Engineering Report, Permit Application, and Application Fee to San Francisco Department of Public Health-Environmental Health (SFDPH-EH)
4. Obtain Plumbing Plan Check and Permits from the San Francisco Department of Building Inspection-Plumbing Inspection Division (SFDBI) and Complete System Construction
5. Obtain Encroachment Permit from San Francisco Public Works (SFPW) (if applicable)
6. Conduct a Cross Connection Test with SFPUC and SFDPH-EH
7. Obtain a Permit to Operate from SFDPH-EH
8. Conduct Ongoing Monitoring, Reporting, and Inspections

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SFDPH Non-potable Water Program
dph.nonpotable@sfdph.org
Program Website
https://sfwater.org/index.aspx?page=686

List of Resources – San Francisco Non-potable Water Program

Background information including the Program guidebook, case studies, Grant Program application and the Water Budget Applications and Water Use Calculators for single-building and district-scale non-potable water systems (per Step 1) can be found on the MWM FTP site and are located here: https://sfwater.org/index.aspx?page=686.

The Non-potable Water Program Guidebook "A Guide for Implementing Onsite Non-potable Water Systems in San Francisco" can be found online here: https://sfwater.org/Modules/ShowDocument.aspx?documentID=11629.

APPENDIX G – BEST MANAGEMENT PRACTICES FOR COOLING TOWERS

To support the implementation of the Cooling Tower Regulations measure, the following table contains a list of actions or measures related to best management practices to be reviewed when examining cooling towers. This list of practices can be used as a question list when interviewing facility staff or a cooling tower vendor. The cooling tower evaluation can be conducted by EVMWD staff or by a contracted consultant.

Table G-1. Best Management Practices for Cooling Towers

Action or Measure	Present/ Active Currently	Currently Under Way but Incomplete	Implement in Near Future	Not Applicable	Comments
Cooling tower is free of leaks; check all seals pumps, casings, ducts; check monthly					
Cooling towers have submeters (makeup and blow-down)					
Cooling tower cycles are at least 5 for make-up with a total hardness of less than 11 grams/gallon (188 milligrams/liter [mg/L])					
Cooling tower cycles are at least 5 for make-up with a total hardness equal to or exceeding 11 grams/gallon (188 mg/L)					
Cooling towers have conductivity meters					
Cooling tower meters monitoring routine regularly scheduled					
Cooling towers set to shut down during off hours (typically 21:30-5:00 for an 8am-6pm workday)					
Use of side-stream filtration considered					
Use of sulfuric acid considered					
A regular visual inspection routine is scheduled					
The make-up float should be inspected to ensure it is performing at the optimal level					
The water distribution feedline is checked and ensured to be clean and maintains even, consistent flow across the cooling system (this includes across multiple towers)					
Conductivity probes should be cleaned monthly to ensure unnecessary blowdown is reduced					
The blowdown line should be cleaned monthly to avoid biofouling					
Cooling tower is cleaned monthly					
Consider reusing cooling water (bleed off) for other (non-potable) needs					

APPENDIX H – DSS MODEL MEASURE INPUTS AND ASSUMPTIONS FOR CONSERVATION MEASURES

This appendix presents each modeled measure's design as included in the DSS Model. The provided screen shots present the analysis assumptions and inputs that were used to evaluate each of the water conservation measures selected by EVMWD. Specific water savings estimates and assumptions are provided. Measure utility costs include unit costs (incentives and rebates) as well as administrative costs. Costs covered by SoCal Water$mart and other partners are NOT included.

All analyzed measures are presented in this appendix regardless of the conservation program (A, B or C) in which they are included. It is important to note that savings from measures that address the same end use(s) are NOT additive when combined in the same program. As explained in Section 5, the DSS Model uses impact factors to avoid double counting in estimating the water savings from programs of measures.

Public and School Education

Overview	
Name	Public and School Education
Abbr	1
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2018
Last Year	2040
Measure Length	23

Measure Life	
Permanent	☐
Years	2
Repeat	☐

Fixture Costs	Utility	Customer	Fix/Acct
SF	$2.90	$0.00	1

Administration Costs	
Markup Percentage	35%

Description

Public and school education is used to raise awareness of water use efficiency measures available to customers. This measure includes: inserts/flyers, video production ads, landscape classes, signs for demonstration gardens, conservation advertising through giveaways including pens, books, etc., poster contests for schools, science fair program for schools, Solar Cup education program, educational materials and supplies for curriculums such as Admiral Splash and Potter the Otter educational books.

Customer Classes	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
	☑	☐	☐	☐	☐	☐	☐	☐

End Uses	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
Toilets	☑							
Urinals								
Lavatory Faucets	☑							
Showers	☑							
Dishwashers	☑							
Clothes Washers	☑							
Process								
Kitchen Spray Rinse								
Internal Leakage	☑							
Baths	☑							
Other	☑							
Irrigation	☑							
Pools	☑							
Wash Down	☑							
Cooling								
Car Washing	☑							
External Leakage	☑							
Outdoor								
tory/Kitchen Faucets	☑							

Comments

> Cost assumes SF category but impacts all customer classes.
> Breakdown of 2017 costs: inserts/flyers ($7,000), video production ads ($5,000), landscape classes ($10,000), signs for demo gardens ($20,000), conservation advertising through giveaways including pens, books, etc. ($20,000), poster contest for schools ($1,850), science fair program for schools ($650), Solar Cup education program ($400), educational materials including pens, paper, etc. ($5,000) and educational supplies for curriculums such as Admiral Splash and Potter the Otter educational books ($5,000) = overall total $74,900. Does not include staffing. The remaining cost is EVMWD staff funds to support the program.
> Basis of water savings: Assume baseline of 0.5% per year average single family home use. Confirm utility costs based on staffing support, education materials cost and website.
> Cost varies from $0.23/acct (Bay Area Water Supply & Conservation Agency (BAWSCA)) to $4 (Santa Cruz) to $6 (Anaheim) per account. Markups vary as well 50% (Santa Cruz), 15% (BAWSCA), 75% (Anaheim).

Results	
Average Water Savings (mgd)	
0.079402	
Lifetime Savings - Present Value ($)	
Utility	$2,070,475
Community	$3,281,475
Lifetime Costs - Present Value ($)	
Utility	$1,739,839
Community	$1,739,839
Benefit to Cost Ratio	
Utility	1.19
Community	1.89
Cost of Savings per Unit Volume ($/mg)	
Utility	$2,608

End Use Savings Per Replacement	% Savings per Account
SF Toilets	0.5%
SF Lavatory Faucets	0.5%
SF Showers	0.5%
SF Dishwashers	0.5%
SF Clothes Washers	0.5%
SF Internal Leakage	0.5%
SF Baths	0.5%
SF Other	0.5%
SF Irrigation	0.5%
SF Pools	0.5%
SF Wash Down	0.5%
SF Car Washing	0.5%
SF External Leakage	0.5%
on-Lavatory/Kitchen Fa	0.5%

Targets	
Target Method	Percentage
% of Accts Targeted / yr	50.000%
Only Effects New Accts	☐

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$59,782	$20,924	$80,706
2019	$60,694	$21,243	$81,937
2020	$61,606	$21,562	$83,167
2021	$63,308	$22,158	$85,466
2022	$65,011	$22,754	$87,765
2023	$66,714	$23,350	$90,064
2024	$68,416	$23,946	$92,362
2025	$70,119	$24,542	$94,661

Targets

View: Accounts

	SF	Total
2018	20,615	20,615
2019	20,929	20,929
2020	21,243	21,243
2021	21,830	21,830
2022	22,418	22,418
2023	23,005	23,005
2024	23,592	23,592
2025	24,179	24,179

Water Savings (mgd)

	Total Savings (mgd)
2018	0.034031
2019	0.068005
2020	0.068470
2021	0.069281
2022	0.070533
2023	0.071781
2024	0.073026
2025	0.074266

District System Optimization Review

Overview	
Name	District System Optimization Review
Abbr	2
Category	Default
Measure Type	Water Loss Measure

Time Period	
First Year	2018

Backlog Costs	
Total Backlog Work Costs	$0
Years to Complete Backlog	0

Maintenance Costs	
Annual Maintenance Costs	$80,750

Target	
Total GPCD Reduction	0.5

Description

Measure covers efforts to find and repair leaks in the distribution system to reduce real water loss. Actions could include installation of data loggers and proactive leak detection. Leak repairs would be handled by existing crews at no extra cost. A ten year program to reduce unaccounted for water to a lower target level such as 10 percent of production or less could be proposed for a combination of this measure and actions to reduce apparent water losses. In conjunction with system accounting, include audits that identify and quantify known legitimate uses of non-revenue water in order to determine remaining unaccounted for water losses. Measure also includes computing Infrastructure Leakage Index (ILI) on an annual basis. Goal would be to lower the ILI and non-revenue water every year by a pre-determined amount based on cost-effectiveness. These programs typically pay for themselves based on savings in operational costs (and saved rate revenue can be directed more to system repairs/replacement and other costs).

Results	
Average Water Savings (mgd)	
0.103197	
Lifetime Savings - Present Value ($)	
Utility	$2,549,706
Community	$2,549,706
Lifetime Costs - Present Value ($)	
Utility	$1,366,405
Community	$1,366,405
Benefit to Cost Ratio	
Utility	1.87
Community	1.87
Cost of Savings per Unit Volume ($/mg)	
Utility	$1,576

Comments

Meter Repairs and Services Budget:
> $80,750 is the estimated budget but $34,445 has been spent, though an additional $32,827 is committed. This budget covers more than just repairs. A breakdown of services is not available. The superintendent will try to drill down further, but for now this is what is available. "Backlogged" items and budgets are NOT tracked.

Costs

	Utility
2018	$80,750
2019	$80,750
2020	$80,750
2021	$80,750
2022	$80,750
2023	$80,750
2024	$80,750
2025	$80,750

Targets

	Projected NRW Percent
2018	7.8%
2019	7.8%
2020	7.8%
2021	7.8%
2022	7.8%
2023	7.8%
2024	7.8%
2025	7.8%

Water Savings (MG/d)

	Total Savings
2018	0.078508
2019	0.079706
2020	0.080903
2021	0.083139
2022	0.085375
2023	0.087611
2024	0.089847
2025	0.092084

Overview

Name	Water Neutrality Ordinance
Abbr	3
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2020
Last Year	2040
Measure Length	21

Measure Life	
Permanent	☑

Fixture Costs

	Utility	Customer	Fix/Acct
SF	$100.00	$2,000.00	1
MF	$300.00	$5,000.00	1
COM	$300.00	$5,000.00	1
INST	$300.00	$5,000.00	1
RES_IRR	$300.00	$5,000.00	1
CII_IRR	$300.00	$5,000.00	1

Administration Costs

Markup Percentage	30%

Description

This measure would require developers of new homes to either contribute money to the water conservation program to help generate the water needed to supply their new development project or conduct water-efficiency fixture direct installations. Might design like AWE's Net Blue Water-Neutral Community. More information here: www.allianceforwaterefficiency.org/net-blue.aspx. Consider modeling after City of Santa Monica program.
Alternatively, this measure could focus on outdoor only and be an aggressive local landscape ordinance that's a step-up from CA's MWELO. Targeting new development only, this measure would aim to achieve "net-zero" outdoor water use by any method including the use of native plants, weather-based irrigation controllers, gray water systems, cisterns and rain barrels, etc. Consider modeling after Cambria CSD program.

Customer Classes

SF	MF	COM	INST	IRR	MISC	RES_IR	CII_IRR
☑	☑	☑	☑	☐	☐	☑	☑

End Uses

	SF	MF	COM	INST	IRR	MISC	RES_IR	CII_IRR
Toilets	☑	☑	☑	☑				
Urinals			☑	☑				
Lavatory Faucets	☑	☑	☑	☑				
Showers	☑	☑	☑	☑				
Dishwashers	☑	☑	☑	☑				
Clothes Washers	☑	☑	☑	☑				
Process			☑					
Kitchen Spray Rinse			☑	☑				
Internal Leakage	☑	☑	☑	☑				
Baths	☑	☑						
Other	☑	☑	☑	☑				
Irrigation	☑	☑	☑	☑			☑	☑
Pools	☑	☑		☑				
Wash Down	☑	☑						
Cooling			☑	☑				
Car Washing	☑	☑						
External Leakage	☑	☑	☑	☑			☑	☑
Outdoor								
tory/Kitchen Faucets	☑	☑	☑	☑				

Comments

> Affect new development for all customer categories except IRR.
> Assume utility costs for plan checks and inspection time. Assume administrative costs for scheduling, follow-up, and reporting.
>Assume average additional customer cost to build by ordinance standards.
>Depending on ordinance design (site budget or matching average of last 5 years of site use), etc., assume reduction to all end uses. Up to 100%, but assume 50% to be conservative at this early stage.
> Assume the amount of irrigated landscape per new development for each individual parcel is reducing over time (meaning that the lot size for homes/businesses is shrinking when comparing existing homes versus new homes/businesses.)
> Utility cost represents 7 hours spent per account with additional time and materials funded by developer fees.
> Customer costs represent fees and device upgrades.

Results

Average Water Savings (mgd)	
2.193054	
Lifetime Savings - Present Value ($)	
Utility	$51,166,060
Community	$79,247,277
Lifetime Costs - Present Value ($)	
Utility	$2,625,418
Community	$42,299,031
Benefit to Cost Ratio	
Utility	19.49
Community	1.87
Cost of Savings per Unit Volume ($/mg)	
Utility	$143

End Use Savings Per Replacement

	% Savings per Account
SF Toilets	50.0%
MF Toilets	50.0%
COM Toilets	50.0%
INST Toilets	50.0%
COM Urinals	50.0%
INST Urinals	50.0%
SF Lavatory Faucets	50.0%
MF Lavatory Faucets	50.0%
COM Lavatory Faucets	50.0%
INST Lavatory Faucets	50.0%
SF Showers	50.0%
MF Showers	50.0%
COM Showers	50.0%
INST Showers	50.0%
SF Dishwashers	50.0%
MF Dishwashers	50.0%
COM Dishwashers	50.0%
INST Dishwashers	50.0%
SF Clothes Washers	50.0%
MF Clothes Washers	50.0%
COM Clothes Washers	50.0%
INST Clothes Washers	50.0%
COM Process	50.0%
OM Kitchen Spray Rins	50.0%
NST Kitchen Spray Rins	50.0%
SF Internal Leakage	50.0%
MF Internal Leakage	50.0%
COM Internal Leakage	50.0%
INST Internal Leakage	50.0%
SF Baths	50.0%
MF Baths	50.0%
SF Other	50.0%
MF Other	50.0%
COM Other	50.0%
INST Other	50.0%
SF Irrigation	50.0%
MF Irrigation	50.0%
COM Irrigation	50.0%
INST Irrigation	50.0%
RES_IRR Irrigation	50.0%
CII_IRR Irrigation	50.0%
SF Pools	50.0%
MF Pools	50.0%
INST Pools	50.0%
SF Wash Down	50.0%
MF Wash Down	50.0%
COM Cooling	50.0%
INST Cooling	50.0%
SF Car Washing	50.0%
MF Car Washing	50.0%
SF External Leakage	50.0%
MF External Leakage	50.0%
COM External Leakage	50.0%
INST External Leakage	50.0%
ES_IRR External Leakag	50.0%
CII_IRR External Leakag	50.0%
on-Lavatory/Kitchen Fa	50.0%
on-Lavatory/Kitchen Fa	50.0%
Non-Lavatory/Kitchen Fa	50.0%
Non-Lavatory/Kitchen Fa	50.0%

Targets

Target Method	Percentage
% of Accts Targeted / yr	100.000%
Only Effects New Accts	☑

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$0	$0	$0
2019	$0	$0	$0
2020	$81,448	$24,434	$105,883
2021	$131,263	$39,379	$170,642
2022	$131,263	$39,379	$170,642
2023	$131,263	$39,379	$170,642
2024	$131,263	$39,379	$170,642
2025	$131,263	$39,379	$170,642

Targets

View: Accounts

	SF	MF	COM	INST	RES_IRR	CII_IRR	Total
2018	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0
2020	629	7	38	2	0	14	691
2021	1,174	13	20	5	0	8	1,220
2022	1,174	13	20	5	0	8	1,220
2023	1,174	13	20	5	0	8	1,220
2024	1,174	13	20	5	0	8	1,220
2025	1,174	13	20	5	0	8	1,220

Water Savings (mgd)

	Total Savings (mgd)
2018	0.000000
2019	0.000000
2020	0.149782
2021	0.373296
2022	0.593061
2023	0.809344
2024	1.022364
2025	1.232310

CII Indoor Water Efficiency Evaluation

Overview	
Name	CII Indoor Water Efficiency Evalua
Abbr	4
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2020
Last Year	2040
Measure Length	21

Measure Life	
Permanent	☐
Years	10
Repeat	☐

Fixture Costs	Utility	Customer	Fix/Acct
COM	$2,500.00	$1,500.00	1
INST	$2,500.00	$1,500.00	1

Administration Costs	
Markup Percentage	30%

Description

Conduct a multi-step process for identifying customers, including: online pre-screening, phone call screening, on-site evaluation, incentives offering, and follow-up/site visit and water use tracking. This measure includes documenting inventory of current water using fixtures to support commercial program design and benchmarking.

Top water user customers from each category would be offered a professional water evaluation that would evaluate ways to save water and money. The evaluation would be for large accounts (i.e., accounts that use more than 5,000 gallons of water per day) such as microbreweries, hotels, restaurants, stores and schools. Measure to encourage participation in inefficient equipment upgrade and rebate measure for water efficient equipment including x-ray machines, icemakers, air-cooled ice machines, steamers, washers, spray valves, efficient dishwashers, replace once through cooling, and add conductivity controller on cooling towers.

Customer Classes

SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
☐	☐	☑	☑	☐	☐	☐	☐

End Uses

	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
Toilets			☑	☑				
Urinals			☑	☑				
Lavatory Faucets			☑	☑				
Showers			☑	☑				
Dishwashers			☑	☑				
Clothes Washers			☑	☑				
Process			☑					
Kitchen Spray Rinse			☑	☑				
Internal Leakage			☑	☑				
Baths								
Other			☑	☑				
Irrigation			☐	☐				
Pools				☑				
Wash Down								
Cooling			☑	☑				
Car Washing								
External Leakage			☐	☐				
Outdoor								
tory/Kitchen Faucets			☑	☑				

Comments

> Assume $2,500 cost for site evaluation and $1,500 for CII customer to address recommendations.

> Costs and savings assume actual site visit customer water efficiency evaluations are conducted, and do NOT include prescreened-only customers (online and phone calls).

Results

Average Water Savings (mgd)	
0.007719	
Lifetime Savings - Present Value ($)	
Utility	$192,068
Community	$348,173
Lifetime Costs - Present Value ($)	
Utility	$525,084
Community	$767,430
Benefit to Cost Ratio	
Utility	0.37
Community	0.45
Cost of Savings per Unit Volume ($/mg)	
Utility	$8,097

End Use Savings Per Replacement

	% Savings per Account
COM Toilets	15.0%
INST Toilets	15.0%
COM Urinals	15.0%
INST Urinals	15.0%
COM Lavatory Faucets	15.0%
INST Lavatory Faucets	15.0%
COM Showers	15.0%
INST Showers	15.0%
COM Dishwashers	15.0%
INST Dishwashers	15.0%
COM Clothes Washers	15.0%
INST Clothes Washers	15.0%
COM Process	15.0%
COM Kitchen Spray Rins	15.0%
NST Kitchen Spray Rins	15.0%
COM Internal Leakage	15.0%
INST Internal Leakage	15.0%
COM Other	15.0%
INST Other	15.0%
INST Pools	15.0%
COM Cooling	15.0%
INST Cooling	15.0%
Non-Lavatory/Kitchen Fa	15.0%
Non-Lavatory/Kitchen Fa	15.0%

Targets

Target Method	Percentage
% of Accts Targeted / yr	1.000%
Only Effects New Accts	☐

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$0	$0	$0
2019	$0	$0	$0
2020	$21,092	$6,328	$27,419
2021	$21,714	$6,514	$28,228
2022	$22,337	$6,701	$29,037
2023	$22,959	$6,888	$29,847
2024	$23,581	$7,074	$30,656
2025	$24,204	$7,261	$31,465

Targets

View: Accounts

	COM	INST	Total
2018	0	0	0
2019	0	0	0
2020	7	2	8
2021	7	2	9
2022	7	2	9
2023	7	2	9
2024	8	2	9
2025	8	2	10

Water Savings (mgd)

	Total Savings (mgd)
2018	0.000000
2019	0.000000
2020	0.000934
2021	0.001881
2022	0.002839
2023	0.003810
2024	0.004791
2025	0.005784

CII Rebates to Replace Inefficient Equipment

Overview	
Name	CII Rebates to Replace Inefficient
Abbr	5
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2018
Last Year	2040
Measure Length	23

Measure Life	
Permanent	☑

Fixture Costs	Utility	Customer	Fix/Acct
COM	$175.00	$3,500.00	1
INST	$175.00	$3,500.00	1

Administration Costs	
Markup Percentage	35%

Description

Measure to offer rebates for a standard list of water efficient equipment. Included would be x-ray machines, icemakers, air-cooled ice machines, steamers, washers, spray valves, efficient dishwashers, replace once through cooling, dry vacuum pump and conductivity controller on cooling towers. Eligible project costs include labor, hardware and may include annual water management fees. This measure is planned to evolve as technology changes.

Customer Classes	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
	☐	☐	☑	☑	☐	☐	☐	☐

End Uses	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
Toilets			☑	☑				
Urinals			☑	☑				
Lavatory Faucets			☑	☑				
Showers			☑	☑				
Dishwashers			☑	☑				
Clothes Washers			☑	☑				
Process			☑					
Kitchen Spray Rinse			☑	☑				
Internal Leakage			☑	☑				
Baths								
Other			☑	☑				
Irrigation			☐	☐				
Pools				☐				
Wash Down								
Cooling			☑	☑				
Car Washing								
External Leakage			☐	☐				
Outdoor								
tory/Kitchen Faucets			☑	☑				

Comments

> Water Districts such as the East Bay Municipal Utility District and Metropolitan Water District of Southern California provide about $0.50 per 748 gallons (1 billing unit) saved to sites within the utility's service area.
> Incentives to follow-up field evaluation recommendations, but a site visit (evaluation) is NOT required.
> The marketing for this will be included in the CII Water Efficiency Evaluation measure.
> This measure is paid for and conducted by SoCal WaterSmart.
> Utility cost represents 2-3 hour/acct to track participation ($45/hr including benefits).
> Customer costs will vary

Results	
Average Water Savings (mgd)	
0.015829	
Lifetime Savings - Present Value ($)	
Utility	$389,069
Community	$707,772
Lifetime Costs - Present Value ($)	
Utility	$83,629
Community	$1,322,579
Benefit to Cost Ratio	
Utility	4.65
Community	0.54
Cost of Savings per Unit Volume ($/mg)	
Utility	$629

End Use Savings Per Replacement	% Savings per Account
COM Toilets	10.0%
INST Toilets	10.0%
COM Urinals	10.0%
INST Urinals	10.0%
COM Lavatory Faucets	10.0%
INST Lavatory Faucets	10.0%
COM Showers	10.0%
INST Showers	10.0%
COM Dishwashers	10.0%
INST Dishwashers	10.0%
COM Clothes Washers	10.0%
INST Clothes Washers	10.0%
COM Process	10.0%
COM Kitchen Spray Rins	10.0%
NST Kitchen Spray Rins	10.0%
COM Internal Leakage	10.0%
INST Internal Leakage	10.0%
COM Other	10.0%
INST Other	10.0%
COM Cooling	10.0%
INST Cooling	10.0%
Non-Lavatory/Kitchen Fa	10.0%
Non-Lavatory/Kitchen Fa	10.0%

Targets	
Target Method	Percentage
% of Accts Targeted / yr	2.000%
Only Effects New Accts	☐

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$2,671	$935	$3,605
2019	$2,812	$984	$3,796
2020	$2,953	$1,034	$3,986
2021	$3,040	$1,064	$4,104
2022	$3,127	$1,094	$4,222
2023	$3,214	$1,125	$4,339
2024	$3,301	$1,155	$4,457
2025	$3,388	$1,186	$4,574

Targets

View: Accounts

	COM	INST	Total
2018	12	3	15
2019	13	3	16
2020	14	3	17
2021	14	3	17
2022	14	4	18
2023	15	4	18
2024	15	4	19
2025	16	4	19

Water Savings (mgd)

	Total Savings (mgd)
2018	0.001148
2019	0.002325
2020	0.003535
2021	0.004770
2022	0.006020
2023	0.007286
2024	0.008568
2025	0.009863

Public Agency Program

Overview	
Name	Public Agency Program
Abbr	6
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2019
Last Year	2023
Measure Length	5

Measure Life	
Permanent	☑

Fixture Costs	Utility	Customer	Fix/Acct
INST	$135.00	$10,000.00	1

Administration Costs	
Markup Percentage	30%

Description

Measure will provide government facilities with enhanced financial incentives to replace indoor fixtures and upgrade landscape irrigation systems. To encourage agencies that have not already installed water-efficient landscape equipment to do so, SoCal Water$mart has a Public Agency program, offering enhanced incentives paid up-front for public agencies to install water-efficient devices at their facilities and on their grounds. EVMWD staff will assist with rebate applications as needed.

Customer Classes	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
	☐	☐	☐	☑	☐	☐	☐	☐

End Uses	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
Toilets				☑				
Urinals				☑				
Lavatory Faucets				☑				
Showers				☑				
Dishwashers				☑				
Clothes Washers				☑				
Process								
Kitchen Spray Rinse				☑				
Internal Leakage				☑				
Baths								
Other				☑				
Irrigation				☑				
Pools				☑				
Wash Down								
Cooling				☑				
Car Washing								
External Leakage				☑				
Outdoor								
tory/Kitchen Faucets				☑				

Comments

> Targeted rebate.
> No site survey or follow-up visit assuming/trusting that government buildings already have a dedicated maintenance person to do this.
> Savings based on potential average savings per site/account - will vary significantly.
> Costs include 2-3 hours of conservation staff time per account for assisting with the rebate application.

Results	
Average Water Savings (mgd)	
0.004283	
Lifetime Savings - Present Value ($)	
Utility	$109,972
Community	$158,053
Lifetime Costs - Present Value ($)	
Utility	$3,450
Community	$200,021
Benefit to Cost Ratio	
Utility	31.88
Community	0.79
Cost of Savings per Unit Volume ($/mg)	
Utility	$96

End Use Savings Per Replacement	% Savings per Account
INST Toilets	20.0%
INST Urinals	20.0%
INST Lavatory Faucets	20.0%
INST Showers	20.0%
INST Dishwashers	20.0%
INST Clothes Washers	20.0%
NST Kitchen Spray Rins	20.0%
INST Internal Leakage	20.0%
INST Other	20.0%
INST Irrigation	20.0%
INST Pools	20.0%
INST Cooling	20.0%
INST External Leakage	20.0%
Non-Lavatory/Kitchen Fa	20.0%

Targets	
Target Method	Percentage
% of Accts Targeted / yr	2.500%
Only Effects New Accts	☐

Costs — View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$0	$0	$0
2019	$555	$167	$722
2020	$563	$169	$732
2021	$579	$174	$753
2022	$595	$178	$773
2023	$610	$183	$793
2024	$0	$0	$0
2025	$0	$0	$0

Targets — View: Accounts

	INST	Total
2018	0	0
2019	4	4
2020	4	4
2021	4	4
2022	4	4
2023	5	5
2024	0	0
2025	0	0

Water Savings (mgd)

	Total Savings (mgd)
2018	0.000000
2019	0.000990
2020	0.001996
2021	0.003027
2022	0.004073
2023	0.005138
2024	0.005113
2025	0.005081

Require Plan Review for New CII

Overview	
Name	Require Plan Review for New CII
Abbr	7
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2020
Last Year	2040
Measure Length	21

Measure Life	
Permanent	☑

Fixture Costs	Utility	Customer	Fix/Acct
COM	$45.00	$500.00	1
INST	$45.00	$500.00	1

Administration Costs	
Markup Percentage	30%

Description

Require plan reviews for water use efficiency for all new business customers.

Customer Classes	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
	☐	☐	☑	☑	☐	☐	☐	☐

End Uses	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
Toilets			☑	☑				
Urinals			☑	☑				
Lavatory Faucets			☑	☑				
Showers			☑	☑				
Dishwashers			☑	☑				
Clothes Washers			☑	☑				
Process			☑					
Kitchen Spray Rinse			☑	☑				
Internal Leakage			☑	☑				
Baths								
Other			☑	☑				
Irrigation			☐	☐				
Pools				☑				
Wash Down								
Cooling			☑	☑				
Car Washing								
External Leakage			☐	☐				
Outdoor								
tory/Kitchen Faucets			☑	☑				

Comments

> Assume 1 hour of plan review by EVMWD staff. $45 equals hourly rate plus benefits.
> Customer cost reflects average increased cost to address plan review results.
> 1% savings assumes Elsinore will catch items (savings opportunities) in their plan review - some would be clean and save 0% - others would NOT be clean and could save more than 5-10%. To be conservative assume 1%.
> Irrigation and External Leakage is covered in MWELO measure

Results	
Average Water Savings (mgd)	
0.001885	
Lifetime Savings - Present Value ($)	
Utility	$46,104
Community	$83,881
Lifetime Costs - Present Value ($)	
Utility	$22,755
Community	$217,247
Benefit to Cost Ratio	
Utility	2.03
Community	0.39
Cost of Savings per Unit Volume ($/mg)	
Utility	$1,437

End Use Savings Per Replacement	% Savings per Account
COM Toilets	1.0%
COM Urinals	1.0%
COM Lavatory Faucets	1.0%
COM Showers	1.0%
COM Dishwashers	1.0%
COM Clothes Washers	1.0%
COM Process	1.0%
COM Kitchen Spray Rins	1.0%
COM Internal Leakage	1.0%
COM Other	1.0%
COM Cooling	1.0%
Non-Lavatory/Kitchen Fa	1.0%
INST Toilets	1.0%
INST Urinals	1.0%
INST Lavatory Faucets	1.0%
INST Showers	1.0%
INST Dishwashers	1.0%
INST Clothes Washers	1.0%
NST Kitchen Spray Rins	1.0%
INST Internal Leakage	1.0%
INST Other	1.0%
INST Pools	1.0%
INST Cooling	1.0%
Non-Lavatory/Kitchen Fa	1.0%

Targets	
Target Method	Percentage
% of Accts Targeted / yr	100.000%
Only Effects New Accts	☑

Costs — View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$0	$0	$0
2019	$0	$0	$0
2020	$1,815	$545	$2,360
2021	$1,120	$336	$1,456
2022	$1,120	$336	$1,456
2023	$1,120	$336	$1,456
2024	$1,120	$336	$1,456
2025	$1,120	$336	$1,456

Targets — View: Accounts

	COM	INST	Total
2018	0	0	0
2019	0	0	0
2020	38	2	40
2021	20	5	25
2022	20	5	25
2023	20	5	25
2024	20	5	25
2025	20	5	25

Water Savings (mgd)

	Total Savings (mgd)
2018	0.000000
2019	0.000000
2020	0.000295
2021	0.000474
2022	0.000651
2023	0.000825
2024	0.000996
2025	0.001165

CII Leak Alert

Overview	
Name	CII Leak Alert
Abbr	8
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2019
Last Year	2040
Measure Length	22

Measure Life	
Permanent	☑

Fixture Costs	Utility	Customer	Fix/Acct
IRR	$90.00	$250.00	1
RES_IRR	$90.00	$250.00	1
CII_IRR	$90.00	$250.00	1

Administration Costs	
Markup Percentage	30%

Description

This measure will use AMI data through the AquaHawk Alerting Portal to identify leaks in CII and dedicated Irrigation accounts. EVWMD requires all new CII developments to install dedicated irrigation meters.

Customer Classes	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
	☐	☐	☐	☐	☑	☐	☑	☑

End Uses	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
Toilets								
Urinals								
Lavatory Faucets								
Showers								
Dishwashers								
Clothes Washers								
Process								
Kitchen Spray Rinse								
Internal Leakage								
Baths								
Other								
Irrigation					☐		☐	☐
Pools								
Wash Down								
Cooling								
Car Washing								
External Leakage					☑		☑	☑
Outdoor								
tory/Kitchen Faucets								

Comments

> Leakage savings can be VERY high for high users. Targeting high users and so saving more. Targeting only dedicated landscape accounts since other accounts/properties already have separate dedicated landscape meters.
> Since this ordinance has been in place for a while, we'll target leakage only and not irrigation use.
> This is already a measure being implemented at EVMWD. No threshold volume for installing a dedicated landscape meter; admin code states dedicated landscape meters for the use of irrigating outside landscape. Residential properties do NOT have them - NEW CII properties must have dedicated landscape meters if they have landscape; developer pays to have the meter services put in.
> Cost represents monthly time spent to identify leaking accounts and connect with them - approx. 1-2 hr/acct to: review usage, send email notice or call, and possibly schedule a site evaluation if interested. $45/hour.
> Target 10% of dedicated landscape accts per year, so roughly 68/year or 5-6 accts/month to be contacted regarding high usage/leak alerts and to also offer water efficiency evaluations.

Results	
Average Water Savings (mgd)	
0.099422	
Lifetime Savings - Present Value ($)	
Utility	$2,209,159
Community	$2,209,159
Lifetime Costs - Present Value ($)	
Utility	$120,685
Community	$378,559
Benefit to Cost Ratio	
Utility	18.31
Community	5.84
Cost of Savings per Unit Volume ($/mg)	
Utility	$144

End Use Savings Per Replacement	% Savings per Account
IRR External Leakage	60.0%
ES_IRR External Leakag	60.0%
CII_IRR External Leakag	60.0%

Targets	
Target Method	Percentage
% of Accts Targeted / yr	5.000%
Only Effects New Accts	☐

Costs — View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$0	$0	$0
2019	$4,361	$1,308	$5,669
2020	$4,618	$1,385	$6,003
2021	$4,756	$1,427	$6,183
2022	$4,894	$1,468	$6,363
2023	$5,033	$1,510	$6,542
2024	$5,171	$1,551	$6,722
2025	$5,309	$1,593	$6,902

Targets — View: Accounts

	IRR	RES_IRR	CII_IRR	Total
2018	0	0	0	0
2019	36	0	12	48
2020	38	0	13	51
2021	39	0	13	53
2022	40	0	14	54
2023	42	0	14	56
2024	43	0	14	57
2025	44	0	15	59

Water Savings (mgd)

	Total Savings (mgd)
2018	0.000000
2019	0.007178
2020	0.014777
2021	0.022604
2022	0.030659
2023	0.038942
2024	0.047452
2025	0.056189

Cooling Tower Regulations

Overview	
Name	Cooling Tower Regulations
Abbr	9
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2020
Last Year	2040
Measure Length	21

Measure Life	
Permanent	☑

Fixture Costs	Utility	Customer	Fix/Acct
COM	$350.00	$1,000.00	1
INST	$350.00	$1,000.00	1

Administration Costs	
Markup Percentage	30%

Description

This measure will prohibit the discharge of cooling tower blow down unless the TDS of the water is at least a certain level (that would ensure a minimum of 5 cycles of concentration). Available cooling tower equipment rebates will be promoted.

Customer Classes

	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
	☐	☐	☑	☑	☐	☐	☐	☐

End Uses

	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
Toilets			☐	☐				
Urinals			☐	☐				
Lavatory Faucets			☐	☐				
Showers			☐	☐				
Dishwashers			☐	☐				
Clothes Washers			☐	☐				
Process			☐					
Kitchen Spray Rinse			☐	☐				
Internal Leakage			☐	☐				
Baths								
Other			☐	☐				
Irrigation			☐	☐				
Pools				☐				
Wash Down								
Cooling			☑	☑				
Car Washing								
External Leakage			☑	☑				
Outdoor								
tory/Kitchen Faucets			☐	☐				

Comments

> Savings depend on existing practices. Assumes many will be able to at least double if not triple their cycles. Increased savings values further since targeting above average CII cooling end use (versus avg site cooling).
> Very often significant leaks are identified inside the tower and/or inside the piping.
> Utility costs represent site visit and education (for staff and site) as well as regulation set-up. Approx 8 hrs/acct.
> Customer costs will vary and represent costs to meet regulations - may be higher initially and then after a few years of the regulation being enforced, lessen.
> Target approximately 20% of eligible sites per year, approx. 40 accounts.
> Might pattern regulations after the State of Arizona or LACWD.

Results

Average Water Savings (mgd)	
0.016527	
Lifetime Savings - Present Value ($)	
Utility	$363,775
Community	$363,775
Lifetime Costs - Present Value ($)	
Utility	$367,559
Community	$1,175,379
Benefit to Cost Ratio	
Utility	0.99
Community	0.31
Cost of Savings per Unit Volume ($/mg)	
Utility	$2,647

End Use Savings Per Replacement

	% Savings per Account
COM Cooling	75.0%
INST Cooling	75.0%
COM External Leakage	50.0%
INST External Leakage	50.0%

Targets

Target Method	Percentage
% of Accts Targeted / yr	5.000%
Only Effects New Accts	☐

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$0	$0	$0
2019	$0	$0	$0
2020	$14,764	$4,429	$19,194
2021	$15,200	$4,560	$19,760
2022	$15,636	$4,691	$20,326
2023	$16,071	$4,821	$20,893
2024	$16,507	$4,952	$21,459
2025	$16,942	$5,083	$22,025

Targets

View: Accounts

	COM	INST	Total
2018	0	0	0
2019	0	0	0
2020	34	8	42
2021	35	9	43
2022	36	9	45
2023	37	9	46
2024	38	9	47
2025	39	10	48

Water Savings (mgd)

	Total Savings (mgd)
2018	0.000000
2019	0.000000
2020	0.001363
2021	0.002766
2022	0.004208
2023	0.005689
2024	0.007210
2025	0.008770

Financial Incentives for CII Irrigation and Landscape Upgrades

Overview	
Name	Financial Incentives for CII Irrigation and Lar
Abbr	10
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2018
Last Year	2040
Measure Length	23

Measure Life	
Permanent	☐
Years	10
Repeat	☐

Fixture Costs	Utility	Customer	Fix/Acct
COM	$560.00	$5,000.00	1
INST	$560.00	$5,000.00	1
IRR	$560.00	$5,000.00	1
CII_IRR	$560.00	$5,000.00	1

Administration Costs	
Markup Percentage	35%

Description

After the free water use evaluation has been completed, recommendations will be analyzed and provided to the customer. Free evaluations may be on-site or via a pre-screening online step. Staff may provide assistance with completing rebate applications. Rebates may include such items as sprinkler nozzles, weather based irrigation controllers ("smart timers"), soil moisture sensors, mulch, drip irrigation, rain barrels and cisterns. Rebates primarily offered through SoCal WaterSmart with Elsinore offering drip irrigation system rebates.

Customer Classes

	SF	MF	COM	INST	IRR	MISC	RES_IR	CII_IRR
	☐	☐	☑	☑	☑	☐	☐	☑

End Uses

	SF	MF	COM	INST	IRR	MISC	RES_IR	CII_IRR
Toilets			☐	☐				
Urinals			☐	☐				
Lavatory Faucets			☐	☐				
Showers			☐	☐				
Dishwashers			☐	☐				
Clothes Washers			☐	☐				
Process			☐					
Kitchen Spray Rinse			☐	☐				
Internal Leakage			☐	☐				
Baths								
Other			☐	☐				
Irrigation			☑	☑	☑			☑
Pools				☐				
Wash Down								
Cooling			☐	☐				
Car Washing								
External Leakage			☐	☐	☐			☐
Outdoor								
tory/Kitchen Faucets			☐	☐				

Comments

> Savings will range from 5% (for solely mulch) to >20% (for drip irrigation and combinations of devices).
> Soil moisture sensor device savings are estimated to be 20% of irrigation use based on more than 10 California site water use reports conducted over multiple months in years 2015-2017 as provided by Brian Holland www.sustainablewatersavings.com. Studies show a range of 20%-60% savings for trained device installation and site management. The lower savings estimate is assumed for layperson usage and non-drought normal planning years. The manufacturer claims device batteries last 10-12 years.
> Utility cost represents Elsinore's average rebate amount per account (not SoCal WaterSmart) and allows for multiple devices to be rebated.
> Target represents SoCal WaterSmart and Elsinore combined measure participation.

Results

Average Water Savings (mgd)	
0.306635	
Lifetime Savings - Present Value ($)	
Utility	$7,153,055
Community	$7,153,055
Lifetime Costs - Present Value ($)	
Utility	$11,243,990
Community	$11,243,990
Benefit to Cost Ratio	
Utility	4.84
Community	0.64
Cost of Savings per Unit Volume ($/mg)	
Utility	$573

End Use Savings Per Replacement	% Savings per Account
COM Irrigation	18.0%
INST Irrigation	18.0%
IRR Irrigation	18.0%
CII_IRR Irrigation	18.0%

Targets	
Target Method	Percentage
% of Accts Targeted / yr	5.000%
Only Effects New Accts	☐

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$46,676	$16,337	$63,013
2019	$49,400	$17,290	$66,690
2020	$52,125	$18,244	$70,368
2021	$53,676	$18,786	$72,462
2022	$55,227	$19,329	$74,556
2023	$56,778	$19,872	$76,650
2024	$58,329	$20,415	$78,744
2025	$59,880	$20,958	$80,838

Targets

View: Accounts

	COM	INST	IRR	CII_IRR	Total
2018	30	8	34	11	83
2019	32	8	36	12	88
2020	34	8	38	13	93
2021	35	9	39	13	96
2022	36	9	40	14	99
2023	37	9	42	14	101
2024	38	9	43	14	104
2025	39	10	44	15	107

Water Savings (mgd)

	Total Savings (mgd)
2018	0.027797
2019	0.057319
2020	0.088566
2021	0.120748
2022	0.153865
2023	0.187916
2024	0.222903
2025	0.258825

Large Landscape Outdoor Water Efficiency Evaluation

Overview	
Name	Large Landscape Outdoor Water E
Abbr	11
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2018
Last Year	2040
Measure Length	23

Measure Life	
Permanent	☐
Years	10
Repeat	☐

Fixture Costs	Utility	Customer	Fix/Acct
IRR	$2,500.00	$500.00	1
RES_IRR	$2,500.00	$500.00	1
CII_IRR	$2,500.00	$500.00	1

Administration Costs	
Markup Percentage	35%

Description

All public and private irrigators of large landscapes, including residential and commercial, will be eligible for free landscape water efficiency evaluations. Customers with high water use will be targeted and provided a customized report. Evaluations include irrigation system assessment, irrigation schedule, and report. A consultant will be used to conduct the evaluation.

Customer Classes	SF	MF	COM	INST	IRR	MISC	RES_IR	CII_IRR
	☐	☐	☐	☐	☑	☐	☑	☑

End Uses	SF	MF	COM	INST	IRR	MISC	RES_IR	CII_IRR
Toilets								
Urinals								
Lavatory Faucets								
Showers								
Dishwashers								
Clothes Washers								
Process								
Kitchen Spray Rinse								
Internal Leakage								
Baths								
Other								
Irrigation					☑		☑	☑
Pools								
Wash Down								
Cooling								
Car Washing								
External Leakage					☑		☑	☑
Outdoor								
tory/Kitchen Faucets								

Comments

> Usage history is provided to person doing the evaluation. Currently there is no screening process, but typically it is only offered to properties with high usage. No charge from WMWD who offers about 3 per year. This is offered to any property with a landscape.
> No site water budget will be offered.
> Incentives are limited to the full cost of the evaluation; no restriction on application for additional landscape device rebates.
> Utility costs assume all large landscape accounts apply.
> Customer costs represent cost to implement evaluation suggestions.
> Haley 2/16/18: Only include "IRR", "RES_IRR" and "CII_IRR" accounts. $1500-$2500 for consultant to conduct evaluation. Target 25 per year (and assume 2-3 are done by Western). Start 2019.

Results	
Average Water Savings (mgd)	
0.137087	
Lifetime Savings - Present Value ($)	
Utility	$3,197,855
Community	$3,197,855
Lifetime Costs - Present Value ($)	
Utility	$1,454,081
Community	$1,669,500
Benefit to Cost Ratio	
Utility	2.20
Community	1.92
Cost of Savings per Unit Volume ($/mg)	
Utility	$1,263

End Use Savings Per Replacement	% Savings per Account
IRR Irrigation	20.0%
RES_IRR Irrigation	20.0%
CII_IRR Irrigation	20.0%
IRR External Leakage	10.0%
ES_IRR External Leakag	10.0%
II_IRR External Leakag	10.0%

Targets	
Target Method	Percentage
% of Accts Targeted / yr	2.000%
Only Effects New Accts	☐

Costs — View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$45,600	$15,960	$61,560
2019	$48,454	$16,959	$65,413
2020	$51,308	$17,958	$69,266
2021	$52,845	$18,496	$71,340
2022	$54,381	$19,033	$73,414
2023	$55,918	$19,571	$75,489
2024	$57,454	$20,109	$77,563
2025	$58,991	$20,647	$79,637

Targets — View: Accounts

	IRR	RES_IRR	CII_IRR	Total
2018	14	0	5	18
2019	14	0	5	19
2020	15	0	5	21
2021	16	0	5	21
2022	16	0	5	22
2023	17	0	6	22
2024	17	0	6	23
2025	18	0	6	24

Water Savings (mgd)

	Total Savings (mgd)
2018	0.012417
2019	0.025610
2020	0.039579
2021	0.053966
2022	0.068772
2023	0.083996
2024	0.099638
2025	0.115698

Landscape Conversion or Turf Removal - CII

Overview	
Name	Landscape Conversion or Turf Removal - CII
Abbr	12
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2019
Last Year	2023
Measure Length	5

Measure Life	
Permanent	☑

Fixture Costs

	Utility	Customer	Fix/Acct
COM	$135.00	$15,000.00	1
INST	$135.00	$15,000.00	1
IRR	$135.00	$15,000.00	1
CII_IRR	$135.00	$15,000.00	1

Administration Costs	
Markup Percentage	30%

Description

Turf grass is one of the most water intensive plant types in landscape. It's high water uses and frequent maintenance make it a time consuming and expensive landscape option. By replacing turf with a California Friendly landscape, customers can save money on their water bill, reduce landscape maintenance costs and demonstrate that they care about conserving water. This measure provides a per square foot incentive for supporting the customer's cost to remove turf and replace with low water use plants or permeable hardscape. Rebate based on dollars per square foot removed, and capped at an upper limit per account. Measure includes a pre- and post inspection of the landscape retrofit.

Customer Classes

SF	MF	COM	INST	IRR	MISC	RES_IR	CII_IRR
☐	☐	☑	☑	☑	☐	☐	☑

End Uses

	SF	MF	COM	INST	IRR	MISC	RES_IR	CII_IRR
Toilets			☐	☐				
Urinals			☐	☐				
Lavatory Faucets			☐	☐				
Showers			☐	☐				
Dishwashers			☐	☐				
Clothes Washers			☐	☐				
Process			☐					
Kitchen Spray Rinse			☐	☐				
Internal Leakage			☑	☑				
Baths								
Other			☐	☐				
Irrigation			☑	☑	☑			☑
Pools				☐				
Wash Down								
Cooling			☐	☐				
Car Washing								
External Leakage			☐	☐	☐			☐
Outdoor								
tory/Kitchen Faucets			☐	☐				

Comments

> Savings estimates range from 15%- over 50%. Depends on what's eligible. VWC estimates 25%, Liberty Utilities (Park Water Company) estimates 18%.
> Synthetic turf not eligible.
> Discontinued by SoCal WaterSmart, but will start again 2018.
> Include "IRR" and "CII_IRR".
> Assume some reduction in external leakage with turf replacement.
> Rebate most likely $1sq/ft since CII properties tend to have larger landscapes, need to reduce rebate so we can fund more projects.
> Met will offer $1/sqft with max of $10K
> Assume SoCal WaterSmart pays and does all.
> Target ~ 15 per year
> Utility costs assume 2-3 hours per account (@$45/hr) to track participation.

Results

Average Water Savings (mgd)	
	0.038651
Lifetime Savings - Present Value ($)	
Utility	$939,051
Community	$940,453
Lifetime Costs - Present Value ($)	
Utility	$15,306
Community	$1,323,469
Benefit to Cost Ratio	
Utility	61.35
Community	0.71
Cost of Savings per Unit Volume ($/mg)	
Utility	$47

End Use Savings Per Replacement

	% Savings per Account
COM Internal Leakage	5.0%
INST Internal Leakage	5.0%
COM Irrigation	25.0%
INST Irrigation	25.0%
IRR Irrigation	25.0%
CII_IRR Irrigation	25.0%

Targets

Target Method	Percentage
% of Accts Targeted / yr	1.000%
Only Effects New Accts	☐

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$0	$0	$0
2019	$2,382	$715	$3,096
2020	$2,513	$754	$3,267
2021	$2,588	$776	$3,364
2022	$2,663	$799	$3,462
2023	$2,738	$821	$3,559
2024	$0	$0	$0
2025	$0	$0	$0

Targets

View: Accounts

	COM	INST	IRR	CII_IRR	Total
2018	0	0	0	0	0
2019	6	2	7	2	18
2020	7	2	8	3	19
2021	7	2	8	3	19
2022	7	2	8	3	20
2023	7	2	8	3	20
2024	0	0	0	0	0
2025	0	0	0	0	0

Water Savings (mgd)

	Total Savings (mgd)
2018	0.000000
2019	0.008223
2020	0.016927
2021	0.025891
2022	0.035116
2023	0.044601
2024	0.044601
2025	0.044601

Landscape Conversion or Turf Removal - Residential

Overview	
Name	Landscape Conversion or Turf Rer
Abbr	13
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2019
Last Year	2023
Measure Length	5

Measure Life	
Permanent	☑

Fixture Costs	Utility	Customer	Fix/Acct
SF	$90.00	$1,500.00	1
MF	$90.00	$1,500.00	3
RES_IRR	$90.00	$1,500.00	3

Administration Costs	
Markup Percentage	35%

Description

Turf grass is one of the most water intensive plant types in landscape. It's high water uses and frequent maintenance make it a time consuming and expensive landscape option. By replacing turf with a California Friendly landscape, customers can save money on their water bill, reduce landscape maintenance costs and demonstrate that they care about conserving water.
This measure provides a per square foot incentive for supporting the customer's cost to remove turf and replace with low water use plants or permeable hardscape. Rebate based on dollars per square foot removed, and capped at an upper limit for single family residence. Measure includes a pre- and post inspection of the landscape retrofit.

Customer Classes	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
	☑	☑	☐	☐	☐	☐	☑	☐

End Uses	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
Toilets	☐	☐						
Urinals								
Lavatory Faucets	☐	☐						
Showers	☐	☐						
Dishwashers	☐	☐						
Clothes Washers	☐	☐						
Process								
Kitchen Spray Rinse								
Internal Leakage	☐	☐						
Baths	☐	☐						
Other	☐	☐						
Irrigation	☑	☑					☑	
Pools	☐	☐						
Wash Down	☐	☐						
Cooling								
Car Washing	☐	☐						
External Leakage	☑	☑					☑	
Outdoor								
tory/Kitchen Faucets	☐	☐						

Comments

Will participate in SoCal WaterSmart program if reopened in July 2018; if it doesn't re-open, will change EVWMD rebate/cost to $2/sqft assuming average sqft removed is 1,500 sqft.
> Elsinore will support SoCal WaterSmart $2/sqft rebate, and not provide any additional funding.
> Based on recent landscape measure low participation (drip conversion), target set to ~50/year
> Synthetic turf likely NOT eligible since limits groundwater recharge.
> Savings estimates range from 15%- over 50%. Depends on what's eligible. VWC estimates 25%, Liberty Utilities (Park Water Company) estimates 18%.
> Assume some reduction in external leakage with turf replacement.
> Utility costs represents two hours per account to track participation.

Results	
Average Water Savings (mgd)	
0.006512	
Lifetime Savings - Present Value ($)	
Utility	$158,234
Community	$158,234
Lifetime Costs - Present Value ($)	
Utility	$30,186
Community	$402,859
Benefit to Cost Ratio	
Utility	5.24
Community	0.39
Cost of Savings per Unit Volume ($/mg)	
Utility	$552

End Use Savings Per Replacement	% Savings per Account
SF Irrigation	25.0%
SF External Leakage	5.0%
MF Irrigation	25.0%
MF External Leakage	5.0%
RES_IRR Irrigation	25.0%
ES_IRR External Leakag	5.0%

Targets	
Target Method	Percentage
% of Accts Targeted / yr	0.120%
Only Effects New Accts	☐

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$0	$0	$0
2019	$4,677	$1,637	$6,314
2020	$4,747	$1,662	$6,409
2021	$4,879	$1,708	$6,586
2022	$5,010	$1,753	$6,763
2023	$5,141	$1,799	$6,941
2024	$0	$0	$0
2025	$0	$0	$0

Targets

View: Accounts

	SF	MF	RES_IRR	Total
2018	0	0	0	0
2019	50	1	0	51
2020	51	1	0	52
2021	52	1	0	53
2022	54	1	0	54
2023	55	1	0	56
2024	0	0	0	0
2025	0	0	0	0

Water Savings (mgd)

	Total Savings (mgd)
2018	0.000000
2019	0.001436
2020	0.002893
2021	0.004391
2022	0.005929
2023	0.007507
2024	0.007507
2025	0.007507

Overview

Name	Water Conserving Landscape and Irrigation Codes
Abbr	14
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2018
Last Year	2040
Measure Length	23

Measure Life	
Permanent	☑

Fixture Costs

	Utility	Customer	Fix/Acct
SF	$90.00	$2,000.00	1
MF	$90.00	$5,000.00	1
COM	$90.00	$5,000.00	1
INST	$90.00	$5,000.00	1
IRR	$90.00	$5,000.00	1
RES_IRR	$90.00	$2,000.00	1
CII_IRR	$90.00	$5,000.00	1

Administration Costs

Markup Percentage	35%

Description

Enforce Model Water Efficient Landscape Ordinance (MWELO). Standards specify that development projects subject to design review be landscaped according to climate appropriate principals, with appropriate turf ratios, plant selection, efficient irrigation systems and smart irrigation controllers.
In California, about half of the urban water is used for landscape irrigation. Substantial water savings can be gained by proper landscape design, installation and maintenance. To improve water savings in this sector, DWR updated the Model Water Efficient Landscape Ordinance. MWELO promotes efficient landscapes in new developments and retrofitted landscapes while increasing water efficiency standards for new and retrofitted landscapes through more efficient irrigation systems, greywater usage, onsite storm water capture, and by limiting the portion of landscapes that can be covered in turf. MWELO also requires reporting on the implementation and enforcement of local ordinances. To reduce the complexity and costs for the smaller landscapes now subject to ordinance, the 2015 revised MWELO has a prescriptive compliance approach for landscapes between 500 and 2,500 sq. ft. Landscapes within this size range can comply either through meeting the traditional MWELO approach or through the prescriptive approach. The size threshold for existing landscapes that are being rehabilitated has not changed, remaining at 2,500 square feet. Only rehabilitated landscapes that are associated with a building or landscape permit, plan check, or design review are subject to the ordinance.
In typical non-residential landscapes, the reduction in MAWA limits the planting of high water use plants to special landscape areas. The revised MWELO still uses a water budget approach and larger areas of high water use plants can be installed if the water use is reduced in the other areas provided the overall landscape stays within the budget. The use of special landscape areas (SLA) was not changed in the revised MWELO. The SLA provides for an extra water allowance in non-residential areas for specific functional landscapes, such as recreation, areas for public assembly and edible gardens or for areas irrigated with recycled water. The revised MWELO allows the irrigation efficiency to be entered for each area of the landscape.

Customer Classes

SF	MF	COM	INST	IRR	MISC	RES_IR	CII_IRR
☑	☑	☑	☑	☑	☐	☑	☑

End Uses

	SF	MF	COM	INST	IRR	MISC	RES_IR	CII_IRR
Toilets	☐	☐	☐	☐				
Urinals			☐	☐				
Lavatory Faucets	☐	☐	☐	☐				
Showers	☐	☐	☐	☐				
Dishwashers	☐	☐	☐	☐				
Clothes Washers	☐	☐	☐	☐				
Process			☐					
Kitchen Spray Rinse			☐	☐				
Internal Leakage	☐	☐	☐	☐				
Baths	☐	☐						
Other	☐	☐	☐	☐				
Irrigation	☑	☑	☑	☑	☑		☑	☑
Pools	☐	☐		☐				
Wash Down	☐	☐						
Cooling			☐	☐				
Car Washing	☐	☐						
External Leakage	☑	☑	☑	☑	☑		☑	☑
Outdoor								
tory/Kitchen Faucets	☐	☐	☐	☐				

Comments

> Haley 2/13/18: measure to be enforced by the City Planning Dept. who receives the developer requests.
> The cities in the service area have written in their ordinances for new developments to follow certain water efficient landscape so this would just be added to those guidelines.
> Minimal utility costs (about 1-2 staff hours as requested by new account / developer) to cover double checking the code is followed correctly. Currently, the engineering group receives plans for new developments and will send comments to the City to add to their Conditions of Approval - this is where conservation will add water use efficiency comments and guidelines for the account/development. Utility staff hour at 45$ including benefits.
> Assume average additional customer cost to build landscape by MWELO standards.
> Target 90% of new accounts since some are not eligible and some sneak around ordinance.
> Assume some external leakage reduction (since new dev would not have much) in addition to irrigation water use reduction. Assume end use savings as compared to existing account irrigation water end use.
> Savings based on the following:
The maximum applied water allowance (MAWA) has been lowered from 70% of the reference evapotranspiration (ETo) to 55% for residential landscape projects, and to 45% of ETo for non-residential projects. Savings are simplified to be the difference from the prior standard to the new MWELO standard budget difference of 70-55% for residential or 70-45% for non-residential. This water allowance reduces the landscape area that can be planted with high water use plants such as cool season turf. For typical residential projects, the reduction in the MAWA reduces the percentage of landscape area that can be planted to high water use plants from 33% to 25%. The site-wide irrigation efficiency of the previous ordinance (2010) was 0.71; for the purposes of estimating total water use, the revised MWELO defines the irrigation efficiency (IE) of drip irrigation as 0.81 and overhead irrigation and other technologies must meet a minimum IE of 0.75. Also assumed that the amount of irrigated landscape per new development for each individual parcel is reducing over time (meaning that the lot size for homes/businesses is shrinking when comparing existing homes versus new homes/businesses.)

Results

Average Water Savings (mgd)	
	0.705156
Lifetime Savings - Present Value ($)	
Utility	$16,032,084
Community	$16,032,084
Lifetime Costs - Present Value ($)	
Utility	$2,248,696
Community	$42,715,041
Benefit to Cost Ratio	
Utility	7.13
Community	0.38
Cost of Savings per Unit Volume ($/mg)	
Utility	$380

End Use Savings Per Replacement

	% Savings per Account
SF Irrigation	25.0%
MF Irrigation	25.0%
COM Irrigation	25.0%
INST Irrigation	25.0%
IRR Irrigation	25.0%
RES_IRR Irrigation	25.0%
CII_IRR Irrigation	25.0%
SF External Leakage	5.0%
MF External Leakage	5.0%
COM External Leakage	5.0%
INST External Leakage	5.0%
IRR External Leakage	5.0%
ES_IRR External Leakag	5.0%
CII_IRR External Leakag	5.0%

Targets

Target Method	Percentage
% of Accts Targeted / yr	90.000%
Only Effects New Accts	☑

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$59,400	$20,790	$80,191
2019	$59,400	$20,790	$80,191
2020	$59,400	$20,790	$80,191
2021	$100,703	$35,246	$135,950
2022	$100,703	$35,246	$135,950
2023	$100,703	$35,246	$135,950
2024	$100,703	$35,246	$135,950
2025	$100,703	$35,246	$135,950

Targets

View: Accounts

	SF	MF	COM	INST	IRR	RES_IRR	CII_IRR	Total
2018	566	6	34	2	38	0	13	660
2019	566	6	34	2	38	0	13	660
2020	566	6	34	2	38	0	13	660
2021	1,057	12	18	4	21	0	7	1,119
2022	1,057	12	18	4	21	0	7	1,119
2023	1,057	12	18	4	21	0	7	1,119
2024	1,057	12	18	4	21	0	7	1,119
2025	1,057	12	18	4	21	0	7	1,119

Water Savings (mgd)

	Total Savings (mgd)
2018	0.059949
2019	0.119899
2020	0.179848
2021	0.233791
2022	0.287733
2023	0.341676
2024	0.395619
2025	0.449561

Overview

Name	Require Weather Adjusting Smart Irrigation Controllers and / or Rain Sensors in New Development
Abbr	15
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2020
Last Year	2040
Measure Length	21

Measure Life	
Permanent	☑

Fixture Costs

	Utility	Customer	Fix/Acct
SF	$67.50	$200.00	1
MF	$67.50	$3,000.00	1
COM	$67.50	$3,000.00	1
INST	$67.50	$3,000.00	1
IRR	$67.50	$3,000.00	3
RES_IRR	$67.50	$3,000.00	3
CII_IRR	$67.50	$3,000.00	3

Administration Costs

Markup Percentage	30%

Description

Measure would require new development customers to install weather adjusting smart irrigation controllers and/or rain sensors. Might offer training class on how to install and program the device. The WBICs have on-site weather sensors or rely on a signal from a central weather station that modifies irrigation times at least weekly.

Customer Classes

SF	MF	COM	INST	IRR	MISC	RES_IRR	CII_IRR
☑	☑	☑	☑	☑	☐	☑	☑

End Uses

	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
Toilets	☐	☐	☐	☐				
Urinals			☐	☐				
Lavatory Faucets	☐	☐	☐	☐				
Showers	☐	☐	☐	☐				
Dishwashers	☐	☐	☐	☐				
Clothes Washers	☐	☐	☐	☐				
Process			☐					
Kitchen Spray Rinse			☐	☐				
Internal Leakage	☐	☐	☐	☐				
Baths	☐	☐						
Other	☐	☐	☐	☐				
Irrigation	☑	☑	☑	☑	☑		☑	☑
Pools	☐	☐		☐				
Wash Down	☐	☐						
Cooling			☐	☐				
Car Washing	☐	☐						
External Leakage	☐	☐	☐	☐	☐		☐	☐
Outdoor								
tory/Kitchen Faucets	☐	☐	☐	☐				

Comments

> This measure to be enforced by the City Planning Dept who receives the developer requests
> EVWMD to incorporate notification process so can double check that developer plans > The cities in the service area have ordinances for new developments to follow certain water efficient landscape and so this would just be added to those guidelines.
> Minimal utility costs (1-2 staff hours as requested by new account / developer) to cover double checking the code is followed correctly. Currently, the engineering group receives plans for new developments and will send comments to the City to add to their Conditions of Approval - this is where conservation will add water use efficiency comments and guidelines for the account/development. Utility staff hour at 45$ including benefits.
> Customer costs includes device and installation. Assume less landscape and so less savings on non-"IRR" meter accounts.
> SF: SF WBICs can cost >$100. Santa Clara Valley Water District (SCVWD) has background information for SF WBICs in a summary report. SF savings based on Valencia Water Company experience; savings have been considered as high as 15% per account.
> CII customer costs include cost to install and cost of unit approx. Assume $100/active station. Fixture costs assume CII accounts have 12 stations total and CII irrigation accounts have 3 controllers each. Per CLWA 2014 past CII WBIC costs average approximately $3,100; with 3 per account. CII WBIC 10% savings based on VWC recent experience.

Results

Average Water Savings (mgd)	
	0.291528
Lifetime Savings - Present Value ($)	
Utility	$6,470,301
Community	$6,470,301
Lifetime Costs - Present Value ($)	
Utility	$1,586,044
Community	$10,340,891
Benefit to Cost Ratio	
Utility	4.08
Community	0.63
Cost of Savings per Unit Volume ($/mg)	
Utility	$648

End Use Savings Per Replacement

	% Savings per Account
SF Irrigation	15.0%
MF Irrigation	10.0%
COM Irrigation	10.0%
INST Irrigation	10.0%
IRR Irrigation	10.0%
RES_IRR Irrigation	10.0%
CII_IRR Irrigation	10.0%

Targets

Target Method	Percentage
% of Accts Targeted / yr	90.000%
Only Effects New Accts	☑

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$0	$0	$0
2019	$0	$0	$0
2020	$51,486	$15,446	$66,931
2021	$79,261	$23,778	$103,040
2022	$79,261	$23,778	$103,040
2023	$79,261	$23,778	$103,040
2024	$79,261	$23,778	$103,040
2025	$79,261	$23,778	$103,040

Targets

View: Accounts

	SF	MF	COM	INST	IRR	RES_IRR	CII_IRR	Total
2018	0	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0	0
2020	566	6	34	2	38	0	13	660
2021	1,057	12	18	4	21	0	7	1,119
2022	1,057	12	18	4	21	0	7	1,119
2023	1,057	12	18	4	21	0	7	1,119
2024	1,057	12	18	4	21	0	7	1,119
2025	1,057	12	18	4	21	0	7	1,119

Water Savings (mgd)

	Total Savings (mgd)
2018	0.000000
2019	0.000000
2020	0.026668
2021	0.053612
2022	0.080555
2023	0.107499
2024	0.134442
2025	0.161386

Overview

Name	Require Irrigation Designers / Installers be Certified (possibly by Irrigation Association or CA Landscape Contractor's Association)
Abbr	16
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2020
Last Year	2040
Measure Length	21

Measure Life	
Permanent	☐
Years	15
Repeat	☐

Fixture Costs

	Utility	Customer	Fix/Acct
SF	$22.00	$100.00	1
MF	$22.00	$100.00	1
COM	$22.00	$100.00	1
INST	$22.00	$100.00	1
IRR	$22.00	$100.00	1
RES_IRR	$22.00	$100.00	1
CII_IRR	$22.00	$100.00	1

Administration Costs

Markup Percentage	30%

Description

Require the design and installation of irrigation systems by trained certified contractors. Certification might be through the CLCA, Irrigation Association (IA) and/or specialized training provided by utility.

Customer Classes

SF	MF	COM	INST	IRR	MISC	RES_IRR	CII_IRR
☑	☑	☑	☑	☑	☐	☑	☑

End Uses

	SF	MF	COM	INST	IRR	MISC	RES_IR	CII_IRR
Toilets	☐	☐	☐	☐				
Urinals			☐	☐				
Lavatory Faucets	☐	☐	☐	☐				
Showers	☐	☐	☐	☐				
Dishwashers	☐	☐	☐	☐				
Clothes Washers	☐	☐	☐	☐				
Process			☐					
Kitchen Spray Rinse			☐	☐				
Internal Leakage	☐	☐	☐	☐				
Baths	☐	☐						
Other	☐	☐	☐	☐				
Irrigation	☑	☑	☑	☑	☑		☑	☑
Pools	☐	☐		☐				
Wash Down	☐	☐						
Cooling			☐	☐				
Car Washing	☐	☐						
External Leakage	☐	☐	☐	☐	☐		☐	☐
Outdoor								
tory/Kitchen Faucets	☐	☐	☐	☐				

Comments

> Model after Cary, North Carolina's program.
> Update cost based on how tracking, training, etc.
> Target new development.
> Savings based on how targeted. Assume 5%-10%.
> Update certification every 10-15 years. Would equal measure savings life.
> Utility cost represents one half hour of staff time spent per account.
> Per Haley Munson 2/28/18 "this can be included in our measures but per conversation with the City, this may not be feasible to do so this measure may not be implemented in the future"

Results

Average Water Savings (mgd)	
	0.117453
Lifetime Savings - Present Value ($)	
Utility	$2,646,459
Community	$2,646,459
Lifetime Costs - Present Value ($)	
Utility	$546,802
Community	$2,458,698
Benefit to Cost Ratio	
Utility	4.84
Community	1.08
Cost of Savings per Unit Volume ($/mg)	
Utility	$554

End Use Savings Per Replacement

	% Savings per Account
MF Irrigation	5.0%
COM Irrigation	5.0%
INST Irrigation	5.0%
IRR Irrigation	5.0%
RES_IRR Irrigation	5.0%
CII_IRR Irrigation	5.0%
SF Irrigation	5.0%

Targets

Target Method	Percentage
% of Accts Targeted / yr	100.000%
Only Effects New Accts	☑

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$0	$0	$0
2019	$0	$0	$0
2020	$16,133	$4,840	$20,974
2021	$27,352	$8,205	$35,557
2022	$27,352	$8,205	$35,557
2023	$27,352	$8,205	$35,557
2024	$27,352	$8,205	$35,557
2025	$27,352	$8,205	$35,557

Targets

View: Accounts

	SF	MF	COM	INST	IRR	RES_IRR	CII_IRR	Total
2018	0	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0	0
2020	629	7	38	2	43	0	14	733
2021	1,174	13	20	5	23	0	8	1,243
2022	1,174	13	20	5	23	0	8	1,243
2023	1,174	13	20	5	23	0	8	1,243
2024	1,174	13	20	5	23	0	8	1,243
2025	1,174	13	20	5	23	0	8	1,243

Water Savings (mgd)

	Total Savings (mgd)
2018	0.000000
2019	0.000000
2020	0.013117
2021	0.024915
2022	0.036712
2023	0.048509
2024	0.060306
2025	0.072103

Hot Water Recirculating Pump Rebate

Overview	
Name	Hot Water Recirculating Pump Re
Abbr	17
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2019
Last Year	2023
Measure Length	5

Measure Life	
Permanent	☑

Fixture Costs	Utility	Customer	Fix/Acct
SF	$175.00	$300.00	1

Administration Costs	
Markup Percentage	35%

Description

Measure will provide a rebate to equip homes with efficient hot water recirculating pumps (hot water on demand systems). These systems use a pump placed under the sink to recycle water sitting in the hot water pipes to reduce hot water waiting times by having an on-demand pump on a recirculation line. Can be installed on kitchen sink or master bath, wherever hot water waiting times are more than 1/2 minute. Requires an electrical outlet under the sink, which is not common on older home bathrooms but is on kitchen sinks.

Customer Classes

	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
	☑	☐	☐	☐	☐	☐	☐	☐

End Uses

	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
Toilets	☐							
Urinals								
Lavatory Faucets	☑							
Showers	☑							
Dishwashers	☐							
Clothes Washers	☐							
Process								
Kitchen Spray Rinse								
Internal Leakage	☐							
Baths	☐							
Other	☐							
Irrigation	☐							
Pools	☐							
Wash Down	☐							
Cooling								
Car Washing	☐							
External Leakage	☐							
Outdoor								
tory/Kitchen Faucets	☑							

Comments

EVMWD Board is very interested in this measure. Lots of interest in FY 15/16 when offered a rebate program as part of a grant. Approx. 363 applications were approved out of over 880 applications submitted. Many applicants did not fully complete the application process.
Expected measure launch in 2019 if not sooner.
$175/unit total incentive representing ($100/unit and $75 for permitting). Customer cost represents ($199/unit+$200 installation+$75 permitting) so approx. $300 remaining after incentive. 35% admin cost.
Water savings based on Jim Lutz paper and information from Gary Klein and David Grieshop. See spreadsheet titled "Hot Water On Demand Water Savings Estimate_2013" includes 1750 sq ft house saves 1571 gallons per year or 4.3 gpd/acct and a total of 99.5 gpd per SF home, equates to ~4.3% savings per home. Based on a EVMWD's SF indoor water use this results in an equivalent savings of approximately 14.2 gpd savings or 17.4% on shower and faucet end uses. More information on ACT system at: www.gothotwater.com

Results

Average Water Savings (mgd)	
0.020605	
Lifetime Savings - Present Value ($)	
Utility	$555,875
Community	$1,269,508
Lifetime Costs - Present Value ($)	
Utility	$432,662
Community	$982,075
Benefit to Cost Ratio	
Utility	1.28
Community	1.29
Cost of Savings per Unit Volume ($/mg)	
Utility	$2,500

End Use Savings Per Replacement

	% Savings per Account
SF Lavatory Faucets	17.4%
SF Showers	17.4%
on-Lavatory/Kitchen Fa	17.4%

Targets

Target Method	Count
# of Accts Targeted / yr	400

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$0	$0	$0
2019	$70,000	$24,500	$94,500
2020	$70,000	$24,500	$94,500
2021	$70,000	$24,500	$94,500
2022	$70,000	$24,500	$94,500
2023	$70,000	$24,500	$94,500
2024	$0	$0	$0
2025	$0	$0	$0

Targets

View: Accounts

	SF	Total
2018	0	0
2019	400	400
2020	400	400
2021	400	400
2022	400	400
2023	400	400
2024	0	0
2025	0	0

Water Savings (mgd)

	Total Savings (mgd)
2018	0.000000
2019	0.005770
2020	0.011272
2021	0.016483
2022	0.021465
2023	0.026254
2024	0.025730
2025	0.025255

Residential Outdoor and Indoor Water Efficiency Evaluation

Overview	
Name	Residential Outdoor and Indoor W
Abbr	18
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2018
Last Year	2040
Measure Length	23

Measure Life	
Permanent	☐
Years	5
Repeat	☐

Fixture Costs	Utility	Customer	Fix/Acct
SF	$100.00	$25.00	1
MF	$300.00	$75.00	1

Administration Costs	
Markup Percentage	30%

Description

Measure will provide indoor and outdoor water efficiency evaluations for single family and multi-family residential customers. Evaluations will be conducted by an outside contractor. Target those with high water use and provide a customized report to owner. This measure includes a multi-step process for identifying customers, including an online pre-screening and phone call screening before the field evaluation to identify high water using customers.

Customer Classes	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
	☑	☑	☐	☐	☐	☐	☐	☐

End Uses	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
Toilets	☑	☑						
Urinals								
Lavatory Faucets	☑	☑						
Showers	☑	☑						
Dishwashers	☑	☑						
Clothes Washers	☑	☑						
Process								
Kitchen Spray Rinse								
Internal Leakage	☑	☑						
Baths	☑	☑						
Other	☑	☑						
Irrigation	☑	☑						
Pools	☑	☑						
Wash Down	☑	☑						
Cooling								
Car Washing	☑	☑						
External Leakage	☑	☑						
Outdoor								
tory/Kitchen Faucets	☑	☑						

Comments

> 2017 budget for outdoor evaluations only was $50,000 for 500 accounts. However, 500 could never be reached. The last 3 years the most done is 44 (in 2015), so roughly double to target 100.
> MF costs account for 3 units per account.
> No direct-installs; no giveaways included.
> If a customer doesn't "pass" the online screening, might offer online do-it-yourself evaluation to customers who have reasonable use.
http://www.evmwd.com/about/departments/conservation/use_water_wisely_inside_and_out/indoor_water_conservation.asp

Results	
Average Water Savings (mgd)	
0.013672	
Lifetime Savings - Present Value ($)	
Utility	$343,326
Community	$488,962
Lifetime Costs - Present Value ($)	
Utility	$298,699
Community	$356,141
Benefit to Cost Ratio	
Utility	1.15
Community	1.37
Cost of Savings per Unit Volume ($/mg)	
Utility	$2,601

End Use Savings Per Replacement	% Savings per Account
SF Toilets	5.0%
MF Toilets	5.0%
SF Lavatory Faucets	5.0%
MF Lavatory Faucets	5.0%
SF Showers	5.0%
MF Showers	5.0%
SF Dishwashers	5.0%
MF Dishwashers	5.0%
SF Clothes Washers	5.0%
MF Clothes Washers	5.0%
SF Internal Leakage	5.0%
MF Internal Leakage	5.0%
SF Baths	5.0%
MF Baths	5.0%
SF Other	5.0%
MF Other	5.0%
SF Irrigation	10.0%
MF Irrigation	10.0%
SF Pools	10.0%
MF Pools	10.0%
SF Wash Down	10.0%
MF Wash Down	10.0%
SF Car Washing	10.0%
MF Car Washing	10.0%
SF External Leakage	10.0%
MF External Leakage	10.0%
lon-Lavatory/Kitchen Fa	5.0%
lon-Lavatory/Kitchen Fa	5.0%

Targets	
Target Method	Percentage
% of Accts Targeted / yr	0.250%
Only Effects New Accts	☐

Costs — View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$10,658	$3,197	$13,856
2019	$10,821	$3,246	$14,067
2020	$10,983	$3,295	$14,278
2021	$11,287	$3,386	$14,673
2022	$11,590	$3,477	$15,068
2023	$11,894	$3,568	$15,462
2024	$12,198	$3,659	$15,857
2025	$12,501	$3,750	$16,252

Targets — View: Accounts

	SF	MF	Total
2018	103	1	104
2019	105	1	106
2020	106	1	107
2021	109	1	110
2022	112	1	113
2023	115	1	116
2024	118	1	119
2025	121	1	122

Water Savings (mgd)

	Total Savings (mgd)
2018	0.002497
2019	0.005002
2020	0.007514
2021	0.010057
2022	0.012638
2023	0.012839
2024	0.013072
2025	0.013336

Financial Incentives for Residential Irrigation and Landscape Upgrades

Overview	
Name	Financial Incentives for Residentia
Abbr	19
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2018
Last Year	2040
Measure Length	23

Measure Life	
Permanent	☐
Years	10
Repeat	☐

Fixture Costs	Utility	Customer	Fix/Acct
SF	$200.00	$120.00	1
MF	$200.00	$120.00	2
RES_IRR	$550.00	$3,000.00	1

Administration Costs	
Markup Percentage	35%

Description

After the free water use evaluation has been completed, recommendations will be analyzed and provided to the customer. Free evaluations may be on-site or via a pre-screening online step. Customers are only eligible for rebates after this evaluation. Staff may provide assistance with completing rebate applications. Rebates may include such items as sprinkler nozzles, weather based irrigation controllers ("smart timers"), soil moisture sensors, mulch, drip irrigation, rain barrels and cisterns.

Customer Classes

	SF	MF	COM	INST	IRR	MISC	RES_IR	CII_IRR
	☑	☑	☐	☐	☐	☐	☑	☐

End Uses

	SF	MF	COM	INST	IRR	MISC	RES_IR	CII_IRR
Toilets	☐	☐						
Urinals								
Lavatory Faucets	☐	☐						
Showers	☐	☐						
Dishwashers	☐	☐						
Clothes Washers	☐	☐						
Process								
Kitchen Spray Rinse								
Internal Leakage	☐	☐						
Baths	☐	☐						
Other	☐	☐						
Irrigation	☑	☑					☑	
Pools	☐	☐						
Wash Down	☐	☐						
Cooling								
Car Washing	☐	☐						
External Leakage	☐	☐					☐	
Outdoor								
tory/Kitchen Faucets	☐	☐						

Comments

> Savings will range from 5% (for mulch) to >20% (for drip irrigation and combinations of devices)
> Costs per account will vary significantly.
> SF & MF 2015-2017 average drip irrigation conversion rebate amount by EVWMD was approx. $300 (max $500). Not all measure participants will be EVMWD drip conversions - many will solicit rebates from SoCal WaterSmart. Utility cost represents Elsinore's average rebate amount per account (not SoCal WaterSmart's) and allows for multiple devices to be rebated.
> Target represents SoCal WaterSmart and Elsinore combined measure participation.
> Customer costs represent potential average remaining cost of fixtures and installation.
> Since 2014, SoCal WaterSmart rebated rotating nozzles (178/yr @ $2.50/ea.) and WBICs (60/yr @ $145/ea.). No other device rebates were requested.
> Elsinore rebated approx. 8 drip conversions per year 2014-2017.
> Soil moisture savings may be 20% of irrigation use is based on more than 10 California site water use reports conducted over multiple months in years 2015-2017 as provided by Brian Holland www.sustainablewatersavings.com. Studies show a range of 20%-60% savings for trained soil moisture sensor device installation and site management. A lower savings estimate is assumed for layperson usage and non-drought normal planning years. The manufacturer claims device batteries last 10-12 years.

Results	
Average Water Savings (mgd)	
0.018666	
Lifetime Savings - Present Value ($)	
Utility	$436,425
Community	$436,425
Lifetime Costs - Present Value ($)	
Utility	$491,108
Community	$710,299
Benefit to Cost Ratio	
Utility	0.89
Community	0.61
Cost of Savings per Unit Volume ($/mg)	
Utility	$3,132

End Use Savings Per Replacement	% Savings per Account
SF Irrigation	20.0%
MF Irrigation	20.0%
RES_IRR Irrigation	20.0%

Targets	
Target Method	Percentage
% of Accts Targeted / yr	0.200%
Only Effects New Accts	☐

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$16,875	$5,906	$22,781
2019	$17,132	$5,996	$23,128
2020	$17,390	$6,086	$23,476
2021	$17,870	$6,255	$24,125
2022	$18,351	$6,423	$24,774
2023	$18,831	$6,591	$25,422
2024	$19,312	$6,759	$26,071
2025	$19,793	$6,927	$26,720

Targets

View: Accounts

	SF	MF	RES_IRR	Total
2018	82	1	0	83
2019	84	1	0	85
2020	85	1	0	86
2021	87	1	0	88
2022	90	1	0	91
2023	92	1	0	93
2024	94	1	0	95
2025	97	1	0	98

Water Savings (mgd)

	Total Savings (mgd)
2018	0.001855
2019	0.003737
2020	0.005648
2021	0.007612
2022	0.009629
2023	0.011699
2024	0.013821
2025	0.015996

High Efficiency Device Giveaway

Overview	
Name	High Efficiency Device Giveaway
Abbr	20
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2018
Last Year	2040
Measure Length	23

Measure Life	
Permanent	☑

Fixture Costs	Utility	Customer	Fix/Acct
SF	$30.00	$0.00	1
MF	$30.00	$0.00	3

Administration Costs	
Markup Percentage	35%

Description

EVMWD buys high-efficiency devices in bulk and gives them away at the administrative office. Devices include low-flow showerheads (1.5 gallons per minute), faucet aerators (kitchen and bath), 5 Min shower timers, toilet dye tabs, and automatic shut off nozzles for garden hoses. This measure is planned to evolve as technology changes. Kits are distributed as requested to approximately 100 accounts per year in addition to all new service accounts who register at the administrative office.

Customer Classes

	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
	☑	☑	☐	☐	☐	☐	☐	☐

End Uses

	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
Toilets	☐	☐						
Urinals								
Lavatory Faucets	☑	☑						
Showers	☑	☑						
Dishwashers	☐	☐						
Clothes Washers	☐	☐						
Process								
Kitchen Spray Rinse								
Internal Leakage	☑	☑						
Baths	☐	☐						
Other	☐	☐						
Irrigation	☑	☑						
Pools	☐	☐						
Wash Down	☐	☐						
Cooling								
Car Washing	☐	☐						
External Leakage	☐	☐						
Outdoor								
tory/Kitchen Faucets	☑	☑						

Comments

> Costs and savings per "kit".
> 1 "kit" includes: 2 showerhead (1.5 gpm), 1 kitchen aerator (1.5 gpm), 2 bathroom aerators (1.0 gpm), 2 timers, toilet dye tabs and 2 nozzles.
> Savings assume the following fixtures are replaced: 2.2 gpm showerhead and 2.2 gpm lavatory and non-lavatory faucet aerators.
> Assume only half of kit devices are either needed, used or installed and so kit device savings is halved.
> Cost of "kit" per: aerators $1.99/ea., showerhead $9.95, shower timer $5, hose nozzle $6.25, toilet dye tabs $0.50
> Target approx. 120 kits including all residential customers that start a new acct/water service (or at least those customers that physically come into the admin office to start services)

Results

Average Water Savings (mgd)	
0.027275	
Lifetime Savings - Present Value ($)	
Utility	$673,986
Community	$1,484,993
Lifetime Costs - Present Value ($)	
Utility	$111,667
Community	$111,667
Benefit to Cost Ratio	
Utility	6.04
Community	13.30
Cost of Savings per Unit Volume ($/mg)	
Utility	$487

End Use Savings Per Replacement

	% Savings per Account
SF Lavatory Faucets	27.3%
MF Lavatory Faucets	27.3%
SF Showers	20.0%
MF Showers	20.0%
SF Internal Leakage	1.0%
MF Internal Leakage	1.0%
SF Irrigation	1.0%
MF Irrigation	1.0%
lon-Lavatory/Kitchen Fau	15.9%
lon-Lavatory/Kitchen Fa	15.9%

Targets

Target Method	Percentage
% of Accts Targeted / yr	0.300%
Only Effects New Accts	☐

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$3,837	$1,343	$5,180
2019	$3,895	$1,363	$5,259
2020	$3,954	$1,384	$5,338
2021	$4,063	$1,422	$5,485
2022	$4,173	$1,460	$5,633
2023	$4,282	$1,499	$5,781
2024	$4,391	$1,537	$5,928
2025	$4,500	$1,575	$6,076

Targets

View: Accounts

	SF	MF	Total
2018	124	1	125
2019	126	1	127
2020	127	1	129
2021	131	1	132
2022	135	2	136
2023	138	2	140
2024	142	2	143
2025	145	2	147

Water Savings (mgd)

	Total Savings (mgd)
2018	0.002436
2019	0.004789
2020	0.007070
2021	0.009291
2022	0.011482
2023	0.013653
2024	0.015813
2025	0.017969

Partnership with Energy Utilities

Overview	
Name	Partnership with Energy Utilities
Abbr	21
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2019
Last Year	2028
Measure Length	10

Measure Life	
Permanent	☑

Fixture Costs	Utility	Customer	Fix/Acct
SF	$11.25	$0.00	1
MF	$11.25	$0.00	3

Administration Costs	
Markup Percentage	30%

Description

Partnerships with local energy utilities to offer incentives to customers to save both water and energy. SoCalGas provides kits with three faucet aerators and a low-flow showerhead at no cost.

Customer Classes	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
	☑	☑	☐	☐	☐	☐	☐	☐

End Uses	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
Toilets	☐	☐						
Urinals								
Lavatory Faucets	☑	☑						
Showers	☑	☑						
Dishwashers	☐	☐						
Clothes Washers	☐	☐						
Process								
Kitchen Spray Rinse								
Internal Leakage	☐	☐						
Baths	☐	☐						
Other	☐	☐						
Irrigation	☐	☐						
Pools	☐	☐						
Wash Down	☐	☐						
Cooling								
Car Washing	☐	☐						
External Leakage	☐	☐						
Outdoor								
tory/Kitchen Faucets	☑	☑						

Comments

Utility cost represents one quarter hour spent per unit.
> Over the past 5 years, approx. 2,400 aerators and 1,830 showerheads have been distributed per year.
> SoCalGas also offer a free "Energy-efficiency Starter Kit" with 3 faucet aerators and 1 low-flow showerhead. Request flow rates.
> Assume 1 kit per SF acct and 3 per MF (assume 3 units per MF account).
> 1 "kit" includes: 1 showerhead (1.5 gpm), 1 kitchen aerator (1.5 gpm), and 2 bathroom aerators (1.2 gpm).
> Savings assume the following fixtures are replaced: 2.2 gpm showerhead and 2.2 gpm lavatory and non-lavatory faucet aerators.
> Assume only half of kit devices are either needed, used or installed and so kit device savings is halved.
> Customer cost reflects incremental purchase and installation cost
> SoCalGas rebates: www.socalgas.com/save-money-and-energy/rebates-and-incentives/natural-gas-appliance-rebates
> SoCal Edison rebates: www.sce.com
> In order for EVMWD to obtain data on SoCalGas devices installed for EVMWD customers, EVMWD must have an official partnership agreement with SoCal Gas' program (~ $50,000/year, though typically only about half of that is actually used). SoCalGas does not market for EVMWD, but they do their own promotion of their program.

Results	
Average Water Savings (mgd)	
0.063840	
Lifetime Savings - Present Value ($)	
Utility	$1,656,876
Community	$3,730,051
Lifetime Costs - Present Value ($)	
Utility	$89,896
Community	$89,896
Benefit to Cost Ratio	
Utility	18.43
Community	41.49
Cost of Savings per Unit Volume ($/mg)	
Utility	$168

End Use Savings Per Replacement	% Savings per Account
SF Lavatory Faucets	22.7%
MF Lavatory Faucets	22.7%
SF Showers	15.9%
MF Showers	15.9%
lon-Lavatory/Kitchen Fa	15.9%
lon-Lavatory/Kitchen Fa	15.9%

Targets	
Target Method	Percentage
% of Accts Targeted / yr	1.500%
Only Effects New Accts	☐

Costs — View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$0	$0	$0
2019	$7,304	$2,191	$9,495
2020	$7,414	$2,224	$9,638
2021	$7,619	$2,286	$9,904
2022	$7,824	$2,347	$10,171
2023	$8,028	$2,409	$10,437
2024	$8,233	$2,470	$10,703
2025	$8,438	$2,531	$10,970

Targets — View: Accounts

	SF	MF	Total
2018	0	0	0
2019	628	7	635
2020	637	7	645
2021	655	7	662
2022	673	8	680
2023	690	8	698
2024	708	8	716
2025	725	8	734

Water Savings (mgd)

	Total Savings (mgd)
2018	0.000000
2019	0.009541
2020	0.018745
2021	0.027685
2022	0.036455
2023	0.045102
2024	0.053665
2025	0.062178

Residential High Efficiency Toilet Rebate

Overview	
Name	Residential High Efficiency Toilet F
Abbr	22
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2018
Last Year	2027
Measure Length	10

Measure Life	
Permanent	☑

Fixture Costs	Utility	Customer	Fix/Acct
SF	$35.00	$260.00	2
MF	$35.00	$260.00	4

Administration Costs	
Markup Percentage	35%

Description

Rebates are available for $40 (1.06 GPF or lower). Rebates are handled by SoCal WaterSmart.

Customer Classes	SF	MF	COM	INST	IRR	MISC	RES_IR	CII_IRR
	☑	☑	☐	☐	☐	☐	☐	☐

End Uses	SF	MF	COM	INST	IRR	MISC	RES_IR	CII_IRR
Toilets	☑	☑						
Urinals								
Lavatory Faucets	☐	☐						
Showers	☐	☐						
Dishwashers	☐	☐						
Clothes Washers	☐	☐						
Process								
Kitchen Spray Rinse								
Internal Leakage	☐	☐						
Baths	☐	☐						
Other	☐	☐						
Irrigation	☐	☐						
Pools	☐	☐						
Wash Down	☐	☐						
Cooling								
Car Washing	☐	☐						
External Leakage	☐	☐						
Outdoor								
tory/Kitchen Faucets	☐	☐						

Comments

> Savings conservatively assume 1.06 gpf toilets replace 50% 1.6 gpf and 50% 1.28 gpf toilets. Could be 0.8 gpf replacing a >3.5 gpf in some cases.
> Target based on 2016 SoCal WaterSmart "Res Premium HET" participation (NOT SoCal WaterSmart HET measure participation)
> Customer cost represents the balance of the fixture cost after the rebate amount plus installation. Typical toilets < 1.06 gpf cost approx. $200 or more. Assume installation is $100/ea.
> Utility cost represents staff time spent per unit.
> SoCal WaterSmartmay increase rebate to 100$ for a limited time in the near future.

Results	
Average Water Savings (mgd)	
0.003055	
Lifetime Savings - Present Value ($)	
Utility	$80,773
Community	$80,773
Lifetime Costs - Present Value ($)	
Utility	$38,513
Community	$250,436
Benefit to Cost Ratio	
Utility	2.10
Community	0.32
Cost of Savings per Unit Volume ($/mg)	
Utility	$1,501

End Use Savings Per Replacement	% Savings per Account
SF Toilets	25.5%
MF Toilets	25.5%

Targets	
Target Method	Percentage
% of Accts Targeted / yr	0.100%
Only Effects New Accts	☐

Costs — View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$2,952	$1,033	$3,985
2019	$2,997	$1,049	$4,045
2020	$3,042	$1,065	$4,106
2021	$3,126	$1,094	$4,220
2022	$3,210	$1,123	$4,333
2023	$3,294	$1,153	$4,447
2024	$3,378	$1,182	$4,560
2025	$3,462	$1,212	$4,674

Targets — View: Accounts

	SF	MF	Total
2018	41	0	42
2019	42	0	42
2020	42	0	43
2021	44	0	44
2022	45	1	45
2023	46	1	47
2024	47	1	48
2025	48	1	49

Water Savings (mgd)

	Total Savings (mgd)
2018	0.000432
2019	0.000854
2020	0.001269
2021	0.001675
2022	0.002076
2023	0.002474
2024	0.002870
2025	0.003263

Clothes Washer Rebate

Overview	
Name	Clothes Washer Rebate
Abbr	23
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2018
Last Year	2040
Measure Length	23

Measure Life	
Permanent	☑

Fixture Costs	Utility	Customer	Fix/Acct
SF	$45.00	$600.00	1
MF	$45.00	$600.00	3

Administration Costs	
Markup Percentage	35%

Description

Rebates will be provided for residential clothes washers. Rebates are available through and handled by SoCal Water Smart and SoCalGas. SoCal WaterSmart Rebates start at $85; SoCalGas rebates start at $50.

Customer Classes	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
	☑	☑	☐	☐	☐	☐	☐	☐

End Uses	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
Toilets	☐	☐						
Urinals								
Lavatory Faucets	☐	☐						
Showers	☐	☐						
Dishwashers	☐	☐						
Clothes Washers	☑	☑						
Process								
Kitchen Spray Rinse								
Internal Leakage	☐	☐						
Baths	☐	☐						
Other	☐	☐						
Irrigation	☐	☐						
Pools	☐	☐						
Wash Down	☐	☐						
Cooling								
Car Washing	☐	☐						
External Leakage	☐	☐						
Outdoor								
tory/Kitchen Faucets	☐	☐						

Comments

> SoCal WaterSmart has distributed approx. 188 rebates per year since 2014. SoCalGas has distributed approx. 164 rebates per year since 2014.
> Per SoCal WaterSmart website "High-Efficiency clothes washers use 55% less water than standard clothes washers."
> Customer cost represents the balance of the fixture cost after the rebate amount plus installation. Clothes washers can cost ~$600 or more. Assume installation is $100/ea.
> Utility cost represents staff time spent per unit.
> http://www.socalwatersmart.com
> https://www.socalgas.com/save-money-and-energy/rebates-and-incentives/natural-gas-appliance-rebates
> Promote SoCalGas' water use efficiency rebates in addition so SoCal Water Smart's rebate, no additional rebate from EVMWD
> SoCalGas $75 rebate for ENERGY STAR Most Efficient 2016 clothes washers with IMEF>2.76 AND IWF< 3.2.
> SoCalGas $50 rebate on select Higher Efficiency ENERGY STAR certified clothes washers.
> SoCalGas $200 rebate on the Whirlpool Cold Water Technology Washer (Model Number WTW4715EW).

Results	
Average Water Savings (mgd)	
0.083388	
Lifetime Savings - Present Value ($)	
Utility	$2,094,500
Community	$5,569,906
Lifetime Costs - Present Value ($)	
Utility	$558,337
Community	$6,072,779
Benefit to Cost Ratio	
Utility	3.75
Community	0.92
Cost of Savings per Unit Volume ($/mg)	
Utility	$797

End Use Savings Per Replacement	% Savings per Account
SF Clothes Washers	55.0%
MF Clothes Washers	55.0%

Targets	
Target Method	Percentage
% of Accts Targeted / yr	1.000%
Only Effects New Accts	☐

Costs — View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$19,185	$6,715	$25,900
2019	$19,477	$6,817	$26,295
2020	$19,770	$6,920	$26,690
2021	$20,316	$7,111	$27,427
2022	$20,863	$7,302	$28,165
2023	$21,409	$7,493	$28,903
2024	$21,956	$7,685	$29,640
2025	$22,502	$7,876	$30,378

Targets — View: Accounts

	SF	MF	Total
2018	412	5	417
2019	419	5	423
2020	425	5	430
2021	437	5	442
2022	448	5	453
2023	460	5	465
2024	472	5	477
2025	484	5	489

Water Savings (mgd)

	Total Savings (mgd)
2018	0.007575
2019	0.015261
2020	0.022978
2021	0.030733
2022	0.038455
2023	0.046078
2024	0.053546
2025	0.060806

Pool Cover Rebate

Overview	
Name	Pool Cover Rebate
Abbr	24
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2018
Last Year	2020
Measure Length	3

Measure Life	
Permanent	☐
Years	6
Repeat	☐

Fixture Costs	Utility	Customer	Fix/Acct
SF	$25.00	$70.00	1

Administration Costs	
Markup Percentage	35%

Description

Rebates will be provided for residential pool covers. Customers must submit a completed Rebate Request with a photo of their pool, a copy of the pool cover receipt and a copy of their current water bill.

Customer Classes	SF	MF	COM	INST	IRR	MISC	RES_IR	CII_IRR
	☑	☐	☐	☐	☐	☐	☐	☐

End Uses	SF	MF	COM	INST	IRR	MISC	RES_IR	CII_IRR
Toilets	☐							
Urinals								
Lavatory Faucets	☐							
Showers	☐							
Dishwashers	☐							
Clothes Washers	☐							
Process								
Kitchen Spray Rinse								
Internal Leakage	☐							
Baths	☐							
Other	☐							
Irrigation	☐							
Pools	☑							
Wash Down	☐							
Cooling								
Car Washing	☐							
External Leakage	☐							
Outdoor								
tory/Kitchen Faucets	☐							

Comments

> Current Elsinore measure while funding is available.
> Rebate amount is approx. $50. Funding split 50/50 with Western MWD.
> Assume a pool cover costs ~ $120 and lasts about 6 years.
> Target based on 2015-2017 participation.
> Conservative savings estimate of 30% based on 30-50% savings range from evaporation and landscape design/yard layout per 2001 AWWA Annual Conference paper "Splash or Sprinkle? A Comparison of Water Use of Swimming Pools and Irrigated Landscape Area" by Peter Mayer and Lisa Maddaus.

Results	
Average Water Savings (mgd)	
0.000064	
Lifetime Savings - Present Value ($)	
Utility	$2,000
Community	$2,000
Lifetime Costs - Present Value ($)	
Utility	$10,286
Community	$31,619
Benefit to Cost Ratio	
Utility	0.19
Community	0.06
Cost of Savings per Unit Volume ($/mg)	
Utility	$19,144

End Use Savings Per Replacement	% Savings per Account
SF Pools	30.0%

Targets	
Target Method	Percentage
% of Accts Targeted / yr	0.250%
Only Effects New Accts	☐

Costs — View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$2,577	$902	$3,479
2019	$2,616	$916	$3,532
2020	$2,655	$929	$3,585
2021	$0	$0	$0
2022	$0	$0	$0
2023	$0	$0	$0
2024	$0	$0	$0
2025	$0	$0	$0

Targets — View: Accounts

	SF	Total
2018	103	103
2019	105	105
2020	106	106
2021	0	0
2022	0	0
2023	0	0
2024	0	0
2025	0	0

Water Savings (mgd)

	Total Savings (mgd)
2018	0.000080
2019	0.000162
2020	0.000245
2021	0.000245
2022	0.000245
2023	0.000245
2024	0.000165
2025	0.000083

Leak Repair and Plumbing Emergency Assistance for Low-Income Customers

Overview	
Name	Leak Repair and Plumbing Emerge
Abbr	25
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2020
Last Year	2040
Measure Length	21

Measure Life	
Permanent	☐
Years	5
Repeat	☐

Fixture Costs	Utility	Customer	Fix/Acct
SF	$90.00	$480.00	1
MF	$90.00	$480.00	3

Administration Costs	
Markup Percentage	30%

Description

Customer leaks can go uncorrected at properties where owners are least able to pay costs of repair. This program will require that customer leaks be repaired, but for low-income customers, be paid for with Rate Assistance for Residents of Elsinore Valley (RARE) funds that are paid back with customer monthly water bills over time.

Customer Classes

	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
	☑	☑	☐	☐	☐	☐	☐	☐

End Uses

	SF	MF	COM	INST	IRR	MISC	RES_IF	CII_IRR
Toilets	☐	☐						
Urinals								
Lavatory Faucets	☐	☐						
Showers	☐	☐						
Dishwashers	☐	☐						
Clothes Washers	☐	☐						
Process								
Kitchen Spray Rinse								
Internal Leakage	☑	☑						
Baths	☐	☐						
Other	☐	☐						
Irrigation	☐	☐						
Pools	☐	☐						
Wash Down	☐	☐						
Cooling								
Car Washing	☐	☐						
External Leakage	☐	☐						
Outdoor								
tory/Kitchen Faucets	☐	☐						

Comments

> Coordinate with RARE program. RARE budget would include up to a certain dollar amount for leaks to be fixed but the customer will have to pay back the cost. This cost would be added as a monthly fee to the customer's water bill until they pay it back.
> # of people on RARE program = 1,514. Assume 2% of these have leaks annually (approx. 30 accounts)
> Customer costs assume average cost of $500 to repair leak
> Utility costs represent approx 2 hours of staff time to track participation (at $45/hr)

Results

Average Water Savings (mgd)
0.009365

Lifetime Savings - Present Value ($)	
Utility	$239,803
Community	$375,929
Lifetime Costs - Present Value ($)	
Utility	$146,441
Community	$747,225
Benefit to Cost Ratio	
Utility	1.64
Community	0.50
Cost of Savings per Unit Volume ($/mg)	
Utility	$1,861

End Use Savings Per Replacement

	% Savings per Account
SF Internal Leakage	100.0%
MF Internal Leakage	100.0%

Targets

Target Method	Percentage
% of Accts Targeted / yr	0.150%
Only Effects New Accts	☐

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2018	$0	$0	$0
2019	$0	$0	$0
2020	$5,931	$1,779	$7,710
2021	$6,095	$1,828	$7,923
2022	$6,259	$1,878	$8,137
2023	$6,423	$1,927	$8,350
2024	$6,587	$1,976	$8,563
2025	$6,751	$2,025	$8,776

Targets

View: Accounts

	SF	MF	Total
2018	0	0	0
2019	0	0	0
2020	64	1	64
2021	65	1	66
2022	67	1	68
2023	69	1	70
2024	71	1	72
2025	73	1	73

Water Savings (mgd)

	Total Savings (mgd)
2018	0.000000
2019	0.000000
2020	0.001776
2021	0.003600
2022	0.005474
2023	0.007397
2024	0.009369
2025	0.009614

APPENDIX I – EVMWD CONSERVATION PROGRAM UTILITY COSTS

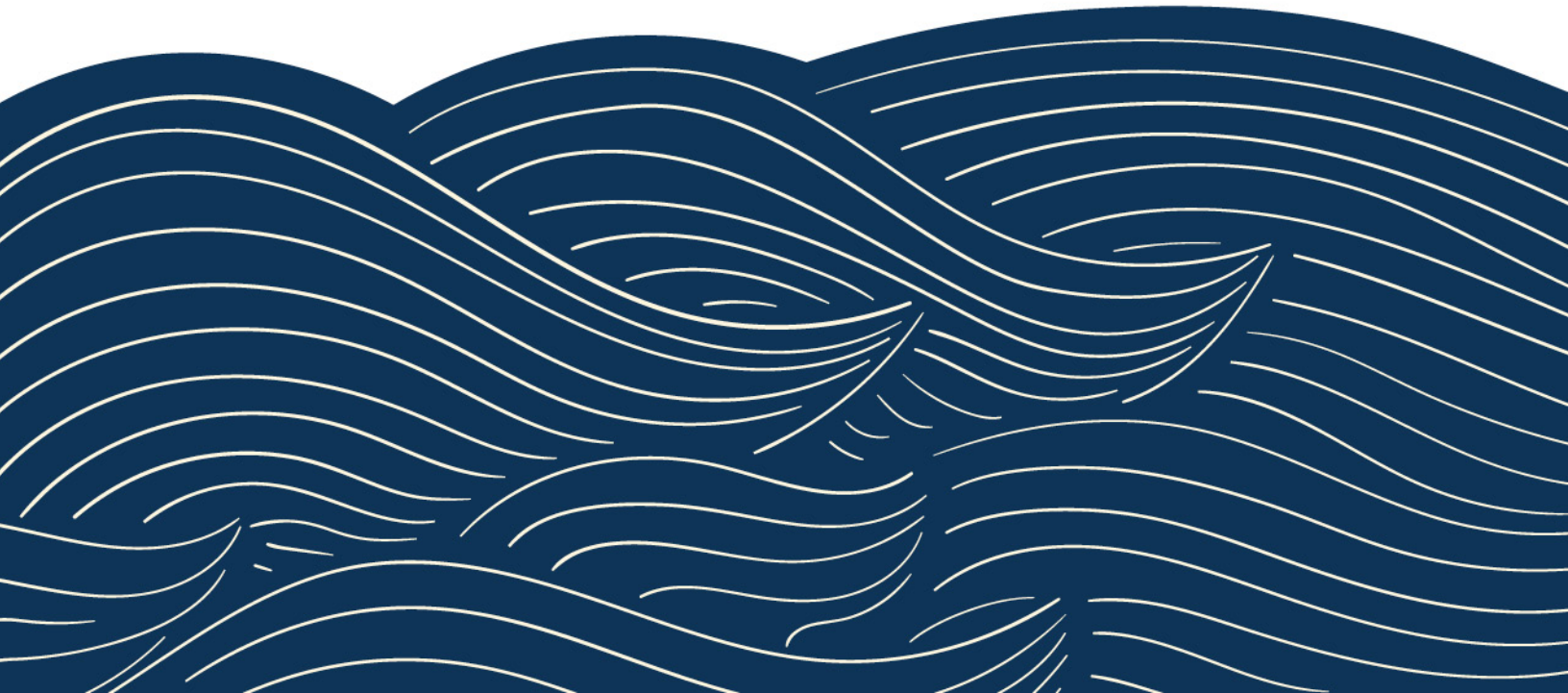
This appendix presents EVMWD's Programs A, B and C utility costs, including both fixture/incentive and administrative costs.

Table I-1. Conservation Program Utility Costs

Year	Program A	Program B	Program C
2018	$445,000	$445,000	$445,000
2019	$470,000	$575,000	$575,000
2020	$481,000	$727,000	$836,000
2021	$542,000	$854,000	$1,014,000
2022	$551,000	$864,000	$1,025,000
2023	$560,000	$875,000	$1,036,000
2024	$569,000	$779,000	$941,000
2025	$578,000	$789,000	$951,000
2026	$612,000	$853,000	$1,040,000
2027	$623,000	$865,000	$1,052,000
2028	$628,000	$872,000	$1,059,000
2029	$626,000	$871,000	$1,059,000
2030	$636,000	$882,000	$1,071,000
2031	$676,000	$957,000	$1,176,000
2032	$687,000	$970,000	$1,189,000
2033	$699,000	$983,000	$1,203,000
2034	$711,000	$996,000	$1,217,000
2035	$722,000	$1,009,000	$1,231,000
2036	$625,000	$785,000	$902,000
2037	$630,000	$791,000	$907,000
2038	$635,000	$796,000	$912,000
2039	$639,000	$801,000	$918,000
2040	$644,000	$806,000	$923,000

N

2020 System Optimization Review Plan



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System Optimization Review Plan

Elsinore Valley Municipal Water District

2020

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1 Executive Summary

Between September 2019 and October 2020, Elsinore Valley Municipal Water District (EVMWD) worked with Water Systems Optimization (WSO) to develop the following System Optimization Review Plan (SOR Plan). After conducting an initial baseline assessment of EVMWD's operational practices and leakage profile, the project team evaluated and prioritized opportunities to better assess and reduce water loss in the potable system. The primary results of that work are synthesized in this executive summary, while specific details about each opportunity are discussed in the remaining sections.

Water Loss Control at EVMWD

EVMWD's current operations and data management practices support tracking and managing real and apparent water loss (see Box 1 for definitions of these terms). Examples include:

- **Annual water auditing**: To meet regulations outlined in California Senate Bill 555, EVMWD conducts annual water auditing using standard American Water Works Association (AWWA) M36 methodology. The water audit is validated by a third-party each year and provides a high-level indication of water loss performance.
- **Efficient response to reported breaks**: Field staff respond to work orders related to reported breaks quickly and repair breaks effectively, minimizing leakage.
- **Source meter testing**: EVMWD conducts accuracy testing on active source meters in order to verify they are capturing production volumes correctly. Accurate production volumes are critical to reliable water auditing.
- **Customer meter testing and replacement**: EVMWD conducts accuracy testing on several hundred customer meters per year in order to inform replacement policies and estimate metering error for the annual water audit.

BOX 1. A QUICK INTRODUCTION TO WATER LOSS TERMINOLOGY

Water Loss
The difference between the total volume of water supply and the total volume of authorized consumption. Water loss is typically divided into two categories, ***real loss*** and ***apparent loss.***

Non-Revenue Water
Water for which EVMWD does not receive payment. Non-revenue water is similar to ***water loss***, but it also includes unbilled authorized uses such as firefighting and routine flushing to meet water quality regulations.

Real Loss
Physical loss of water from the system as a result of leaks, breaks, or spillage that occurs prior to the point of customer consumption. Real losses can be further broken down into smaller categories: background, reported, unreported, and hidden. Different intervention strategies are effective at reducing each of these categories.

Apparent Loss
Nonphysical losses that occur when water is successfully delivered to the customer but is not measured or recorded accurately. This can result from metering inaccuracies, unauthorized consumption (theft), or systematic data handling error.

Recent water audit results indicate that there is minimal leakage in EVMWD's potable system. Table 1 shows selected performance indicators from reporting years 2016-2018.

Table 1: Selected Water Audit Performance Indicators 2016-2018

Water Audit Performance Indicator	2016	2017	2018
Total water losses (AF)	1,676.2	1,189.8	1,338.0
Real losses (AF)	1,365.3	865.1	827.8
Cost of real losses	$1,353,053	$840,918	$977,583
Real losses per connection per day (gal)	27.7	16.9	16.0
Apparent losses (AF)	310.9	324.6	510.2
Cost of apparent losses	$375,103	$419,987	$671,206
Apparent losses per connection per day (gal)	6.3	6.3	9.9
Infrastructure Leakage Index (ILI)	1.38	0.85	0.81

From 2016-2018, real loss averaged 20.1 gal/connection/day, which is substantially lower than the California state median over the same time period, approximately 25 gal/connection/day. Such low levels of loss are encouraging and reflect EVMWD's ongoing operational and data management practices to track and manage water loss.

However, the recent value of one performance indicator, the Infrastructure Leakage Index (ILI), indicates that EVMWD should take steps to verify its low loss audit results. The ILI is an indication of how well a utility is controlling leakage given its unique system characteristics (i.e. length of mains, number of service connections, and level of pressure). A lower value indicates less leakage and a higher value indicates more leakage. A value of 1.0 represents the "modeled technical minimum" achievable leakage, assuming best operational practices are maintained. Therefore, any value under 1.0 means that a utility is experiencing less leakage than is technically achievable according to an industry standard model. In 2017 and 2018, EVMWD's ILI fell below 1.0. While this is not impossible, it emphasizes the need to verify recent performance through continued auditing with increasingly accurate data.

The California State Water Resources Control Boards (SWRCB) is using the audit results presented in Table 1 to determine EVMWD's upcoming volumetric performance standard. The SWRCB is doing the same for all urban retail water suppliers in California with more than 3,000 service connections or that produce 3,000 AF of water annually. In other words, performance standards will be unique to each utility and based on their recent audit results. Although these standards are not finalized, at the time of writing (September 2020) EVMWD will be required to maintain its current level of loss (20.1 gal/connection/day) beginning in 2028. This makes it a critical time for EVMWD to keep focus on minimizing water loss in the distribution system.

System Optimization Review Plan

The SOR Plan is an important resource that will guide EVMWD's future water loss control efforts. The projects featured in the Plan have three primary goals:

1. **Increase confidence in water loss assessment**: The annual water audit requires complete, consistent, and accurate data sources to provide reliable assessments of water loss over time. With this in mind, many projects in the SOR Plan focus on improving data collection, management, and reporting practices.
2. **Determine efficiency of leakage reduction strategies through pilot programs**: Industry standard models such as real loss component analysis indicate that EVMWD does not have recoverable leakage (Section 2.2). This makes it challenging to project potential savings of specific intervention strategies. Despite this, the SOR Plan features several pilot projects that can help field validate EVMWD's low leakage while simultaneously determining which strategies are most efficient for EVMWD operations.
3. **Prepare for state regulatory requirements**: The current draft performance standards set by the state of California do not require EVMWD to reduce water losses—just maintain them at current levels. The SOR Plan will help ensure EVMWD does not lose ground before these standards take effect in 2028. In addition, it serves as documentation of existing and future efforts at EVMWD to minimize water losses.

Table 2 presents the final list of prioritized recommendations with a proposed timeline for implementation. Each recommendation represents a discrete project that EVMWD can implement to optimize operations and data management for water loss tracking and reduction. Each project is categorized into one of four areas: Water Audit Data Improvements, Source Meters, Customer Meters, or Leakage. Projects are color coded to indicate if they focus on water loss assessment or reduction. Both assessment and reduction are critical for controlling real and apparent water loss (Section 2.4).

The remainder of the SOR Plan is divided into six additional sections. The *Background* section describes the various phases of the project, the regulatory context in California, more information about EVMWD's past water loss performance, and a discussion about the importance of both assessment and reduction efforts. The next four sections describe specific optimization actions categorized by the major topic areas. Finally, the *Conclusion* section discusses the future of the SOR Plan and briefly discusses funding mechanisms.

Figure 1: Railroad Canyon Reservoir (Canyon Lake)

Table 2: EVMWD System Optimization Review Plan Implementation Timeline

Area	Optimization Project	Cost	Effort	2021	2022	2023	2024	2025	2026	2027	2028
Water Audit Data Improvements 	Create single repository for source and customer meter testing and calibration results	*	**								
	Review AMI data handling process and procedure	*	*								
	Standardize audit compilation with written documentation	*	**								
	Improve cross-departmental communication related to water loss metrics and opportunities	*	**								
Source Meters 	Reaffirm annual source meter accuracy testing policy	**	**								
	Reaffirm annual source meter calibration policy	**	**								
	Integrate source meters with AMI	****	****								
	Conduct source meter inventory and assessment	*	**								
	Install source meter at Temescal Valley Pipeline (TVP)	****	****								
Customer Meters 	Shift to revenue-based large customer meter accuracy testing	*	**								
	Conduct flow profiling on large customer meters	**	**								
	Shift to random and representative small customer meter accuracy testing	***	**								
	Identify failing customer meters on closed accounts	*	*								
Leakage 	Enhance work order data to support water loss analysis (adjust current system or implement new one)	* / ****	** / ****								
	Pilot satellite leak detection	**	***								
	Pilot transient monitoring	**	**								
	Pilot district metered areas (DMA) using booster stations	***	***								
	Look for opportunities to optimize pressure when operationally feasible	*	**								

Improved Assessment Water Loss Reduction

**Lighter shade indicates reduced effort*

2 Background

2.1 Project Overview

In June 2018, Elsinore Valley Municipal Water District (EVMWD) completed a Water Conservation Business Plan that outlined a number of cost-effective water conservation projects. Among the recommendations was the development of a System Optimization Review Plan (SOR Plan) intended to investigate current water loss levels and identify opportunities for leakage reduction. Soon after publication of the Business Plan, EVMWD received funding to complete the proposed SOR Plan through the US Bureau of Reclamation's Water Conservation Field Services grant.

Between September 2019 and September 2020, EVMWD worked with Water Systems Optimization (WSO) to develop the SOR Plan, which is presented here. In addition to WSO, the core project team included staff from EVMWD's Operations and Water Resources Planning departments. Staff from other departments contributed significant time and effort to the project as it progressed through four distinct phases of work:

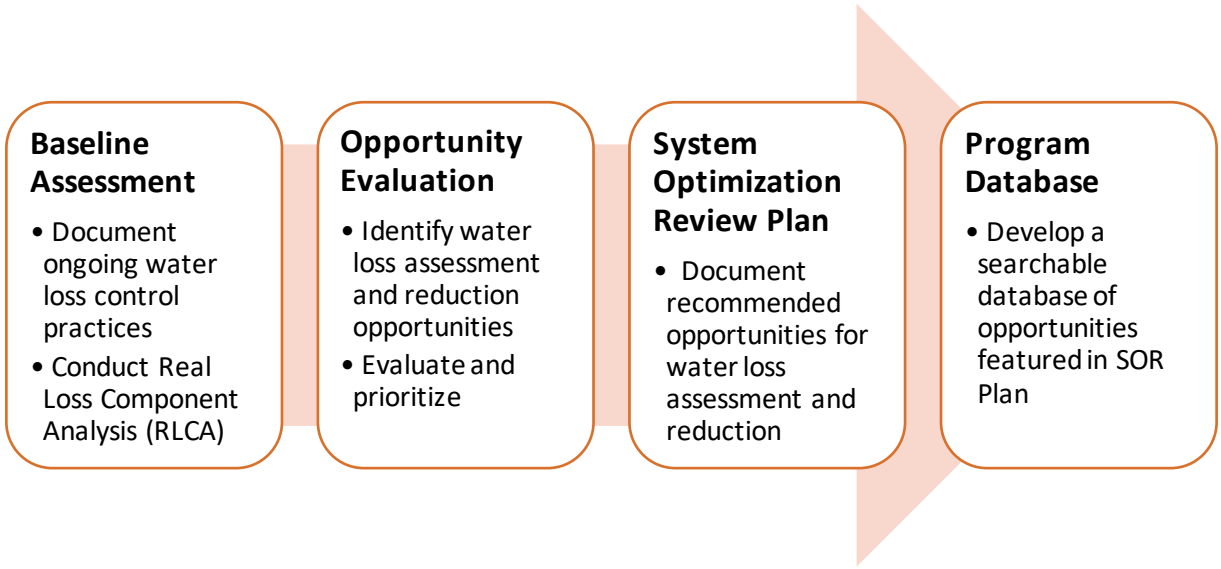


Figure 2: Summary of Project Elements

1.1.1 Baseline Assessment

To begin, the project team conducted a baseline assessment of the potable water system that focused on existing system characteristics, data management practices, and water loss control efforts. The assessment identified an initial set of opportunities to consider by comparing current operations with industry best practices and provided context for discussion during later stages of the SOR Plan development.

The team also completed a Real Loss Component Analysis (RLCA) during this phase, which is an analytical exercise that uses the results of the annual water audit, work order data, and proactive leak detection findings to establish a unique profile of real loss (leakage) in a system. The results of the RLCA are discussed in Section 2.3.

1.1.2 Opportunity Evaluation

Staff from many departments participated in a series of meetings led by the project team to evaluate opportunities for improved water loss assessment and reduction. First, participants gave their initial feedback on the list of opportunities created during the baseline assessment work. Opportunities were categorized in one of four topic areas: Water Audit Data Improvements, Source Meters, Customer Meters, and Leakage (Figure 3).

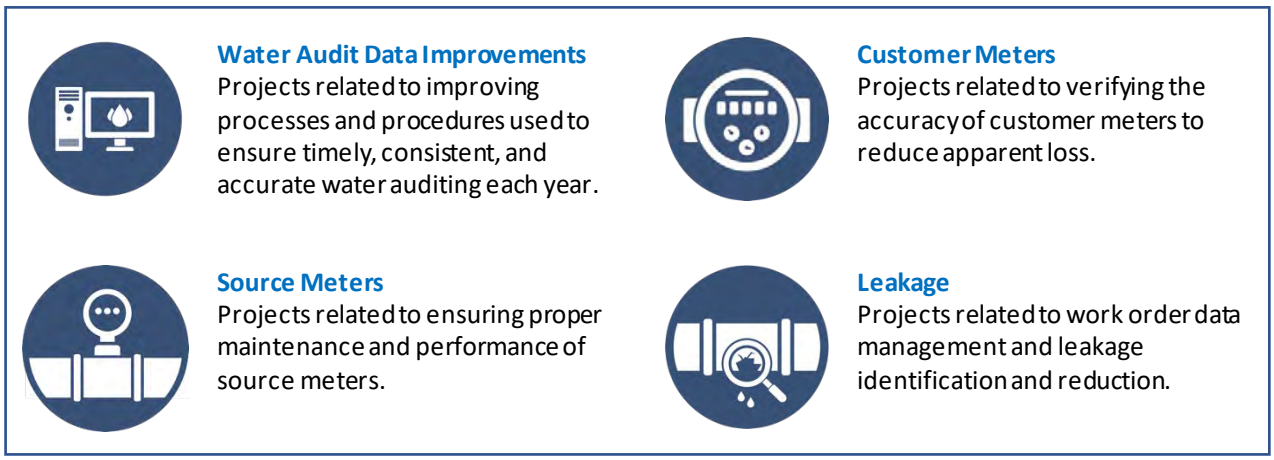


Figure 3: Opportunity Topic Areas

In subsequent meetings, participants discussed the evaluation criteria presented in Table 3. The core project team used the group's assessment of these criteria to select the final opportunities and implementation timeline presented in this report.

Table 3: Evaluation Criteria for Optimization Projects

Evaluation Criteria	Description
Potential Water Loss Impact	Each project is intended to either improve the assessment of water loss or reduce it directly. In some cases, both goals can be achieved simultaneously. o *Assessment:* These projects focus on improving data sources and processes used to estimate and track water loss over time. Accurate water loss assessment is critical for determining cost-effective intervention strategies and evaluating success. o *Reduction:* These projects focus on reducing apparent and real loss directly, such as through proactive leak detection or pressure optimization. For EVMWD, it is particularly difficult to evaluate potential leakage reduction because industry standard models indicate there is no leakage to recover (Section 2.2).
Roles and Responsibilities	The departments and staff who would help implement the project, as well as the short- and long-term responsibilities they would have.
Effort	A preliminary indication of the level of effort needed to implement the project, including planning, execution, and maintenance. Effort was assessed on a scale of 1-4 and is represented with asterisks (*) in this report. Projects with minimal anticipated effort were assigned a 1 (*) and projects with very high anticipated effort were assigned a 4 (****).
Costs	A preliminary indication of how much the project would cost to implement. Cost was assessed on a scale of 1-4 and is represented with asterisks (*) in this report. Projects with minimal anticipated cost were assigned a 1 (*) and projects with very high anticipated cost were assigned a 4 (****).
Obstacles for Implementation	Anything that would present a challenge to successful implementation (e.g. staff capacity issues, incompatible systems).
Ongoing Activity	Any ongoing activities at EVMWD related to the project that could be integrated or built on.

1.1.3 Optimization Review Plan

Following evaluation and prioritization, the project team formally documented each opportunity in this report. These opportunities are specific projects that EVMWD can implement to achieve accurate water loss assessment and reduction. The SOR Plan presents a prioritized timeline for these projects (Table 2) and includes relevant context and implementation guidance.

The projects featured in the SOR Plan have three primary goals:

4. **Increase confidence in water loss assessment**: The annual water audit requires complete, consistent, and accurate data sources to provide reliable assessments of water loss over time.
5. **Determine efficiency of leakage reduction strategies through pilot programs**: Industry standard models such as real loss component analysis indicate that EVMWD does not have recoverable leakage (see Section 2.2). This makes it challenging to project potential savings of specific intervention strategies. Despite this, the SOR Plan features several pilot projects that can help field validate EVMWD's low leakage while simultaneously determining which strategies are most efficient for EVMWD operations.
6. **Prepare for state regulatory requirements**: The current draft performance standards set by the state of California do not require EVMWD to reduce water losses—just maintain them at current levels. The SOR Plan will help ensure EVMWD does not lose ground before these standards take effect in 2028. In addition, it serves as documentation of existing and future efforts at EVMWD to minimize water losses.

1.1.4 Project Implementation Masterfile

In the last phase of work, the project team developed a Project Implementation Masterfile, which is a Microsoft Excel workbook that summarizes the recommendations described in the SOR Plan. It will serve as a "one-stop-shop" for information about EVMWD's water loss control projects and generally has four primary goals:

1. **Project inventory**: List all recommendations from the SOR Plan
2. **Water Loss Context**: Describe why each project is important for water loss control
3. **Implementation Guidance**: Points of emphasis for successfully implementing each project and managing related data
4. **Status**: Report the current status of each project (see Section 7 for more information)

2.2 Past EVMWD Water Loss Performance

EVMWD has submitted water audits every year since 2017 as required by California Senate Bill 555. A water audit is an accounting exercise used to systematically track all sources and uses of water in a distribution system. By comparing the volume of water produced to the volume of water consumed and adjusting for known errors, it provides a "top-down" evaluation of water loss, non-revenue water, and overall system efficiency.

Recent water audit results indicate that there is minimal leakage in EVMWD's potable system. From 2016-2018, real loss averaged 20.1 gal/connection/day, which is substantially lower than the California state median over the same time period, approximately 25 gal/connection/day (Figure 4).

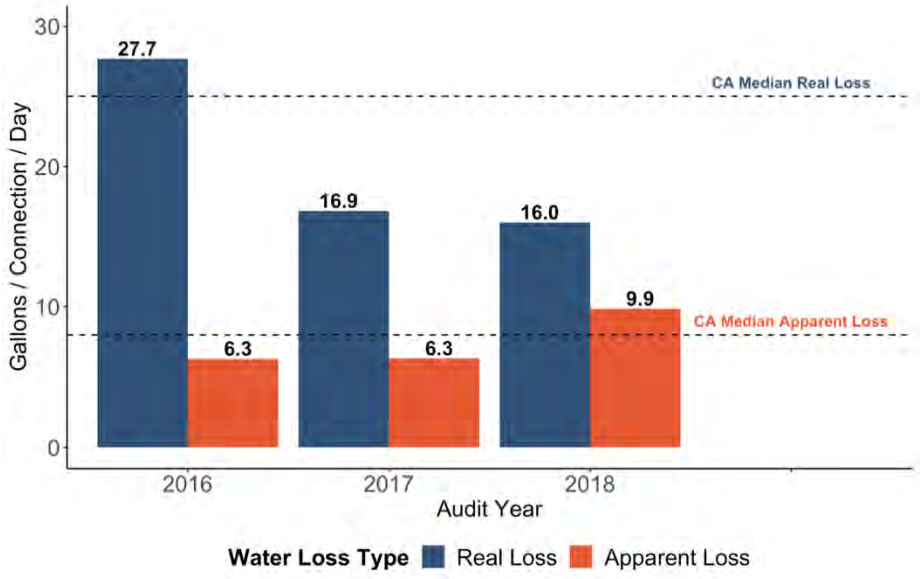


Figure 4: Real and Apparent Loss 2016-2018 Compared to California Median

Figure 4 also shows a substantial drop in real loss from 2016 to 2017-18. Although it is difficult to identify specific operational changes that would account for this change, the data shows that the volume of billed metered authorized consumption (BMAC) increased approximately 1,000 AF between 2016 and 2017, while water supply only increased half as much. During this time, EVMWD was completing its transition to advanced metering infrastructure (AMI), which may have improved its ability to accurately summarize annual BMAC.

In the two most recent audit years, the estimated volume of system leakage fell below the modeled technical minimum, as indicated by an infrastructure leakage index (ILI) less than 1 (Table 4). This modeled technical minimum, known as the Unavoidable Annual Real Loss (UARL), is calculated with equations published in AWWA M36 that assume a certain amount of leakage per mile of main and service connection. The UARL attempts to estimate the lowest achievable level of real losses for systems operated with "best practice" leakage management and with infrastructure in generally good condition.

Table 4: Selected Water Audit Performance Indicators 2016-2018

Water Audit Performance Indicator	2016	2017	2018
Total water losses (AF)	1,676.2	1,189.8	1,338.0
Real losses (AF)	1,365.3	865.1	827.8
Cost of real losses	$1,353,053	$840,918	$977,583
Real losses per connection per day (gal)	27.7	16.9	16.0
Apparent losses (AF)	310.9	324.6	510.2
Cost of apparent losses	$375,103	$419,987	$671,206
Apparent losses per connection per day (gal)	6.3	6.3	9.9
Infrastructure Leakage Index (ILI)	1.38	0.85	0.81

Part of the UARL is used in a real loss component analysis (RLCA), which is an analytical exercise that breaks down the total volume of real loss (as determined by the annual water audit) into four separate categories of leakage:

- **Background Leakage:** Leaks of low flow rates, continuously running, and not discoverable by leak detection. Typically composed of pinholes and minor leaks at pipe joints and fittings.
- **Reported Leakage:** Leaks reported by the public or utility staff. Generally high flow rate and of relatively short duration. This is volume of water is typically determined using work order data and the estimation technique described previously.
- **Unreported Leakage**: Leaks discovered through proactive leak detection.
- **Hidden Leakage:** Leaks that have not yet been discovered. Generally moderate flow with average runtimes dependent on the intervention practices of the respective utility.

The categories of background, reported, unreported and hidden leakage were defined to describe types of real loss that can be recovered using specific intervention strategies (Figure 5). For example, the principal recovery strategy for unreported and hidden leaks is proactive leak detection. Notably, all forms of real loss can be recovered through strategic pressure management because leak incidence and flow rate are highly related to pressure dynamics in water distribution systems. This leakage framework is a useful guide for planning future water loss reduction strategies.

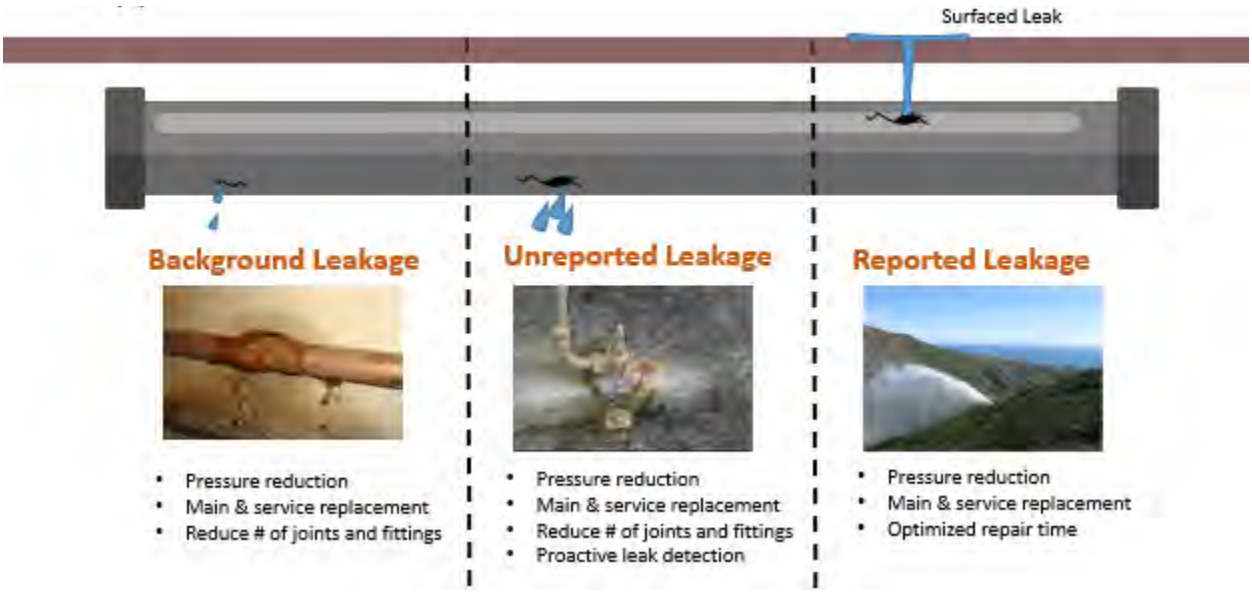


Figure 5: Types of real loss and their typical intervention strategies

The project team conducted a RLCA on EVMWD's CY2018 audit results during the baseline assessment phase. Table 5 presents the results of that analysis:

Table 5: CY 2018 Real Loss Component Analysis (RLCA) Results

	Category of Real Loss	*Data Source*	*Volume (AF)*
A	Reported loss	Work order records	256.0
B	Unreported loss	Proactive leak detection results[1]	0.0
C	Background loss	AWWA M36 UARL model	747.4
D	Hidden loss	E – (A + B + C)	-175.6
E	**Total volume of real loss**	CY2018 Audit	**827.8**

The volume of hidden loss in CY2018, which represents leakage that is potentially recoverable using active leakage control strategies, is a negative volume (Table 1). This is the unrealistic but expected result when the volume of background and reported leakage is higher than the total volume of real losses determined by the annual water audit.

There are two possible explanations for the low losses shown by recent water audits and negative losses shown by the 2018 RLCA:

- **Variable Data**: The annual water audit requires complete, consistent, and accurate data sources to provide reliable assessments of water loss. It is possible that inaccurate assessments of source meter and customer meter error, for example, are producing water audits that are under-estimating leakage.
- **Unique System Characteristics**: EVMWD may exhibit unique system characteristics that prevent the UARL model (and therefore, the RLCA results) from accurately estimating hidden leakage in the system.

Given these two possibilities, the SOR Plan features projects that focus on (1) better assessment of water loss and (2) leakage reduction pilots that will field validate EVMWD's low leakage while simultaneously determining which strategies are most efficient for EVMWD operations. This multi-faceted approach will improve EVMWD's understanding of system water loss and help ensure it meets upcoming state regulatory requirements.

[1] EVMWD did not conduct proactive leak detection in 2018

2.3 California Regulatory Context

The most recent draft proposal from the SWRCB for water loss performance standards set volumetric limits to real loss for each utility that they must meet beginning in 2028[2]. Limits are determined using an economic model that incorporates average audit results and other parameters between reporting years 2016-2018 (i.e. the values presented in Table 1). At the time of writing (September 2020), EVMWD will be required to maintain its current level of loss (20.1 gal/connection/day) beginning in 2028.

Although the standards do not prescribe specific intervention strategies to achieve compliance, the economic model does assume a default manual acoustic leak detection frequency when calculating each limit. If the 30-year net present value (NPV) of that strategy is positive, the utility's target is equal to the modeled level of leakage in 2026, assuming the assigned leak detection frequency. If the NPV is negative, the utility's target is equal to its 2016-2018 levels.

For the purposes of the SWRCB model, EVMWD's assumed survey frequency is 36 miles per year, given the length of mains in the system. At that frequency, the 30-year NPV is negative and therefore EVMWD has been assigned its current leakage level of 20.1 gal/connection/day.

Even though EVMWD is not required to lower its overall real losses, the SOR Plan will help ensure EVMWD does not lose ground before these standards take effect in 2028. In addition, it serves as documentation of the existing and future efforts at EVMWD to minimize water losses.

More specific information about upcoming regulations is included in subsequent sections, where relevant.

[2] The latest information about these standards can be found here: www.waterboards.ca.gov/water_issues/programs/conservation_portal/water_loss_control.html

3 Water Audit Data Improvements

EVMWD conducts annual water auditing using the standard American Water Works Association (AWWA) M36 methodology. A water audit is an accounting exercise used to systematically track all sources and uses of water in a distribution system. By comparing the volume of water produced to the volume of water consumed and adjusting for known errors, it provides a high-level evaluation of water loss, non-revenue water, and overall system efficiency.

2020 marks the fourth consecutive year that EVMWD has submitted a validated water audit to the California Department of Water Resources. As EVMWD continues to build its record of audit results, there will be an ever-increasing opportunity to identify trends in real and apparent loss over time. However, high quality data and consistent methodology for calculating audit inputs are critical for reliable performance indicators. Without these, it is difficult to determine whether observed trends are the result of actual changes in water loss (e.g. due to intervention efforts) or the result of poor data or methodological changes.

The opportunities featured in this section are specific projects that EVMWD can pursue to improve data sources and increase its confidence in the annual water audit and advanced analysis such as a Real Loss Component Analysis (RLCA).

BOX 2. REGULATORY CONTEXT: WATER AUDIT DATA IMPROVEMENTS

EVMWD is currently required to submit a validated water audit each year to the state of California, as outlined in Senate Bill 555. Pending regulations will establish utility-specific performance standards that set volumetric standards to real loss beginning in 2028. The SWRCB has developed an economic model that uses average water audit results from 2016-2018 (as well as many other assumptions and parameters) to set these limits. Future water audit results will be used to determine compliance with standards.

Ahead of these new regulations, EVMWD should focus on improving water audit data as much as possible in order to accurately track trends in water loss. Reliable water audit results will allow EVMWD to identify changes in real loss and take steps to intervene.

3.1 Create single repository for source and customer meter testing and calibration results

CURRENT OPERATIONS

EVMWD oversees annual source meter accuracy testing and electronic calibration (see Sections 4.1 and 4.2), which is conducted by a third-party. After performing the test and/or calibration, the tester issues an accuracy report which is typically in portable document format (PDF). Reports are stored on EVMWD's network as stand-alone files and retrieved when necessary.

EVMWD also conducts annual customer meter accuracy testing (see Section 5.3) to determine overall population health and guide replacement efforts. Operations staff perform small meter tests using a modern test bench and a third-party performs large meter tests (3" and larger) in the field. EVMWD staff enter small meter results into CIS using mobile data collection software called Field Mapplet. Third-party testers issue large meter results which are compiled in a master spreadsheet.

For the annual water audit, EVMWD uses customer meter test results each year to calculate overall customer meter inaccuracy. However, source meter test results have only been used twice in the past four years to calculate master meter supply error adjustments (MMSEA).

OPTIMIZATION PROJECT

Create a single repository in CIS for accuracy and electronic calibration results for both source and customer meters. Table 6 outlines the departmental actions and other considerations for this project:

Cost	*
Effort	**
Impact type	Assessment

Table 6: Departmental involvement in project 3.1

	Customer Service (Billing)	Information Technology	Operations
Actions	Assign account number to each source meter in CIS, which will allow testing and calibration results to be associated with specific meters.	Update database structure to accommodate testing and calibration fields.	Input both internal and third-party testing and calibration results into CIS.
Considerations	This is also necessary for integrating source meters into AMI (Section 4.3)	Formatting of results (e.g. new contractor) may be different in the future.	Data collection templates may be provided to third parties

EVMWD should consider the different formats of tests and calibration documents when determining how to store results in the CIS. Although results should reside in a single database (i.e. CIS), that does not mean they need to be stored in the same table. Different table designs will allow for EVMWD to account for differences in testing and calibration protocols. For example, while large meter test results can feature an "as-left" value, small customer meters are scrapped after testing and therefore do not have such a value. Tables 7, 8, and 9 show example table formats for source, large customer, and small customer accuracy test results.

Table 7: Example of simplified test result table for source meters

Date	Nickname	Meter ID	Size (In)	Flow (gpm)	Accuracy	Make…
10/1/20	Back Basin WTP	BWTP16	16	7500	95.80%	…
10/1/20	Back Basin WTP	BWTP16	16	8000	97.86%	…
10/1/20	Back Basin WTP	BWTP16	16	8700	98.92%	…
10/1/20	Corydon Well	CW12	12	1600	100.05%	…

Table 8: Example of simplified test result table for large customer meters

Date	Meter ID	Size (In)	Flow (gpm)	Accuracy (As Found)	Accuracy (As Left)	Make…
10/1/20	HIJ123	3	40	95.80%	-	…
10/1/20	HIJ123	3	80	96.86%	99.73%	…
10/1/20	NOP345	6	75	99.12%	-	…
10/1/20	NOP345	8	125	99.62%	-	…

Table 9: Example of simplified test result table for small customer meters

Date	Meter ID	Size (In)	Low GPM	Mid GPM	High GPM	Low GPM Accuracy	Mid GPM Accuracy	High GPM Accuracy	Overall Accuracy	Make…
10/1/20	AB2	0.625	0.25	2	15	95.71%	98.54%	98.84%	98.16%	…
10/1/20	BC3	0.625	0.25	2	15	96.88%	98.56%	99.24%	98.41%	…
10/1/20	CE5	0.625	0.25	2	15	94.89%	97.65%	99.95%	97.58%	…
10/1/20	D46	0.75	0.25	2	15	96.34%	97.80%	99.11%	97.78%	…

POTENTIAL WATER LOSS IMPACT

This project is intended to improve the assessment of water loss by consolidating the storage of meter accuracy and calibration results so they can readily be used in water loss auditing and analysis. Adjustments to water supply (via MMSEA inputs) and the estimate of customer meter inaccuracy can have substantial impacts on performance indicators and therefore it is critical that EVMWD pay particular attention to these entries. Dedicating a portion of the CIS database for this purpose is one way to encourage EVMWD to incorporate their test results each year.

Converting third-party PDF results to tabular form in a database will allow for clearer visualization of year to year trends and highlight which meters need greater attention. In addition, storage of results in a single database will make it simpler to run specific data queries for accurate calculation of source meter error and customer meter inaccuracy each year. Finally, it will simplify the process of providing data to third parties who can run additional analysis on test results.

TIMELINE

2021	2022	2023	2024	2025	2026	2027	2028

3.2 Review AMI data flow

CURRENT OPERATIONS

EVMWD meters all customers in its service area and bills them according to consumption. 100% of customer meters are equipped with advanced metering infrastructure (AMI), a technology that transmits consumption data to a central database using a cellular network. Figure 6 illustrates how data moves from the customer meter to a summary figure used in the annual water audit:

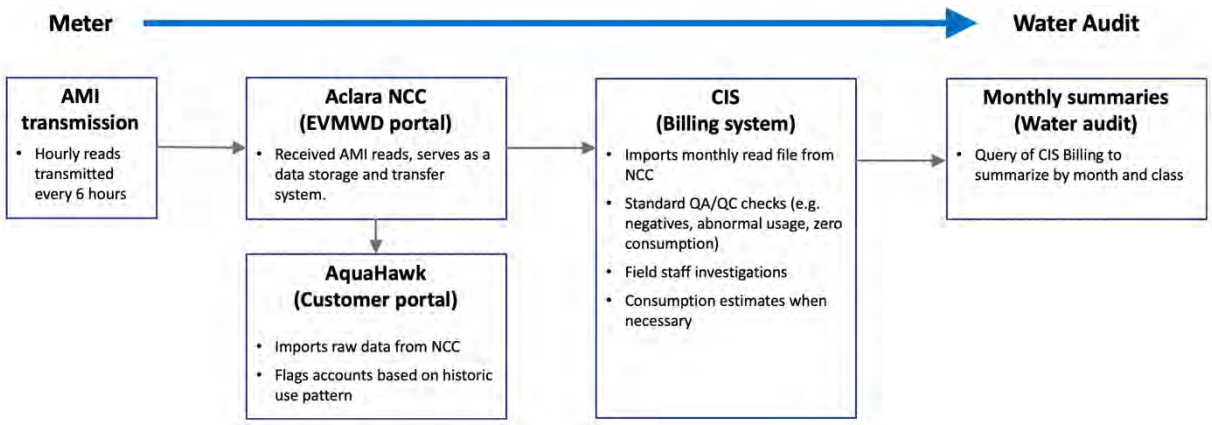


Figure 6: Customer meter data flow from meter to audit

EVMWD's CIS billing system is set up with standard quality assurance and control (QA/QC) checks to automatically flag problems such as negative consumption, abnormal usage, and consecutive zero reads. Although protocols exist for staff to handle these exceptions in a timely manner, there is no formal documentation of the steps.

OPTIMIZATION PROJECT

Review and document the processes and procedures related to how data is transferred from the customer meter to the annual water audit as well as how exceptions are handled. Table 10 outlines the departmental actions and other considerations for this project:

Cost	*
Effort	*
Impact type	Assessment

Table 10: Departmental involvement in project 3.2

	Customer Service (Billing)	Information Technology	Operations
Actions	Participate in periodic (e.g. bi-annual) meetings with representatives from key departments that interact with software in the data transfer process.		
Considerations	As source meters are integrated into AMI, it will be important to include them in the review process.		

One product that can simplify the data handling review is a process map. Process maps provide an excellent way to explicitly define the relationships between people, hardware, software, and the movement of data between them. The visual nature of process maps makes them particularly effective

at highlighting potential data gaps and misunderstandings of procedure. The following list describes some specific issues the review team should consider when creating such a process map:

- **AMI endpoint connectivity**: Lapses in connectivity can prevent the AMI endpoint from successfully transmitting data to Aclara NCC. The review team should assess actual connectivity as compared to vendor specifications and verify that the proper usage is transmitted after communication is reestablished.
- **Estimation Protocols**: In cases when a faulty meter prevents tracking water use (e.g. stuck meter, cut wire), EVMWD staff estimate consumption and alter the read in CIS. The review team should assess this manual process of estimation and database editing to ensure it is consistency applied.
- **Meter Changeouts and Rollovers**: When a problematic meter is replaced or when a meter rollover occurs, Aclara NCC or CIS may record this in unexpected ways. For example, two reads might be recorded—one for the last read of the old meter, and one for the first read of the new meter—that over- or under-report actual consumption. EVMWD should carefully examine these situations to ensure that consumption is accurately recorded.
- **Farm Mutual Water Company:** Starting in 2018, EVMWD reclassified its single wholesale connection (Farm Mutual Water Company) as billed metered authorized consumption. The review team should make sure that this is accurately reported in the water audit (e.g. it is included the BMAC summary).

POTENTIAL WATER LOSS IMPACT

This project is intended to improve the assessment of water loss by ensuring accurate reporting of billed metered authorized consumption. As one of the largest inputs in the water audit, any errors will have a relatively large impact on the accuracy of the water balance and the calculation of real losses. The relative complexity of EVMWD's data handling process makes it important to review on regular basis.

Process maps can be especially helpful for highlighting how water consumption data moves from the customer meter to the annual water audit. Water audits compare volumes of water supply and consumption to estimate water losses. However, the summary reports used to calculate volumes for the water audit are several steps removed from the original source of data—the meters themselves. Therefore, process maps can identify areas for investigation if there is reason to believe that summary reports are not capturing all volumes of production and consumption.

TIMELINE

2021	2022	2023	2024	2025	2026	2027	2028

Relevant staff should meet every other year to review and adjust AMI data transfer documentation. More regular reviews are probably necessary because most technologies and processes will not change very frequently.

3.3 Standardize annual audit compilation

CURRENT OPERATIONS

Each year, a single staff member leads the compilation of the water audit. Mostly, this involves calculating specific inputs or contacting other staff members directly for their assistance. Although EVMWD has successfully compiled its audit each year in a timely manner, there is no formal documentation of the steps.

OPTIMIZATION PROJECT

Standardize the compilation of EVMWD's annual water audit to ensure efficient and consistent analysis. Table 11 outlines the departmental actions and other considerations for this project:

Cost	*
Effort	**
Impact type	Assessment

Table 11: Departmental involvement in project 3.3

	Operations	Customer Service (Billing)	Information Technology	Engineering	Finance
Actions	Review inputs: • Supply and authorized consumption volumes • Testing and calibration adjustments	Review inputs: • Billing estimates and adjustments	Review inputs: • Length of mains and hydrants laterals (GIS) • Count of service connections	Review inputs: • Average operating pressure	Review inputs: • Variable production cost • Customer retail unit cost • Total annual operating cost
Considerations	No other considerations				

The following describes two ways that EVMWD can standardize the audit compilation process:

- **Standard Operating Procedures (SOP)**: EVMWD could outline the data and calculations required to derive each input in the water audit. This could take several forms:
    - *Bullet points*: The quickest way to explicitly document the most important elements
    - *Process map*: A visual description of the people, processes, and software involved
    - *"One-pagers"*: Reference sheets with narrative descriptions
- **Water Audit Handbook**: This is a single document that guides annual water auditing that may include the following elements:
    - *Roles and responsibilities*: Which people and/or departments are responsible for each input
    - *Data and calculations*: Location (e.g. internal network) of data and what specific calculations are needed to prepare the data for the audit. This section could include tips about how to do this efficiently or warnings about potential challenges.

- *Historic values*: Past performance indicators and input entries. Seeing previous input entries could be especially helpful for validating inputs and ensuring consistency year to year.
- *Regulatory context*: Any additional considerations for the audit related to current or upcoming state regulations.

POTENTIAL WATER LOSS IMPACT

This project is intended to improve the assessment of water loss by producing formal documentation of the data and calculations necessary to compile an accurate water audit each year. Documentation that is carefully developed and periodically reviewed will reduce the time necessary to complete the water audit, encourage a distribution of work so no one team member is held responsible, and protects against loss of knowledge due to staff turnover.

TIMELINE

2021	2022	2023	2024	2025	2026	2027	2028

Depending on the scale of implementation EVMWD chooses to pursue (e.g. bullet points vs water audit handbook), it may take several years to document the data and calculations required for all audit inputs. After this initial push, EVMWD should periodically review its documentation to ensure it is up to date.

3.4 Improve cross-departmental communication related to water loss

CURRENT OPERATIONS

Operations staff send monthly water loss totals throughout the organization. In addition, water loss related topics are sometimes discussed at the monthly "Regular Engineering and Operations Committee Meeting."

OPTIMIZATION PROJECT

Take additional steps to improve cross-departmental communication related to water loss. Table 12 outlines the departmental actions and other considerations for this project:

Cost	*
Effort	**
Impact type	Assessment

Table 12: Departmental involvement in project 3.4

	Coordinating Department	Other Departments
Actions	Coordinate water loss updates and/or meetings	Review, attend, or contribute to water loss updates
Considerations	For some departments, it may be difficult to find meaningful contributions each time. In these cases, the coordinating department should make a concerted effort to highlight how those departments are still connected to water loss and how their attention and contributions are important for the organization's success.	

The following describes two ways that EVMWD can improve its cross-departmental communication related to water loss:

- **Key performance indicator (KPI) updates:** Develop KPI goals, track progress towards meeting them, and regularly update the organization. Examples include real loss per connection per day, break response times, and source meter tests. These updates could be added to the existing monthly water loss report or discussed at dedicated meetings (see next bullet).
- **Regular meetings:** With representation from relevant departments, EVMWD could discuss water loss activities and updates

POTENTIAL WATER LOSS IMPACT

This project is intended to improve the assessment of water loss by encouraging proactive thought, tracking, and coordination related to water loss activities. Possible outcomes of these efforts include:

- **Combating "brain drain":** Through regular information updates and discussion, water loss will remain in continuous focus for EVMWD staff. Rather than revisiting water loss concepts once a year during audit season, relevant staff will be prepared to gather data, generate new ideas, and implement water loss control projects without overlooking important details.

- **Shared vocabulary**: As staff become more accustomed to water loss terminology, it will become easier to discuss water loss topics. Ultimately, this will better prepare them to contribute to the annual water auditing effort.
- **New relationships and ideas**: By maintaining cross-departmental engagement, there will be more opportunities for staff to meet and interact when they typically would not during their day-to-day routines. This will cultivate new working relationships and stimulate new ideas for how to address water loss.

TIMELINE

2021	2022	2023	2024	2025	2026	2027	2028

EVMWD should encourage cross-departmental communication as a regular and continuous practice.

4 Source Meters

Source meters are some of EVMWD's most critical assets because they are responsible for tracking production volumes from wells and water treatment plants, purchased water at import connections, and wholesale water leaving the system. These volumes represent the foundation of the annual water audit—any error in this volume has a cascading effect that reduces the reliability of all performance indicators.

The opportunities featured in this section are specific projects that EVMWD can pursue to maintain accurate source meters and improve production data flows.

BOX 3. REGULATORY CONTEXT: SOURCE METERS

The most recent draft proposal for California state water loss performance standards requires suppliers to answer a short questionnaire related to apparent losses by 2024. Source meters are referenced in the following questions:

- How much of your agency's source water is metered?
- Does your agency have a program for regular flow testing of its production and source meters?
- On average, how frequently are source meters installed in your system flow tested, to determine accuracy?
- Does your agency have a program for regular electronic calibration of source meters?
- How frequently are source meters installed in your system electronically calibrated?

EVMWD will not be required to implement specific source meter maintenance practices.

As an alternative to answering questionnaires, suppliers can apply for an "off-ramp" that allows them to simply maintain their current levels of real loss rather than reduce them. With respect to source meter maintenance, qualification for the off-ramp requires that suppliers:

- Meter 100% of volume from own sources, imported, and exported water
- Perform annual testing of volume from own source meters that measure at least 95% of total production if this volume is greater than 5% of total water supply
- Perform annual calibration of import meters that measure at least 95% of total imports if this volume is greater than 5% of total water supply
- Perform annual testing of export meters that measure at least 95% of total exports if this volume is greater than 5% of total water supply

As the proposal stands, EVMWD cannot qualify for the off-ramp even if it met all requirements because its three-year average between reporting years 2016-2018 was above the threshold of 10 gal/connection/day.

4.1 Reaffirm annual source meter accuracy testing policy

CURRENT OPERATIONS

EVMWD oversees annual third-party source meter accuracy testing. Accuracy testing is distinct from electronic calibration (see Appendix B) and typically performed using either a comparative meter (e.g. Pitot tube) or a volumetric displacement method (a "drop test"). Meters are tested on site in order to replicate normal operations and verify proper piping conditions. EVMWD escorts the third-party tester to each meter site and coordinates with production staff to obtain proper flows for each meter. Once testing is finished, the tester issues an accuracy report with all test results across multiple flows and makes recommendations based on these findings.

In recent years, operational circumstances (e.g. wells shut down for maintenance) and contractor scheduling conflicts have prevented consistent testing for all source meters each year. Additionally, test results are stored in PDF format that is difficult to query.

OPTIMIZATION PROJECT

Cost	**
Effort	**
Impact type	Assessment

Reaffirm annual source meter accuracy testing policy to ensure that meters are accurately capturing production volumes. This includes both EVMWD maintained meters and meters at import connections. In addition to the standard documentation provider by the third-party tester with all available details (e.g. PDF of results), EVMWD should also request simplified results in tabular form to make it more convenient to archive in a database. See Table 7 in Section 3.1 for an example of what this table could look like. Table 13 outlines the departmental actions and other considerations for this project:

Table 13: Departmental involvement in project 4.1

	Operations
Actions	• Collect historic results to determine testing schedule for each source meter, including those at import connections (TVP and AVP) • Establish updated testing schedule for all source meters • Coordinate with third-party tester to setup and run tests • Identify alternative testing contractors to serve as backup
Considerations	Results from tests will ideally be stored in a newly establish repository managed in CIS (see Table 7 in Section 3.1)

Accuracy testing evaluates the primary instrumentation of the meter to determine if it is under or over-registering the volume of water flowing through it. The results from accuracy testing can be used to evaluate the performance of a source meter at different flow rates and to adjust input volumes for the annual Water Audit. Accuracy testing is necessary to confidently track production volumes.

Table 14 presents several methods available to perform accuracy testing. If possible, the volumetric displacement is preferred because it generally produces the most reliable and repeatable results, regardless of installation conditions. The general steps to complete a volumetric displacement test is provided here.

Table 14: Accuracy Testing Methods

Test Method	Advantages	Limitations
Clamp-on ultrasonic	No tap required. No interruption to operations.	Requires ideal installation conditions. Signal distortion can affect accuracy, depending on pipe material. No verification of flow condition or internal pipe diameter.
Portable test meter	More control over flow conditions.	Not practical for large meters.
Factory	Tested under ideal conditions.	Ideal conditions do not necessarily reflect field installation conditions. Meter is out of service during test.
Insertion meter	Verify the flow conditions inside the pipe. No interruption to operations.	Requires ideal installation conditions and a tap. Specialized equipment and expertise required.
Volumetric Displacement ("drop" or "fill" test)	Reliable and repeatable. Can be performed internally without extensive training.	Requires nearby reservoir, reliable verification of reservoir geometry, and reliable level measurement device. Interruption of operations.

If possible, EVMWD should conduct volumetric displacement tests, which tend to have reasonable margin or errors and do not require specialized equipment. Appendix B provides a standard approach to conducting a volumetric displacement test.

POTENTIAL WATER LOSS IMPACT

This project is intended to improve the assessment of water loss by ensuring EVMWD is able to make the appropriate adjustments to supply volumes in the water audit. Accurate production volumes are critical to reliable water auditing because they are the first and largest inputs in the water audit. Any error in these volumes could have a substantial impact on performance indicators. For example, Figure 7 illustrates how a 2% under-estimate of water supply would result in a 50% increase in real loss when using EVMWD's approximate CY 2018 inputs.

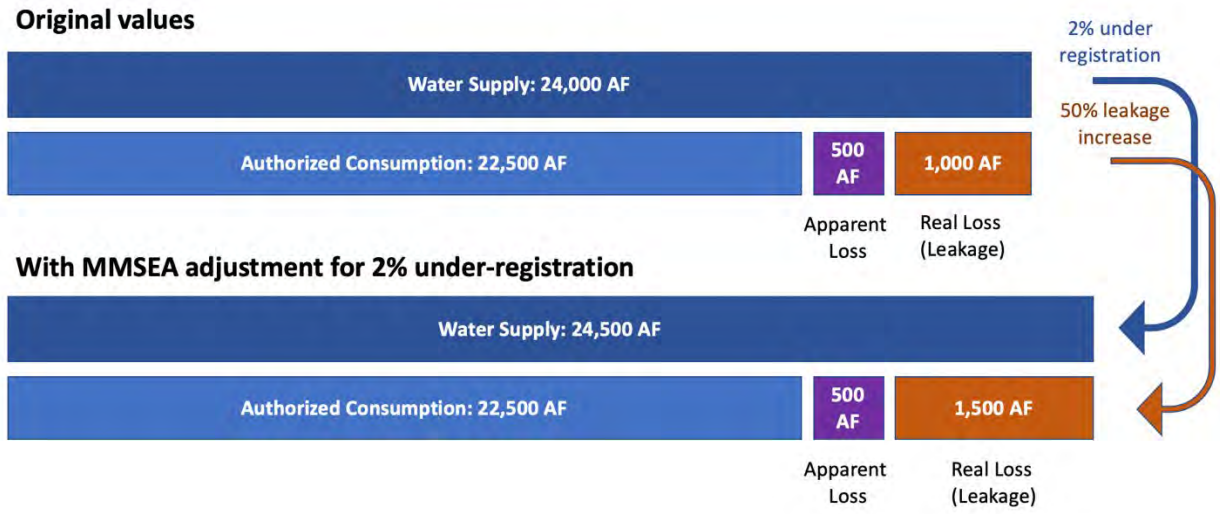


Figure 7: Example of how MMSEA adjustments affect performance indicators

As Figure 7 illustrates, even small adjustments to water supply can have an outsized impact on the results of the water audit.

TIMELINE

2021	2022	2023	2024	2025	2026	2027	2028

EVMWD should conduct accuracy testing on all of its source meters each year. Meters that register the largest volumes should be prioritized if resources and/or capacity is limited.

4.2 Reaffirm annual source meter electronic calibration

CURRENT OPERATIONS

EVMWD oversees third-party electronic calibration of its source meters when they are installed and annually during operation. Electronic calibration is distinct from accuracy testing (see Appendix B) and typically performed using a secondary device attached to the meter. Meters are calibrated on site in order to replicate normal operations and verify proper piping conditions. EVMWD escorts the third-party calibrator to each meter site and coordinates with production staff to obtain proper flows for each meter. Once calibration is finished, the calibrator issues a report with all calibration results across multiple flows and makes recommendations based on these findings. Each calibration report is stored in PDF format that is difficult to query.

OPTIMIZATION PROJECT

Cost	**
Effort	**
Impact type	Assessment

Reaffirm annual source electronic calibration policy to ensure that meters are accurately capturing production volumes. This includes both EVMWD maintained meters and meters at import connections. In addition, EVMWD should place an emphasis on obtaining and storing results from the third-party tester. Table 15 outlines the departmental actions and other considerations for this project:

Table 15: Departmental involvement in project 4.2

	Operations
Actions	• Collect historic results to determine calibration schedule for each source meter, including those at import connections (TVP and AVP) • Establish updated calibration schedule for all source meters • Coordinate with third-party calibrator to setup and run tests • Identify alternative testing contractors to serve as backup
Considerations	Results from tests will ideally be stored in a newly establish repository managed in CIS

Electronic calibration refers to evaluating and correcting errors in the conversion of an electronic signal into a flow rate. Calibration is typically performed with a secondary device attached to the meter. This is particularly important for meters that are integrated with a data archival system like SCADA because correct calibration ensures that the value of flow registered by the meter is the same value passed to that system.

While calibration of instrumentation is critical, it does not guarantee meter accuracy. For example, a meter could be calibrated properly but under-registering water by 5%. In this case, if 100 units of water actually flowed through the meter, it would register 95 units and pass that same value to SCADA. This meter is properly calibrated because it correctly passes the same value registered by the meter to SCADA, but it is inaccurate because it only registers 95% of the actual flow.

POTENTIAL WATER LOSS IMPACT

This project is intended to improve the assessment of water loss by ensuring EVMWD's source meters are accurately reporting supply volumes in the water audit. As shown in Section 4.1, accurate production volumes are critical to reliable water auditing because they are the first and largest inputs in the water audit (Figure 7).

TIMELINE

2021	2022	2023	2024	2025	2026	2027	2028

EVMWD should conduct electronic calibration on all of its source meters each year. Meters that register the largest volumes should be prioritized if resources and/or capacity is limited.

4.3 Integrate source meters with AMI system

CURRENT OPERATIONS

EVMWD's source meters are connected to a SCADA system that archives high frequency production volumes. However, there have been periods of unreliable recording in the past.

OPTIMIZATION PROJECT

Integrate all source meters with EVMWD's AMI infrastructure through retrofits and, if necessary, meter replacements. Table 16 outlines the departmental actions and other considerations for this project:

Cost	****
Effort	****
Impact type	Assessment

Table 16: Departmental involvement in project 4.3

	Customer Service	Operations	Engineering
Actions	Assign account number to each source meter in CIS, which will enable near real-time reporting of production volumes through normal reporting.	• Determine appropriate technology for each source meter • Prioritize meters for retrofit/replacement • Integrate new data source into current operations and reporting workflows	If necessary, facilitate retrofit or replacement of source meters with AMI-compliant technology.
Considerations	This is also necessary for establishing a testing and calibration repository (Section 3.1)		

POTENTIAL WATER LOSS IMPACT

This project is intended to improve the assessment of water loss by ensuring complete and consistent tracking of production volumes. EVMWD expects AMI communication to be more reliable than the current SCADA system. In addition, having access to production volumes in CIS will allow for easier reporting. As shown in Section 4.1, accurate production volumes are critical to reliable water auditing because they are the first and largest inputs in the water audit (Figure 7).

TIMELINE

2021	2022	2023	2024	2025	2026	2027	2028

This project is a key priority for EVMWD and will be implemented prior to other projects featured in the SOR Plan. Operations staff are currently determining appropriate technologies for source meters, but full integration will likely take several years.

4.4 Conduct source meter inventory and assessment

CURRENT OPERATIONS

EVMWD maintains a standard inventory of source meters that includes basic information such as make, model, and size. More detailed manufacturer specifications and operational manuals are also kept on hand so that EVMWD staff are able to properly maintain source meters. Some additional information about asset-specific maintenance history is also kept in a software program called "Water Tracks", but it does not have comprehensive data on all source meters.

OPTIMIZATION PROJECT

Conduct a source meter inventory and assessment with comprehensive and updated information about meter characteristics, technology, and testing options. Data gathered during this exercise should be stored in a secure database such as CIS. Table 17 outlines the departmental actions and other considerations for this project:

Cost	****
Effort	****
Impact type	Assessment

Table 17: Departmental involvement in project 4.4

	Operations	Information Technology	Engineering
Actions	• Conduct site visits, as necessary • Collect and consolidate information from other departments • Provide documentation of lube line usage, testing, and calibration • Establish policy for updating inventory and assessment	• Provide information related to SCADA and any other data transfer capabilities (e.g. AMI) • Set up table in CIS to store inventory and assessment • Update fields/data structure, if necessary	• Provide as-builts and other information related to installation conditions
Considerations	Could be performed in combination with AMI retrofits on source meters	Ideally, this dataset is integrated with the testing and calibration repository	

The following list describes some specific items that could be included in the source meter assessment:

- **Installation conditions**: The upstream and downstream lengths of straight pipe and nearby appurtenances (e.g. valves, fittings). This information will give some indication of the expected flow profile, which is critical for proper performance.
- **Pipe characteristics**: Age and material of pipe.
- **Metering technology**: What technology the meter uses to measure flow (e.g. electromagnetic, ultrasonic, propeller).
- **Data transfer capabilities**: The methods available to transfer flow data and their reliability. Typically, this is via manual reads, SCADA, or AMI.

- **Accuracy testing options**: The available options for accuracy meter testing. For example, is there a tap installed for insertion meter testing or an adjacent reservoir available for volumetric displacement tests.
- **Lube line usage**: Water usage associated with a lube line near the source meter, where in the configuration it occurs, and how it is tracked (e.g. with meter or estimated).

POTENTIAL WATER LOSS IMPACT

This project is intended to improve the assessment of water loss by simplifying operational decision surrounding source meters and ensuring that they are maintained in the most appropriate manner given their unique characteristics. Regular documentation of installation conditions, data transfer capabilities, and accuracy testing options will enable EVMWD to prioritize meters for maintenance and retrofits. In addition, understanding more details about lube line usage will help determine if it should be incorporated in the water audit.

TIMELINE

2021	2022	2023	2024	2025	2026	2027	2028

4.5 Install source meter at Temescal Valley Pipeline (TVP)

CURRENT OPERATIONS

EVMWD purchases treated water from Western Municipal Water District (WMWD) through two import connections: Auld Valley Pipeline (AVP) and Temescal Valley Pipeline (TVP). While EVMWD maintains its own meter situated closely downstream of WMWD's meter at AVP, it does not maintain a similar meter at TVP. As a result, it cannot arrange independent reads, accuracy tests, or calibrations in the same way as its other source meters. Instead, WMWD provides EVMWD with annual calibration documents and monthly invoices with total purchased water.

OPTIMIZATION PROJECT

Install a new meter downstream of the TVP import connection with WMWD. This new meter will be fully owned and operated by EVMWD and maintained in a similar manner as other source meters. Table 18 outlines the departmental actions and other considerations for this project:

Cost	****
Effort	****
Impact type	Assessment

Table 18: Departmental involvement in project 4.5

	Customer Service	Operations	Operations
Actions	Assign account number to new import meter in CIS.	Integrate new data source into current operations and reporting workflows	Facilitate installation of new import meter at TVP.
Considerations			

Meters require a uniform flow profile in order to maintain adequate performance. EVMWD should consider the following guidelines when designing site plans and installing the new import meter:

- **Proper pipe configuration**: Some industry research suggests that 10 diameters upstream and 5 diameters downstream of straight length pipe are the minimum lengths required to ensure a proper flow profile for electromagnetic meters to maintain performance. These recommendations are a good rule of thumb but may change depending on meter type.
- **Proximity to appurtenances**: Meters should not be placed close to valves, control pumps, or fittings. These types of appurtenances can cause distortion to the flow profile.
- **Manufacturer specifications**: Meters may have certain specifications to maintain performance.
- **Insertion meter tap**: If possible, taps should be installed adjacent to meters to facilitate insertion meter accuracy testing.

POTENTIAL WATER LOSS IMPACT

This project is intended to improve the assessment of water loss by ensuring that import volumes at TVP are tracked as accurately as possible. EVMWD will be able to independently accuracy test, calibrate, and take reads as it does for all of its other source meters. As shown in Section 4.1, accurate production volumes are critical to reliable water auditing because they are the first and largest inputs in the water audit (Figure 7).

TIMELINE

2021	2022	2023	2024	2025	2026	2027	2028

5 Customer Meters

EVMWD maintains over 46,000 active customer meters in the potable system. These critical assets provide the revenue necessary to consistently deliver clean and reliable water for the public to use.

Metered volumes are a critical part of the annual water audit because they represent such a large input, similar to production volumes. Any error in these volumes have a substantial impact on the reliability of the performance indicators calculated in the water audit.

The opportunities featured in this section are specific projects that EVMWD can pursue to cost-effectively monitor the health of the customer meter population, gather the right data to adjust for metering inaccuracies, and ultimately recoup lost revenue from apparent loss.

BOX 4. REGULATORY CONTEXT: CUSTOMER METERS

The most recent draft proposal for California state water loss performance standards requires suppliers to answer a short questionnaire related to apparent losses by 2024. The questionnaire features a single question related to customer meter reading & management:

- Does your agency have a process for reducing and managing data handling and billing errors?

EVMWD will not be required to implement specific customer meter reading practices.

As an alternative to answering questionnaires, suppliers can apply for an "off-ramp" that allows them to simply maintain their current levels of real loss rather than reduce them. With respect to customer meter reading & management, qualification for the off-ramp requires that suppliers:

- Meter 100% of customer accounts (excluding fire services)
- Annually read unbilled metered accounts, if the reported volume is greater than 1% of water supplied

As the proposal stands, EVMWD cannot qualify for the off-ramp even if it met all requirements because its three-year average between reporting years 2016-2018 was above the threshold of 10 gal/connection/day.

5.1 Shift to a revenue-based large customer meter accuracy testing program

CURRENT OPERATIONS

In addition to its extensive small meter testing program (2" and smaller), EVMWD also coordinates a regular large meter (3" and larger) testing program. Each year, EVMWD oversees third-party accuracy testing of 25 large meters, which are on a rotating schedule. When a meter tests outside of AWWA accuracy standards it is replaced. Recently, operations staff have considered a consumption-based schedule that would prioritize high usage/high revenue meters.

OPTIMIZATION PROJECT

Shift from a time-based testing schedule to a revenue-based testing schedule for large customer meters using a "least-cost-of-ownership" economic model. Table 19 outlines the departmental actions and other considerations for this project:

Cost	*
Effort	**
Impact type	Assessment / Reduction

Table 19: Departmental involvement in project 5.1

	Operations	Information Technology
Actions	• Establish and maintain a revenue-based testing schedule for large customer meters • Coordinate with third-party tester to setup and run tests • Identify alternative testing contractors to serve as backup	Create list of large meters with consumption annual consumption data.
Considerations	Schedule may need to be revised every few years to reflect recent consumption patterns (e.g. if meter changes ownership and demand changes).	

The least-cost-of-ownership model attempts to minimize the total cost of maintaining each large by balancing two component costs:

- **Cost of Testing and Repair:** The cost of testing and repair consists of any expenses relating to testing the meter, including contractor fees, EVMWD field staff coordination time, and any costs for labor and materials to repair or replace the meter.
- **Cost of Inaccuracy (apparent loss)**: If a customer meter under-registers the volume of water delivered to the customer then that customer would also be under-billed and EVMWD would not receive full revenue.

To minimize the cost of potential inaccuracy, EVMWD staff could test and repair each meter every month. However, testing the meter every month would be very expensive, and perhaps more expensive than the lost revenue EVMWD would experience as a result of under-registration. Therefore, the key question is what is the optimum frequency of testing and repair that minimizes the combined total of these costs.

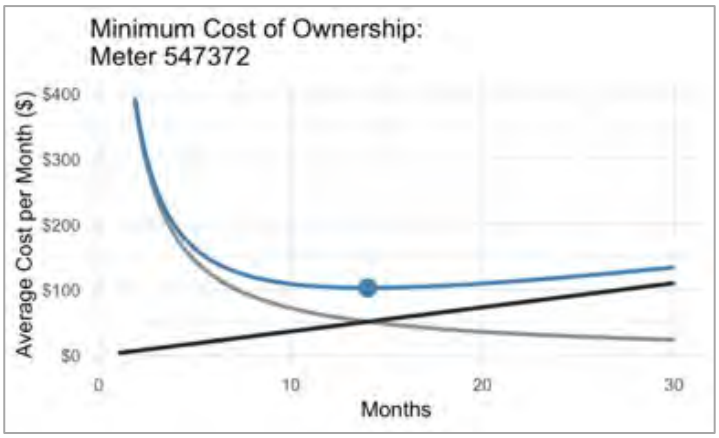


Figure 8: Least-cost-of-ownership model applied to an example large meter

Figure 8 shows the least cost of ownership model applied to an example large meter. The y-axis shows the average cost per month in dollars and the x-axis shows months. The grey line shows the average cost of testing and repair per month. For example, if EVMWD tested and repaired this meter six times per year, the cost would be about $400/month. If the meter was tested twice a year, the average cost would be $140/month and so on.

The black line shows the average cost of meter inaccuracy based on three factors: an expected rate of accuracy decline; the average volume recorded per month; and the customer retail unit cost. In this example, assuming an accuracy decline of 1% over 12 months, EVMWD would lose about $600 total in the year, or $50/month on average.

Finally, the blue line shows the sum of these two cost functions. For example, if EVMWD tested and repaired this meter once every 13 months, both (a) the average monthly cost of testing and repair, and (b) the average monthly cost of inaccuracy, would be about $50. Therefore, the total monthly cost of owning this meter would be $100/month as shown by the blue dot. This is the minimum point of the blue line and the optimum testing frequency for this meter because it minimizes the cost of ownership for EVMWD.

Four parameters are needed to calculate the optimum test and repair frequency for any large meter:

1. **The expected rate of accuracy degradation per year**. Unlike small meters, the least-cost of ownership model assumes that there is a linear relationship between large meter accuracy and age. Typically, a value of 1% per year is used as a starting point, however EVMWD may choose to adjust this based on actual large meter test results.
2. **The average volume recorded by the meter in any given month**. Used to calculate the cost of under-registration.
3. **The retail value of a unit of water sold**. Used to calculate the cost of under-registration.
4. **The cost of testing and repairing the meter**. Different costs can be used for specific groups, such as meter makes, models, and sizes.

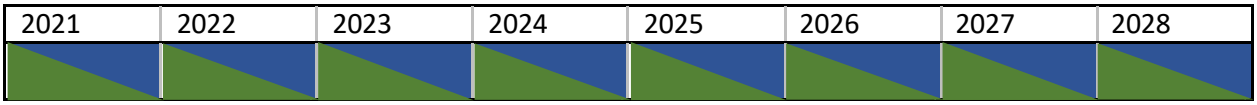
The least-cost of ownership model is run for each large meter to determine the most cost-efficient frequency of testing and repair. Based on the results, meters can be prioritized and placed in a formal testing schedule. It is often simple to lump meters into general frequency categories such as annual, biannual, every three years, and so on.

POTENTIAL WATER LOSS IMPACT

This project is intended to improve the assessment of water loss, reduce apparent loss due to meter inaccuracy, and increase revenue generation. In terms of assessment, EVMWD can use test results to

calculate a portion of the customer meter inaccuracy input in the annual water audit. Large meter test results should be applied on a meter-by-meter basis instead of generalized to all large meters. (This is in contrast to small meters, whose test results can be generalized if enough samples are available.) In terms of reduction, EVMWD will reduce apparent loss each time it repairs meters that fall outside of acceptable accuracy standards.

TIMELINE



The exact timeline of testing will depend on the results of the least-cost-of-ownership model. Typically, there are some meters that will be tested annually, some meters biannually, and other meters less frequently.

5.2 Conduct flow profiling on large customer meters

CURRENT OPERATIONS

EVMWD does not conduct flow profiling on large customer meters.

OPTIMIZATION PROJECT

Conduct high-frequency flow profiling on a select number of high-consumption large customer meters. Table 20 outlines the departmental actions and other considerations for this project:

Cost	**
Effort	**
Impact type	Assessment

Table 20: Departmental involvement in project 5.2

	Operations	Information Technology	Customer Service
Actions	• Identify customers for profiling • Design profiling parameters (e.g. data capture frequency and duration) • Install and maintain equipment • Conduct analysis of results	• Support installation of necessary third-party software required for analysis of flow profiles • Facilitate data archival in CIS	Coordinate with customers
Considerations			

A flow profile, also called a demand profile, tracks the rate of water consumption at a service connection to create a customer-specific picture of water use. In particular, it identifies the percentage of volume registered at various flow rates over a fixed period of time. The data used to create a flow profile is captured with specialized equipment that attaches to a meter without interrupting normal operation. EVMWD can use the information from flow profiles in several applications:

- **Meter size assessment:** A properly sized ("right-sized") meter is one that minimizes cost of installation and maintenance while accurately recording consumption and ensuring adequate pressure and flow at peak demand. When a meter is under or oversized, it may see flows consistently outside of its technical specifications, risking inaccurate registration of volume. Undersized meters may also restrict the maximum flow to a customer, which can be especially problematic in cases of emergency. The assessment of flow profiles helps selecting the right size of a customer meter. If a meter is sized correctly and an appropriate metering technology is used, then all or the majority of flows will occur within the flow range the meter was designed for.

- **Meter accuracy test flow rate selection:** For a standard water audit, determining meter accuracy is critical to calculating the volume of apparent loss, which represents water that reaches customers but does not generate revenue. Results from accuracy tests are most useful when test flow rates align with typical consumption patterns. For example, given a meter that sees 80% of its

registered volume at 50 gpm, test results derived from a 60 gpm flow rate are more useful than test results derived from a 200 gpm flow rate. By revealing how much volume a meter registers at low, medium, and high demand, profiles help determine appropriate flow rates for meter accuracy tests.

- **Other applications:** Flow profiles are also useful for other applications, including customer-side leak detection, conservation programs, hydraulic modeling, and cost of service studies. See AWWA manual M22 for more information about these topics.

A critical assumption of flow profile analysis is that the meters under investigation are accurate. Flow sensors cannot determine meter accuracy, meaning that if a meter is under-registering volume, the resulting flow profile will under-estimate flow. Despite this, profiling still provides a reasonable way to estimate the range of typical consumption patterns at a connection. When paired with regular meter testing (Section 5.1), it can be an effective tool for right-sizing and maintaining the accuracy of large customer meters.

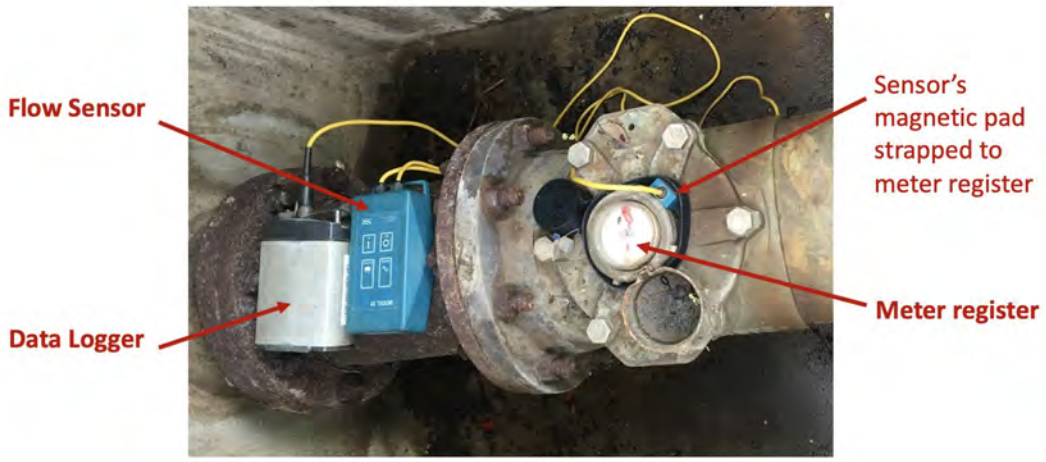


Figure 9: Flow profiling setup

Figure 9 shows what a typical flow profiling setup looks like: a flow sensor with magnetic pad and data logger attached to the meter. After downloading and analyzing the data, EVMWD could generate profiles as shown in Figure 10.

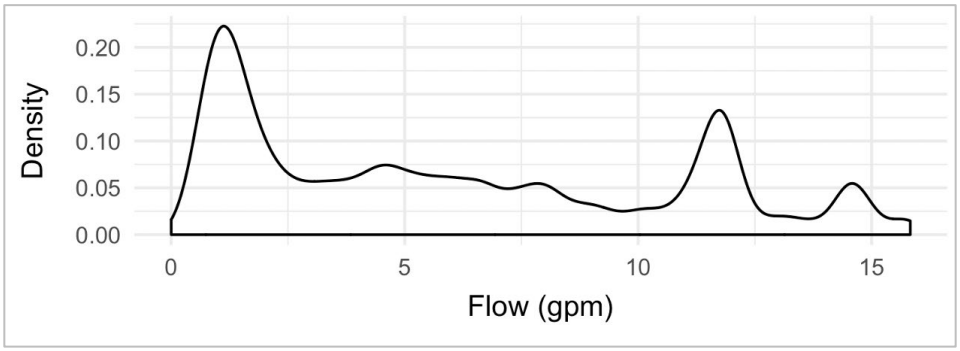


Figure 10: Example flow profile for a single customer meter

POTENTIAL WATER LOSS IMPACT

This project is intended to improve the assessment of water loss by identifying meters that may be at risk of inaccurately reporting consumption. Flow profiling is particularly valuable when conducted on large customer meters because inaccurate registration of volumes at these connections can have considerable impact on revenue (i.e. apparent loss). Customers with large meters may also have unique consumption patterns that differ from what could normally be expected. With high resolution flow profiles for these customers, EVMWD will be well equipped to meet their demand while minimizing apparent loss.

TIMELINE

2021	2022	2023	2024	2025	2026	2027	2028

EVMWD can space out flow profiling efforts to complement its small meter testing program (Section 5.3). Operations staff can alternate years, focusing efforts on small meter testing in one year and flow profiling the next year. In this way, EVMWD can make the most of its existing staff time and budget.

5.3 Shift to a random and representative small customer meter accuracy testing program

CURRENT OPERATIONS

EVMWD maintains an extensive small customer meter (2" and smaller) testing program to track customer metering inaccuracy for the water audit and to guide replacement efforts. All meters are tested by EVMWD staff either in the field or using an on-site test bench installed and calibrated in 2020. Table 21 summarizes EVMWD's testing policy by meter size.

Table 21: EVMWD small customer meter testing practices by size

Meter Size	Testing Practices
¾" and 1"	All meters flagged for replacement are tested on the EVMWD test bench. If the average accuracy of a year's sample is 95% or higher, the throughput levels used for replacement are used again the next year. In addition, one meter from every new box is tested before being installed in the field.
1 ½" and 2	All 1 ½" and 2" meters are tested in the field by EVMWD staff at 30,000 CCF and 40,000 CCF of throughput, respectively. Past these thresholds, meters are tested every two years. In addition, one meter from every new box is tested before being installed in the field.

OPTIMIZATION PROJECT

Cost	***
Effort	**
Impact type	Assessment / Reduction

Shift from a small meter testing program based on throughput limits to one based on a random and representative sample. Previous studies[3,4] have not identified a significant relationship between age or throughput and meter accuracy. Therefore, EVMWD may be unnecessarily replacing meters that could perform well for many years when it pulls them for testing.

An alternate approach is to randomly sample and test 200-300 small customer meters from the entire system, which provides a high degree of confidence when calculating overall customer meter inaccuracy for the water audit. Sampling from the entire system ensures a representative sample that will not bias test results with any factor such as age, geography, or make. EVMWD can repeat this process ever 2-3 years in order to balance the cost of testing and meter replacement with the value of understanding the health of the meter population. Over time, by building a database of small meter test results, EVMWD may be able to distinguish differences between particular meter makes, which can help guide replacement efforts.

Table 22 outlines the departmental actions and other considerations for this project:

[3] Utah Water Research Laboratory at Utah State University (2011). Accuracy of In-Service Water Meters at Low and High Flow Rates. Water Research Foundation

[4] Williams, K. (2018). Small Meter Accuracy—Using Test Data for Better Decision-Making. Source CA-NV AWWA, 30–32.

Table 22: Departmental involvement in project 5.3

	Operations	Information Technology
Actions	• Pull, transport, and store meters for testing • Conduct testing and document results	• Create list of 200-300 random small meters from the entire customer base
Considerations	EVMWD should continue its other small meter testing practices as normal. This includes activities like testing a certain number of new meters from the manufacturer, responding to customer complaints, and investigating meters flagged by billing system integrity checks.	

EVMWD should consider the following guidelines related to pulling, transporting, and storing meters prior to testing:

- **Capping wet:** After a meter is pulled, both ends should be capped using the caps from the new replacement meter to keep the meter wet during transport. This will ensure that mechanical parts do not dry out prior to testing.
- **Packaging:** The meter should be packaged for minimal damage. For example, meters might be placed in the meter box that the replacement meter was packaged in.
- **Storage and Transport:** The meter should be stored neatly and systematically during and after transport. Previous experience has shown that storing meters unorganized in bins significantly affects test results.

POTENTIAL WATER LOSS IMPACT

This project is intended to improve the assessment of water loss and also reduce apparent loss due to meter inaccuracy. In terms of assessment, random and representative sampling is the best way to form an accurate understanding of overall customer meter inaccuracy, which is typically the biggest component of apparent losses. This will impact the results of the annual water audit because apparent losses have a direct relationship with real loss. Any under-estimation of apparent loss will result in an over-estimation of real loss, and vice versa (Figure 11).

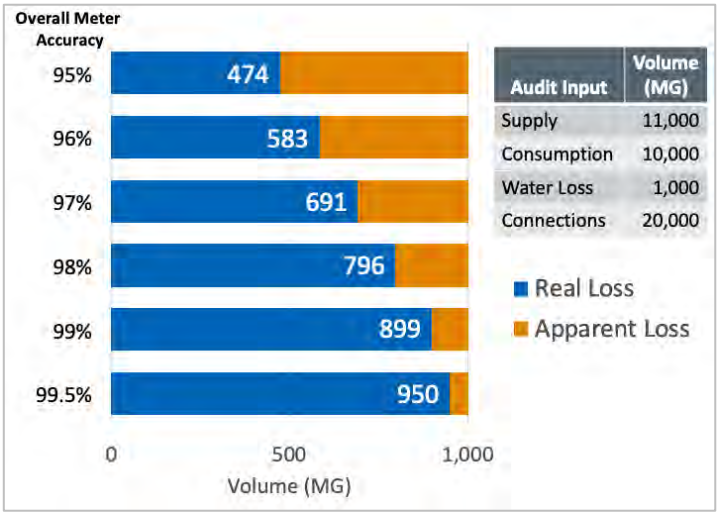
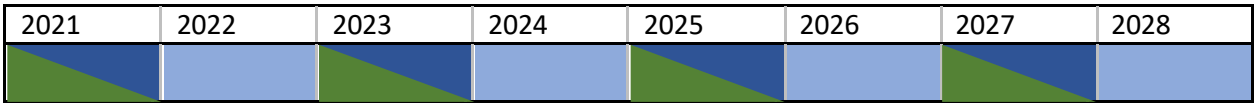


Figure 11: Relationship between apparent and real losses

In terms of reduction, EVMWD will potentially reduce apparent losses when it

replaces meters pulled for testing with newer meters. Although age is not necessarily related to accuracy, it is possible that newer metering technology will show greater performance overall.

TIMELINE



EVMWD can space out its small meter testing program to complement its customer meter flow profiling efforts (Section 5.2). Operations staff can alternate years, focusing efforts on random and representative small meter testing in one year and flow profiling the next year. In this way, EVMWD can make the most of its existing staff time and budget. EVMWD can maintain its other testing activities as normal, including testing a certain number of new meters from the manufacturer, responding to customer complaints, and investigating meters flagged by billing system integrity checks. The shading in the timeline above reflects these waves of effort in the small meter testing program.

5.4 Identify failing customer meters on closed accounts

CURRENT OPERATIONS

EVMWD maintains records of inactive and closed accounts. In some cases, these meters will not function properly but still be seeing unauthorized usage.

OPTIMIZATION PROJECT

Identify failing customer meters on closed accounts and fix or remove them. Table 23 outlines the departmental actions and other considerations for this project:

Cost	*
Effort	*
Impact type	Assessment

Table 23: Departmental involvement in project 5.4

	Customer Service (Billing)	Information Technology	Operations
Actions	Create service order for inspecting meter	• Inspecting meters in field and determining if water is running even if the meter is non-functioning	• Adjust field in CIS to include flag for "inspected" to avoid duplicate efforts
Considerations			

POTENTIAL WATER LOSS IMPACT

This project is intended to reduce water loss by eliminating apparent loss generated by failing meters on closed accounts seeing unauthorized usage.

TIMELINE

2021	2022	2023	2024	2025	2026	2027	2028

This will be an ongoing practice for EVMWD.

6 Leakage

Tracking and controlling leakage is a key priority for EVMWD in its mission to deliver clean and affordable water to the public. Customers trust EVMWD to act as an effective steward of its water supply that takes reasonable and cost-effective steps to minimize physical water loss.

Reducing leakage can also save time and resources in the long-term. Less water lost is less water that needs to be energized and distributed to take its place. Additionally, proactive leak detection helps avoid costly and disruptive repair work needed after large infrastructure failures that go undetected.

The opportunities featured in this section are specific projects that EVMWD can pursue to improve data used for estimating leakage, field validate recent audit results, and prioritize areas for additional intervention.

BOX 5. REGULATORY CONTEXT: LEAKAGE

Although pending performance standards do not prescribe a specific intervention strategy to achieve compliance, the SWRCB's economic model does assume a default manual acoustic leak detection frequency when calculating each limit. EVMWD's assumed survey frequency is 36 miles per year, given the length of mains in the system. At that frequency, the 30-year NPV is negative and therefore EVMWD has been assigned its average 2016-2018 leakage level of 20.1 gal/connection/day.

Even though EVMWD is not required to lower its overall real losses and it is not specifically required to conduct manual acoustic surveys, it is still advisable to pilot leakage reduction strategies. In the case that leakage increases or new data changes EVMWD's understanding of system leakage in future years, it will have the tools and knowledge to react accordingly.

6.1 Enhance work order data to support water loss analysis

CURRENT OPERATIONS

EVMWD creates and archives work orders in an industry-standard software package called Maximo. Field crews receive work orders on mobile devices with an accompanying software package called Field Mapplet. After performing work, crews enter specific data (e.g. nature of work, infrastructure type) back into Field Mapplet, which communicates with Maximo to update the work order record.

EVMWD is currently planning to implement a new enterprise asset management system (EAMS) / computerized maintenance management system (CMMS) in the coming years. The project elements outlined here should be implemented in the design of this new system.

OPTIMIZATION PROJECT

Cost	*/****
Effort	**/****
Impact type	Assessment

Enhance work order data to support advanced water loss analysis. The current structure of work order data can be improved to allow for additional water loss analysis (see bulleted list below). Additionally, the upcoming plans for a new EAMS/MMS present a good opportunity to incorporate the recommendations provided here. Table 24 outlines the departmental actions and other considerations for this project:

Table 24: Departmental involvement in project 6.1

	Information Technology	Operations
Actions	• Update database structure in Maximo and Field Mapplet to accommodate additional columns • Coordinate with third-party tester to setup and run tests	Field staff input data into new columns during work order completion
Considerations	• Could add data constraints to only allow entry of pre-determined values for certain columns • Columns should be incorporated into design of new EAMS/CMMS	

More details about EVMWD's work order data and recommended improvements are included in a separate document (Technical Memorandum #2) which was developed during the baseline phase of this project. The recommendations from that document are summarized in the following list:

- **Authorized Use vs. Leakage:** Maximo does not distinguish between authorized uses (e.g. flushing, regular maintenance) and unauthorized leakage from break. EVMWD should implement a column that field staff can use to indicate between work orders related to authorized uses and those related to leakage.
- **Query-Ready Columns**: Field staff capture lots of information that can be used for water loss analysis such as repair completion times and local pressure. However, much of this information is stored together in an unstructured format that cannot be easily queried. EVMWD should

separate information into dedicated columns to facilitate easy data querying. Table 25 outlines columns particularly important for water loss analysis.

Table 25: Columns important for water loss analysis

Data Column	*Priority*	*Available in Maximo*	*Relevant Field Name in Maximo*
Work Order ID	High	Yes	WO #
Reported Time	High	Few entries	Failure Long Description
Repaired Time	High	Few entries	Failure Long Description
Infrastructure Type	High	Inconsistent	Failure Long Description
Infrastructure Size	High	Inconsistent	Description
Activity (e.g. flushing)	High	Inconsistent	Description
Estimated Flow (gpm)	Medium	Inconsistent	Failure Long Description
Pressure at Break (PSI)	Medium	Inconsistent	Failure Long Description
Geographic Location	Low	No	-
Infrastructure Material	Low	Few entries	Failure Long Description

- **Timestamps for Estimated Leakage Calculation**: Work orders have limited data related to exact timestamps of when a break was first reported and when leakage was stopped (repaired time). EVMWD should add explicit columns that indicate the reported time and repaired time of the break. Figure 12 shows how these are used to calculate a response duration.

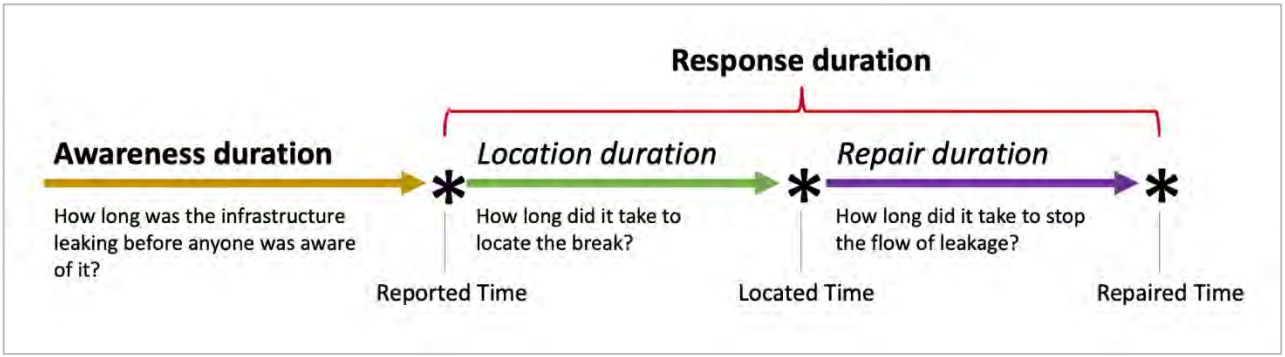


Figure 12: Leakage duration components

POTENTIAL WATER LOSS IMPACT

This project is intended to improve the assessment of water loss by ensuring EVMWD has work order data that supports confident estimation of leakage from reported breaks. With an accurate water audit and complete work order data, EVMWD can conduct real loss component analysis (RLCA), which is an analytical exercise that separates the total volume of real losses into distinct categories of leakage: background, reported, unreported, and hidden. These categories were defined to describe types of loss that can be recovered using specific intervention strategies and EVMWD can use them to guide its leakage management strategy. See Technical Memo #2 for additional information about RLCA.

One specific savings projection that EVMWD can conduct given complete and consistent work order data with timestamps is related to response times. By tracking actual response times to breaks and comparing them to specific goals, EVMWD can model how much leakage would be avoided due to reduced runtimes. For example, Table 26 is an excerpt from Technical Memo #2 that projects savings due to modest improvements in responds times to breaks.

Table 26: Modeled Savings from Response Time Reduction Based on CY 2018 Work Orders

Type	Count	Estimated Response Time (Days)	Ideal Response Time (Days)	Estimated Flow Rate at 84 PSI (gpm)	Modeled Savings from Reduced Runtime (AF)
Main	47	2.80	2	123	55.4
Service	176	11.75	5	14	7.4
Totals	**223**				**62.8**

To perform this analysis, breaks were grouped by type (main or service) and the volume of leakage was calculated based on EVMWD's best current understanding of response times. Next, the volume of leakage produced by each group was calculated using optimized response times and the same flow rates. Based on the difference in those volumes and a variable production cost of approximately $1,200/AF, the potential for savings is approximately 62.8 AF/year valued at approximately $75,000.

TIMELINE

2021	2022	2023	2024	2025	2026	2027	2028

This project could be completed in 1-2 years in the current system because adjusting the structure of data in Maximo and Field Mapplet is relatively straight forward. However, incorporating the recommendations presented here into a new EAMS/CMMS will take several years to complete because of the budgeting, procurement, and implementation time of a system that integral to EVMWD's operations.

6.2 Pilot satellite leak detection

CURRENT OPERATIONS

EVMWD does not conduct regular proactive leak detection but it is currently considering satellite leak detection. EVMWD has experimented with acoustic loggers on at least two separate occasions but were not satisfied with the results. Most of the distribution system is composed of plastic piping, which makes acoustic leak detection difficult.

OPTIMIZATION PROJECT

Pilot satellite leak detection to locate and prioritize leaks. This technology works by taking satellite images of the distribution system to create maps with prioritized "points of interest" (POI) that represent small areas with a suspected leak. Table 27 outlines the departmental actions and other considerations for this project:

Cost	**
Effort	***
Impact type	Reduction

Table 27: Departmental involvement in project 6.2

	Customer Service	Operations	Information Technology
Actions	• Identify pilot areas for image capture • Establish workflow for responding to points of interest	• Work with vendor to share data (e.g. GIS, work orders) • Support data archival and integration with service order generation	• Help design workflow for investigating points of interest and generating necessary service orders
Considerations	Analysis of data will require training on how to use a third-party "software as a service" (SaaS), which is an online web dashboard.		

EVMWD should consider the following when designing a satellite leak detection pilot:

- **Costs:** Total cost of satellite leak detection depend on several factors:
    - *Image Coverage*: EVMWD does not need to analyze imagery for the entire distribution system for its pilot. Instead, it can choose to analyze a smaller portion of the system.
    - *Image Capture Frequency*: If EVMWD extends its pilot to capture another snapshot of the system, or if it pursues regular imagery analysis, it needs to decide how much time to wait between image capture.
    - *POI Investigation*: Each POI identified on a map does not necessarily represent a leak, therefore EVMWD must investigate them as an additional cost.
- **Snapshot in Time**: Each map produced by the satellite leak detection vendor only represents a single snapshot in time. If satellite leak detection reveals previously hidden leakage, EVMWD may need to repeat these efforts periodically to maintain lower leakage levels.

- **Repair Crew Capacity**: EVMWD should be prepared for a sudden increase in service orders to investigate the potentially large number of POIs generated by imagery analysis. It may be advisable to dedicate a specific field crew to solely investigate these POIs to avoid conflicts with normal maintenance and repair duties.
- **Coordination of Processes:** EVMWD should be prepared to coordinate processes that generate normal work orders and those that generate investigations of POIs. For example, if a customer reports a surfaced leak that was also tagged as a POI, EVMWD needs to ensure that two work orders are not created. In this situation, it is possible that crews investigating the POI are unaware that the leak was previously repaired.

POTENTIAL WATER LOSS IMPACT

This project is intended to directly reduce water loss by accelerating the process of locating and repairing leaks. As noted, standard water loss models such as real loss component analysis indicate that EVMWD does not have recoverable leakage (Section 2.2), which makes it challenging to project potential savings for satellite leak detection. However, piloting this technology will help field validate EVMWD's audit results and establish best practices for incorporating service orders generated by proactive leak detection into day-to-day operations. In case satellite leak detection reveals previously hidden leakage, EVMWD will know to revisit water audit data and be prepared in time to meet state performance standards.

TIMELINE

2021	2022	2023	2024	2025	2026	2027	2028

6.3 Pilot pressure transient monitoring

CURRENT OPERATIONS

EVMWD has access to real-time pressure data at the zonal boundaries of its distribution system—at booster stations, groundwater wells, import connections, and storage tanks. In addition, field staff take static pressure reads as part of routine flushing activity. EVMWD does not continuously log data or monitor for transients from within its pressure zones.

OPTIMIZATION PROJECT

Cost	**
Effort	**
Impact type	Reduction

Pilot pressure transient monitoring in selected sites within the distribution system. Pressure transients occur when there is a sudden and substantial deviation from the steady state pressure at a given location. Typically, they are triggered by pump starting/stopping or valves opening/closing, and they are suspected to contribute to infrastructure failures. Continuous monitoring in susceptible locations can help identify when and how they occur so they can be addressed. Table 28 outlines the departmental actions and other considerations for this project:

Table 28: Departmental involvement in project 6.3

	Operations	Information Technology
Actions	• Identify areas of focus • Install equipment • May need to assign field staff to collect data • Conduct analysis of results • Establish workflow for responding to flags/alerts	• Support installation and usage of any necessary third-party software • Support data archival
Considerations	Analysis of data may require knowledge of data processing or usage of specialized software.	

POTENTIAL WATER LOSS IMPACT

This project is intended to directly reduce water loss by identifying and mitigating pressure transients in susceptible locations within the network before they contribute to breaks. More generally, addressing transients early will prolong the overall life of the pipes in the distribution system and help avoid costly infrastructure replacement.

TIMELINE

2021	2022	2023	2024	2025	2026	2027	2028

6.4 Pilot district metered areas (DMA) using booster stations

CURRENT OPERATIONS

EVMWD's service territory is divided into 41 pressure zones that are maintained with a mix of gravity and booster pumps. Many of these booster stations represent the only inlet to contained areas with several thousand service connections. Due to this arrangement, they are naturally situated to facilitate the implementation of district metered areas (DMA).

OPTIMIZATION PROJECT

Cost	***
Effort	***
Impact type	Reduction

Pilot DMAs in the selected areas of the potable water system by installing AMI-integrated meters at booster stations. EVMWD should prioritize booster stations that serve approximately 3,500-6,000 service connections, which is an ideal starting point for DMA management. Table 29 outlines the departmental actions and other considerations for this project:

Table 29: Departmental involvement in project 6.4

	Customer Service (Billing)	Information Technology	Operations
Actions	• Assign account number to each new inlet meter in CIS • Help design workflow for investigating events or alerts and generating necessary service orders	• Support installation and usage of any necessary third-party software	• Prioritize zones for pilot • Installation of necessary equipment • Monitor zones • Establish workflow for responding to events or alerts
Considerations		Additional software may help to automate monitoring of zones	Need capacity to monitor zones once established

A DMA is a hydraulically discrete zone consisting of known points of inflows and outflows. In EVMWD's case, each pilot DMA would have one inflow (at the booster station) and no outflows. By tracking volume at the inflow and comparing it to total consumption of all service connections within the DMA, it is possible to assess water losses in a smaller and more manageable portion of the distribution system. This is particularly important for EVMWD because most of the distribution system is composed of non-metallic piping, which makes acoustic leak detection over the entire system extremely difficult.

Monitoring losses within a DMA is typically conducted in two ways:

1. **High Frequency Water Balances:** As described previously, a water balance is a technique for estimating water losses that compares the total volume of water entering a distribution system to all the known volumes of consumption. In the case of DMAs, water balances are conducted with more frequency (e.g. once a month) on a specific area that is much smaller and more manageable than the entire distribution system.

2. **Minimum Night Flow (MNF):** By analyzing daily trends in supply, EVMWD can identify periods of lowest flow into the zone, typically late at night. A change in the minimum night flow rate that is not attributed to authorized nighttime use can indicate an increase or decrease in water losses.

These analyses require high-frequency monitoring of both input volumes and consumption volumes. With customer meters fully integrated with AMI, EVMWD is well suited to implement DMAs as long as meters can also be installed at selected booster stations. These meters would ideally be integrated with AMI as well to facilitate analysis. EVMWD may also consider specialized software that is designed to automate DMA management. These software packages can help perform monthly water balances and minimum night flow analysis, as well as set up alerts for investigation when breaks are suspected.

POTENTIAL WATER LOSS IMPACT

This project is intended to improve the assessment of water loss and also reduce water loss directly. In terms of assessment, a DMA (or set of DMAs) would allow EVMWD to monitor current levels of leakage in a specific service area on a regular basis, using that knowledge to prioritize proactive leak detection and repair activities there.

In terms of leakage reduction, closely monitoring flows in a DMA will make it possible to quickly identify and address significant infrastructure failures. Figure 13 shows a theoretical example of what this might look like in practice. In this example, the rolling average of water loss is generally consistent week to week, but there are sudden spikes in the beginning of March and October, which might alert EVMWD to new system conditions driving loss, such as a new break.

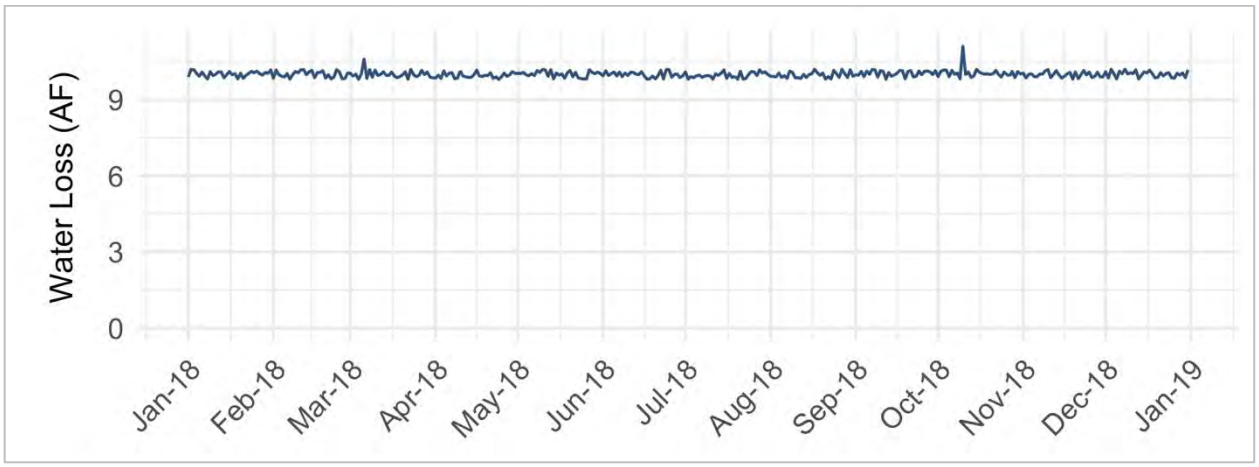


Figure 13: Theoretical example of high-frequency water balances for monitoring water loss in a DMA

TIMELINE

2021	2022	2023	2024	2025	2026	2027	2028

6.5 Look for opportunities to optimize pressure when operationally feasible

CURRENT OPERATIONS

EVMWD's service territory is divided into 41 pressure zones that are maintained with a mix of gravity and booster pumps. Average operating pressure is approximately 84 PSI, although this varies substantially throughout the distribution system due to varied terrain. To manage pressure, EVMWD maintains 44 pressure reduction valves (PRV) and keeps storage tanks low in winter months when demand is lower.

OPTIMIZATION PROJECT

Look for opportunities to optimize pressure when operationally feasible in order to reduce leakage. Even incremental optimizations of water pressure can provide measurable benefits for EVMWD. There are four fundamental strategies for pressure optimization:

Cost	*
Effort	**
Impact type	Reduction

1. **Transient Mitigation:** Transients are high frequency pressure waves traveling through the pipe network. They can be caused by valves shutting too quickly or even hydrant operation. These pressure events can directly cause leaks and breaks. Arguably the larger cost of transients is the increased wear and tear on infrastructure. See Section 6.3 for a specific project recommendation to identify transients.
2. **Pressure Increase:** Areas with low pressure can be identified and pressure can be increased. This is especially important to meet fire suppression requirements.
3. **Flow Modulated Pressure Management:** During periods of low demand, such as at night, the pressure can be strategically reduced or maintained to prevent unnecessary high night-time or low-demand pressures.
4. **Pressure Reduction:** Areas with excessively high pressure can be reduced by installing or adjusting Pressure Regulating Valves (PRVs).

POTENTIAL WATER LOSS IMPACT

This project is intended to directly reduce water loss by lowering leakage flow rates and the frequency of breaks (Table 30).

Table 30: Benefits of pressure optimization

Conservation Benefits		*Water Utility Benefits*			*Customer Benefits*	
Reduced Leakage Flow Rates		Reduced Frequency of Breaks				
Reduced Flow Rates of Leaks and Bursts	Reduced Consumption	Reduced Repair Costs, Mains & Services	Deferred Renewals and Extended Asset Life	Reduced Cost of Active Leakage Control	Fewer Customer Complaints	Fewer Problems on Customer Plumbing & Appliances

A simplified analysis to project the water loss savings of pressure reduction is to assume a 1:1 relationship between pressure and leakage. Table 31 uses this assumption to model leakage savings of EVMWD's total volume of real losses from the CY 2018 water audit given a 1-10 PSI reduction and a variable production cost of approximately $1,200/AF.

Table 31: Modeled savings from pressure reduction

Reduction in System Average Pressure (PSI)	System Average Pressure (PSI)	Volume Saved/Year (AF)	Value of Savings/Year
1	83	10	$12,000
2	82	20	$24,000
3	81	30	$36,000
4	80	40	$48,000
5	79	50	$60,000
6	78	60	$72,000
7	77	70	$84,000
8	76	80	$96,000
9	75	90	$108,000
10	74	100	$120,000

TIMELINE

2021	2022	2023	2024	2025	2026	2027	2028

EVMWD should continue to look for opportunities to optimize system pressure as a standard operational practice.

7 Conclusion

7.1 Project Life Cycle

The SOR Plan outlines 18 discrete optimization projects that EVMWD can implement to increase confidence in water loss assessment, reduce leakage, and prepare for upcoming state regulations. However, EVMWD should consider these projects as a single effort, or water loss control program, to achieve these goals. Projects may be implemented at different times or with varying degrees of effort, but the progress and effectiveness of each should be tracked using the same framework and documented in same place. Day-to-day, this may take the form of a regularly updated word document, spreadsheet, or collection of related materials. EVMWD should also consider using the Project Implementation Masterfile as the primary location to store project life cycle updates. Figure 14 illustrates one possible framework for standardizing the life cycle of individual projects.

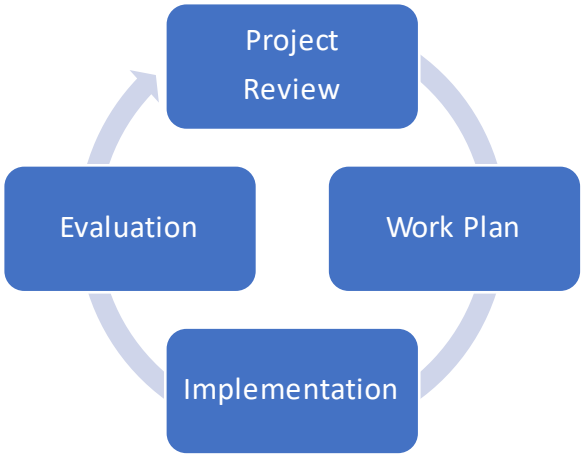


Figure 14: Possible life cycle framework for individual projects

PROJECT LIFE CYCLE

Project Review: Meet to discuss the current project status. Initially, this will involve familiarizing relevant staff to the project and general brainstorming. Following a complete life cycle, this will involve reviewing recommendations from the Evaluation phase.

Work Plan: Develop a detailed work plan that specifies departments and/or individuals and what actions they will take and determine key performance metrics to track. This may also include determining an appropriate budget.

Implementation: Execute the work plan and document key performance metrics.

Evaluation: Using key performance indicators and staff feedback, recommend continuation, adjustment, or termination of the project.

7.2 Periodic Updates

In addition to regularly tracking the life cycle of individual projects, EVMWD should also plan for periodic updates to the SOR Plan. Updates to the SOR Plan should include the most recent water audit results as well as a synthesis of recommendations developed during project life cycle analyses (see previous section). EVMWD should plan to update the SOR Plan every five years, which is a long enough time to see the effects of optimization projects and short enough to incorporate lessons learned from recent optimization projects.

7.3 Funding Opportunities

Due to the nature of optimization projects identified in the SOR Plan, external funding opportunities may be limited. Most likely, EVMWD will need to cover project costs with internal operational and

capital expense budgets. However, there may be opportunities to receive free or discounted services and equipment for the leakage reduction pilots by sharing data and results with some vendors. For example, satellite leak detection vendors may offer EVMWD a free prioritization map so they can further calibrate their novel analytical model.

Appendix A: All Program Options Considered

Table 32: All Program Options Considered

Category	Optimization Project	Cost	Effort	Notes
Water Audit Improvements	Create single repository for source and customer meter testing and calibration results	*	**	
Water Audit Improvements	Review AMI data handling process and procedure	*	*	
Water Audit Improvements	Standardize audit compilation with written documentation	*	**	
Water Audit Improvements	Improve cross-departmental communication related to water loss metrics and opportunities	*	**	
Source Meters	Reaffirm annual source meter accuracy testing policy	**	**	
Source Meters	Reaffirm annual source meter calibration policy	**	**	
Source Meters	Integrate source meters with AMI	****	****	
Source Meters	Conduct source meter inventory and assessment	*	**	
Source Meters	Install source meter at Temescal Valley Pipeline (TVP)	****	****	
Source Meters	Shift to revenue-based large customer meter accuracy testing	*	**	
Customer Meters	Conduct flow profiling on large customer meters	**	**	
Customer Meters	Shift to random and representative small customer meter accuracy testing	***	**	
Customer Meters	Identify failing customer meters on closed accounts	*	*	
Customer Meters	Enhance work order data to support water loss analysis (adjust current system or implement new one)	* / ****	** / ****	
Leakage	Pilot satellite leak detection	**	***	
Leakage	Pilot transient monitoring	**	**	
Leakage	Pilot district metered areas (DMA) using booster stations	***	***	
Leakage	Look for opportunities to optimize pressure when operationally feasible	*	**	
Leakage	*Pilot infrastructure assessment tools (e.g. consequence of failure)*	***	**	*Asset management plan already in place*
Leakage	*Pilot manual acoustic leak detection*	**	**	*Majority of system is plastic, making acoustic leak detection difficult*
Leakage	*Pilot acoustic noise loggers*	***	**	*Previous pilots not successful*
Leakage	*Improve response and repair time to breaks*	***	***	*Not cost effective*
Leakage	*Increased rate of infrastructure replacement*	****	****	*Not cost effective*

**Projects in red italics not included in final plan*

Appendix B: Source Meter Accuracy Testing Additional Guidance

General Steps for Completing a Volumetric Displacement Test

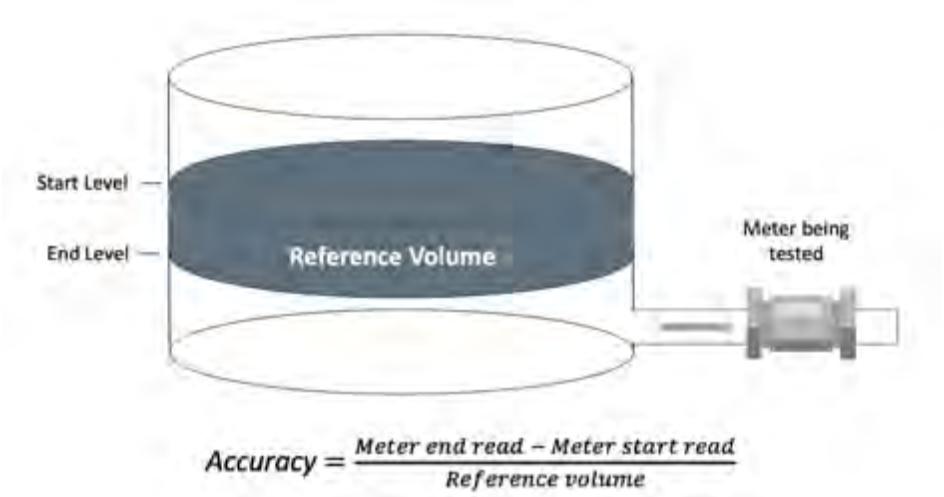


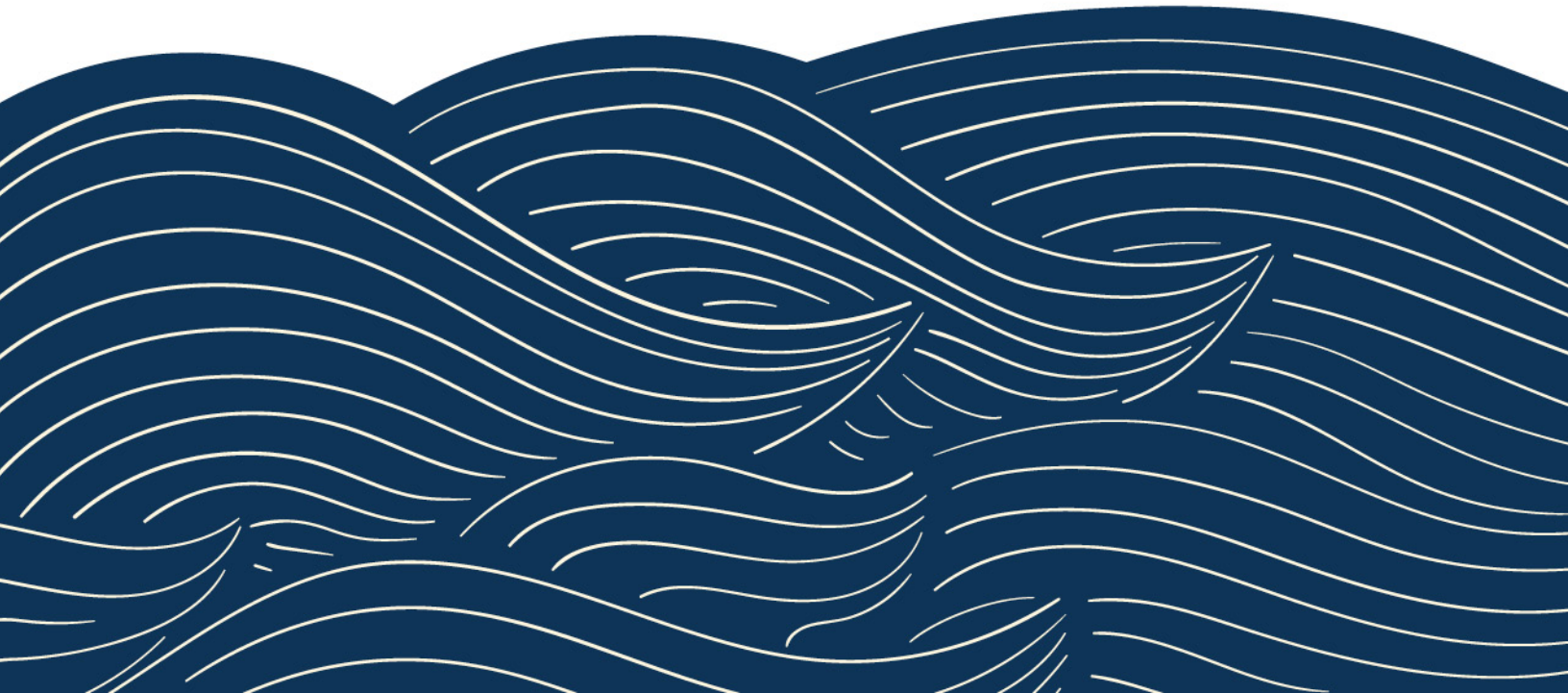
Figure 15: Diagram of volumetric displacement accuracy test ("drop test")

PROCEDURE CHECKLIST

- ☐ Ensure the system has enough water to meet demand for the duration of the test.
- ☐ Ensure the reservoir can accommodate the desired level change for the test.
- ☐ Isolate the reservoir and the test meter and monitor the tank level for 15 minutes. Collect level reading once every few minutes to ensure that the system is isolated. Any water that does not move through the meter will affect the results.
- ☐ Collect initial totalizer readings for the test meter and from SCADA when possible.
- ☐ Collect initial tank readings from SCADA and via physical apparatus (e.g. sounder) when possible.
- ☐ Start pumps at desired flow rate and let water run through meter for the pre-determined test time.
- ☐ Stop pumps and/or close valves to end flow of water.
- ☐ Collect final totalizer readings for the test meter and from SCADA when possible.
- ☐ Collect final tank readings from SCADA and via physical apparatus (e.g. sounder) when possible.
- ☐ Calculate accuracy of the meter by dividing the volume registered by the meter by the reference volume calculated for the reservoir.

O

Adoption Resolutions



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RESOLUTION NO. 21-06-01

RESOLUTION OF THE BOARD OF DIRECTORS
OF ELSINORE VALLEY MUNICIPAL WATER
DISTRICT ADOPTING THE URBAN WATER
MANAGEMENT PLAN (UWMP) 2020

WHEREAS, the California Legislature enacted Assembly Bill 797 during the 1983-94 Regular Session of the California Legislature (Water Code Section 10610 et. seq.) known as the Urban Water Management Planning Act, which mandates that every urban supplier of water providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, prepare an Urban Water Management Plan, the primary objective of which is to plan for the conservation and efficient use of water; and

WHEREAS, Elsinore Valley Municipal Water District is an urban supplier of water providing to over 46,500 connections, and has therefore, prepared and circulated for public review a Draft Urban Water Management Plan, in compliance with requirements of AB 797; and

WHEREAS, a properly noticed public hearing regarding said Draft Plan was held by the Board of Directors of Elsinore Valley Municipal Water District on June 10, 2021;

NOW, THEREFORE BE IT RESOLVED, by the Board of Directors of the Elsinore Valley Municipal Water District as follows:

1. The 2020 Urban Water Management Plan is hereby adopted;
2. The General Manager is hereby authorized and directed to submit the Plan to the California Department of Water before July 1, 2021, in accordance with AB 797;

APPROVED, ADOPTED AND SIGNED this 10th day of June, 2021.

Phil Williams, President of the
Board of Directors of the
Elsinore Valley Municipal Water District

ATTEST:

Terese Quintanar, Secretary to the
Board of Directors of the
Elsinore Valley Municipal Water District

STATE OF CALIFORNIA)
) ss:
COUNTY OF RIVERSIDE)

I, Terese Quintanar, Secretary of the Board of Directors of the Elsinore Valley Municipal Water District, do hereby certify that the foregoing Resolution No. 21-06-01, was duly adopted by said Board at its Regular Board Meeting held on June 10, 2021 and that it was so adopted by the following roll call vote:

AYES:	Burke, Morris, Ryan, Williams
NOES:	None
ABSENT:	McBride
ABSTAIN:	None

Terese Quintanar, Secretary of the
Board of Directors of the
Elsinore Valley Municipal Water District

RESOLUTION NO. 21-06-02

RESOLUTION OF THE BOARD OF DIRECTORS OF ELSINORE VALLEY MUNICIPAL WATER DISTRICT ADOPTING THE ADDENDUM TO THE 2015 URBAN WATER MANAGEMENT PLAN (UWMP)

WHEREAS, the California Legislature enacted Assembly Bill 797 during the 1983-94 Regular Session of the California Legislature (Water Code Section 10610 et. seq.) known as the Urban Water Management Planning Act, which mandates that every urban supplier of water providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, prepare an Urban Water Management Plan, the primary objective of which is to plan for the conservation and efficient use of water; and

WHEREAS, pursuant to the Sacramento-San Joaquin Delta Reform Act of 2009 (Wat. Code § 85000, et seq.), the Delta Plan, and Water Code section 85021, which declares that the State's policy is to "reduce reliance on the Delta in meeting California's future water needs through a statewide strategy of investing in improved regional supplies, conservation, and water use efficiency," urban water suppliers are encouraged by the California Department of Resources (DWR) and the Delta Stewardship Council (DSC) to consider adopting an Addendum to their 2015 Plans to demonstrate consistency with the Delta Plan Policy WR P1 to Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (Cal. Code Regs. tit. 23, § 5003);

WHEREAS, Elsinore Valley Municipal Water District is an urban supplier of water providing to over 46,500 connections, meets the definition of an urban water supplier for purposes of the act, and has therefore, prepared and circulated for public review a Draft Addendum to the 2015 Urban Water Management Plan, in compliance consistency with the Delta Plan policy to reduce reliance on the Delta through improved regional water self-reliance; and

WHEREAS, a properly noticed public hearing regarding said Draft Addendum was held by the Board of Directors of Elsinore Valley Municipal Water District on June 10, 2021;

NOW, THEREFORE BE IT RESOLVED, by the Board of Directors of the Elsinore Valley Municipal Water District as follows:

1. The Addendum to the 2015 Urban Water Management Plan is hereby adopted;
2. The General Manager is hereby authorized and directed to submit the Addendum to the California Department of Water before July 1, 2021, in accordance with AB 797;

APPROVED, ADOPTED AND SIGNED this 10th day of June, 2021.

Phil Williams, President of the
Board of Directors of the
Elsinore Valley Municipal Water District

ATTEST:

Terese Quintanar, Secretary to the
Board of Directors of the
Elsinore Valley Municipal Water District

STATE OF CALIFORNIA)
) ss:
COUNTY OF RIVERSIDE)

I, Terese Quintanar, Secretary of the Board of Directors of the Elsinore Valley Municipal Water District, do hereby certify that the foregoing Resolution No. 21-06-02, was duly adopted by said Board at its Regular Board Meeting held on June 10, 2021 and that it was so adopted by the following roll call vote:

AYES:	Burke, Morris, Ryan, Williams
NOES:	None
ABSENT:	McBride
ABSTAIN:	None

Terese Quintanar, Secretary of the
Board of Directors of the
Elsinore Valley Municipal Water District

RESOLUTION NO. 21-06-03

RESOLUTION OF THE BOARD OF DIRECTORS
OF ELSINORE VALLEY MUNICIPAL WATER
DISTRICT ADOPTING WATER SHORTAGE
CONTIGENCY PLAN (WSCP)

WHEREAS, the California Legislature enacted Assembly Bill 797 during the 1983-94 Regular Session of the California Legislature (Water Code Section 10610 et. seq.) known as the Urban Water Management Planning Act, which mandates that every urban supplier of water providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, prepare and adopt, in accordance with prescribed requirements, a water shortage contingency plan (WSCP); and

WHEREAS, the Act specifies the requirements and procedures for adopting such Water Shortage Contingency Plans; and

WHEREAS, Elsinore Valley Municipal Water District is an urban supplier of water providing to over 46,500 connections, meets the definition of an urban water supplier for purposes of the act, and has therefore, prepared and circulated for public review a Draft Water Shortage Contingency Plan to manage and mitigate an actual water shortage condition, should one occur because of drought or other impacts on water supplies; and

WHEREAS, a properly noticed public hearing regarding said Draft WSCP was held by the Board of Directors of Elsinore Valley Municipal Water District on June 10, 2021;

NOW, THEREFORE BE IT RESOLVED, by the Board of Directors of the Elsinore Valley Municipal Water District as follows:

1. The Water Shortage Contingency Plan is hereby adopted;
2. The General Manager is hereby authorized and directed to submit the Plan to the California Department of Water before July 1, 2021, in accordance with AB 797;

APPROVED, ADOPTED AND SIGNED this 10th day of June, 2021.

Phil Williams, President of the
Board of Directors of the
Elsinore Valley Municipal Water District

ATTEST:

Terese Quintanar, Secretary to the
Board of Directors of the
Elsinore Valley Municipal Water District

STATE OF CALIFORNIA)
) ss:
COUNTY OF RIVERSIDE)

I, Terese Quintanar, Secretary of the Board of Directors of the Elsinore Valley Municipal Water District, do hereby certify that the foregoing Resolution No. 21-06-03, was duly adopted by said Board at its Regular Board Meeting held on June 10, 2021 and that it was so adopted by the following roll call vote:

AYES:	Burke, Morris, Ryan, Williams
NOES:	None
ABSENT:	McBride
ABSTAIN:	None

Terese Quintanar, Secretary of the
Board of Directors of the
Elsinore Valley Municipal Water District